Cost Attribution Review
Next Generation Access Services

Final Report

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Executive Summary

British Telecom plc (BT) is subject to regulatory financial reporting obligations. These have been imposed by Ofcom where BT has been found to have Significant Market Power (SMP) in a relevant market. Included within these obligations is the requirement for BT to produce and publish annual Regulatory Financial Statements (RFS) and to maintain and publish certain accounting documents setting out how BT prepares those statements.

In 2015, Ofcom reviewed the cost attribution methodologies that BT used in preparing the 2013/14 RFS. At that time, BT was not required report on the costs of Generic Ethernet Access (GEA) services. Ofcom subsequently imposed a cost accounting and accounting separation obligations on BT for GEA services. The 2014/15 RFS is the first to set out how BT attributes costs to GEA services.

To better understand the nature of the costs attributed to GEA services and the methodologies used in these attributions, Ofcom engaged Cartesian to review the GEA service costs in the 2015/16 RFS.

As agreed with Ofcom, the study assessed costs attributed from Plant Groups (PGs) to Network Components (NCs) and from NCs to Services. Cost attribution from the general ledger to Activity Groups and through to PGs was beyond the scope of the study.

Within the scope, Cartesian was requested to review:

- The way in which GEA services and components were established within BT's Regulatory Financial Reporting System;
- The structure of BT's cost attributions to GEA services;
- The attribution of costs within the WLA market (including the attribution ratio between GEA and non-GEA services).

Cartesian was not expected to audit the data, accounting practices, or spreadsheets that BT uses to prepare the RFS.

Cartesian's assessment of the methodologies identified some weaknesses in certain cost attribution methodologies which BT could improve on. Cartesian also found areas in which the documentation could be improved, specifically with regard to some of the definitions used in the Accounting Methodology Document (AMD).

With regard to the cost attribution methodologies, the most significant findings are as follows:

- The attribution of fibre costs to FTTC and FTTP services fails to properly account for the rate at which NGA services consume fibre;
- BDUK funding and the costs of deployment in BDUK areas have no attribution to FTTP services, although a small number of FTTP services do exist in these areas;
- BDUK funding and BDUK rollout cost attribution at Plant Group level does not provide full clarity on how the BDUK fund is spent;
- A number of NGA Network Components include both provisioning and maintenance costs which may reduce transparency and limit the flexibility for onward attribution to services; and,
- Capital costs incurred during NGA provisioning (including labour and modems) are attributed to rental services.

The detail regarding the attribution methodologies was obtained either via the AMD, RFS, ASIG Papers or directly from BT through discussion and a process of written question and answer.

The results from the analysis contained in this report are reliant of the information available at the time of writing this report and should not be relied upon in subsequent periods.

1. Introduction

1.1 Context

British Telecom plc (BT) is subject to regulatory financial obligations. These have been imposed by Ofcom where BT has been found to have Significant Market Power (SMP) in a relevant market. As part of these obligations, Ofcom requires BT to produce and publish annual Regulatory Financial Statements (RFS) and to maintain and publish certain accounting documents setting out how BR prepares those statements.

In 2015, Ofcom published a Cost Attribution Review looking at cost attribution methodologies applied by BT to attribute its Costs, Revenues, Assets and Liabilities to services in regulated markets. At that time, BT was not required report on the costs of Generic Ethernet Access (GEA) services. Ofcom subsequently imposed a cost accounting obligation on BT for GEA services. The 2014/15 RFS is the first to set out how BT attributes costs to GEA services.

To better understand the nature of the costs attributed to GEA services and the methodologies used in these attributions, Ofcom engaged Cartesian to review the GEA service costs in the 2015/16 RFS.

This report focuses on assessing the rationale for cost activities (PGs and NCs) created to attribute costs to GEA services and their cost attribution methodology for GEA services and other Wholesale Local Access (WLA) services.

1.2 Scope

This report documents the findings of our review of the activities attributing costs to GEA services and their attribution methodologies. Within the scope of the study, we were requested to review:

- The way in which GEA services and components were established within BT's Regulatory Financial Reporting System;
- The structure of BT's cost attributions to GEA services;
- The attribution of costs within the WLA market (including the attribution ratio between GEA and non-GEA services).

The review was defined by the following set of GEA services:

- SL951 - GEA FTTC Connections Costs - Internal
- SL953 - GEA FTTP Connections Costs - Internal
- SL955 - GEA CP to CP Migration Costs - Internal
- SL956 - GEA CP to CP Migration - External
- SL961 - GEA FTTC Connections - External
- SL950 - GEA FTTC Rentals Costs - Internal
- SL952 - GEA FTTP Rentals Costs - Internal
- SL960 - GEA FTTC Rentals - External
- SL962 - GEA FTTP Rentals - External
- SL963 - GEA FTTP Connections - External
- SL574 - GEA Other Costs - Internal

- SL964 - GEA Other – External

A diagram illustrating the access network architecture of the FTTC and FTTP GEA services is shown in Appendix B.

The scope of this review was limited by the cost attribution from the PGs to NCs and from NCs to Services. The cost attribution from the general ledger to PGs via intermediated cost categories was not included in the scope. In addition, the attribution of certain cost categories reviewed in Ofcom's 2015 report (Duct, Fibre, Electricity and Software) were also excluded from the scope of this report.

Cartesian was not required to audit the data, accounting practices, or spreadsheets which BT uses to prepare the RFS. In addition, we did not review the cost attribution model to identify mathematical errors. The review focused on the rationale and logic of the activity groups created and the cost attribution methodologies applied.

Results from the analysis contained in this report are reliant of the information available at the time of writing this report and should not be relied upon for subsequent periods.

1.3 Report Structure

This report is structured in four sections.

Section 1 provides an introduction to this report covering context, scope and approach.

Section 2 provides details about the cost type composition allocated to Next Generation Access (NGA) services.

Section 3 provides an overview of the description of PGs, components and services, and a review of the way in which costs are attributed between them.

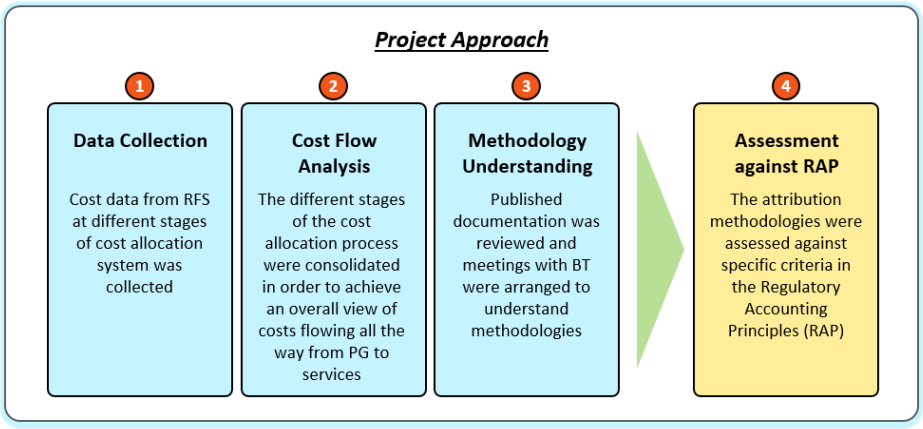
Section 4 provides a detailed assessment of PGs, components and services in terms of their cost activities and attribution methodology, based on the Regulatory Accounting Principles (RAP) criteria of transparency, objectivity, causality and neutrality of bias

Appendices includes the Glossary of terms

1.4 Approach

We used a four-stage process to assess the cost attributions. These stages are summarised in the Figure 1 below.

Figure 1. Project Approach



Source: Cartesian

In order to analyse the attribution methodologies used by BT, we initially gathered cost data from the RFS which provided details on how costs flow between PGs and components, and from components into markets and services. The data used was then consolidated in a manner that displayed the exact costs flowing from PGs all the way through to services.

Following this analysis, the methodologies used to attribute these costs were researched through reviewing BT documentation, including several ASIG papers, BT's Accounting Methodology Document, and the Ofcom Cost Attribution Review Report (2015). This was combined with several meetings with BT in order to clarify and expand our knowledge on certain areas. The detailed understanding of these methodologies enabled us to identify some issues and concerns with various methodologies.

We assessed BT's cost attribution methodologies against the criteria of objectivity, causality and neutrality of bias in the RAP. Cases judged to be non-compliant with the criteria are documented in this report.

1.5 Limitation of the Analysis

We have succeeded in completing a thorough, high-quality analysis in this study. However, some limitations have constrained the extent of such analysis, as detailed below.

Quality of Information from Meetings with BT	A total of four meeting with BT were used to discuss methodologies, ask questions, clarify concerns and understand the data. BT personnel were helpful and responsive throughout the project. Although we are unable to independently validate this information, we have sought to confirm important details with BT in writing.
Quality of Published Data	We have based our understanding and analysis of BT's cost attribution methodologies on published documentation and data from RFS. We have attempted to verify the accuracy of the information with BT, however the analysis is limited to the quality of the data.
Data Sources	Our analysis is based on data extracted from BT's RFS and the TED system used by Ofcom. Due to data filters on TED, the segmentation of costs by "Cost Type" and "Finance Type" excludes transactions below £5 which gives rise to rounding errors in some tables. The rounding errors do not impact the overall results.
Time	The time available for the analysis was limited to the five-week timeframe of the project.
General Ledger to PGs	We did not assess the attributions from the general ledger through to PGs.
Return on Mean Capital Employed (MCE) %	In the RFS, BT uses component-specific Weighted Average Cost of Capital (WACC) values to determine the return on MCE. For simplification purposes, our analysis uses an indicative WACC of 10% to calculate the value of the Fully Allocated Cost (FAC) throughout.

2. Next Generation Access Services Cost Attribution

2.1 Summary

There are a total of 22 PGs which attribute costs to GEA services (see Figure 2). Most of these PGs and their associated NCs were created specifically to account for GEA services and most PGs attribute the entirety of their costs into a single NC.

In this section, we look at the composition of these PGs, their definitions and cost drivers. Later, we describe the NCs and how they attribute costs into GEA services, including the cost attribution methodology, attribution and usage driver. Finally, we look at the composition of cost of each GEA service and which NCs attribute costs to each service.

Figure 2. NGA Related Plant Groups

Plant Group	Description
PG140A - Routing and Records	This PG captures the costs and balance sheet (Depreciation, Engineering and Technical Grade (ETG) and Non-ETG Pay and Non Pay) of Routing and Records work for provision of analogue / ISDN lines, Local Loop Unbundling (LLU) and Fibre based circuits
PG192A - FTTC Copper Tie Cables	This PG captures the balance sheet values and depreciation associated with Next Generation Access Exchange Side cables, which refers to copper tie cables that are used to connect fibre and copper street cabinets in FTTC deployments
PG197A - FTTC Service Delivery Development	This PG captures the costs associated with the Openreach (OR) Next Generation Access (NGA) Fibre to the Cabinet (FTTC) products currently under development. These costs are apportioned from BT TSO to OR costs
PG198A - FTTP Development	This PG captures the costs associated with the Openreach (OR) Next Generation Access (NGA) Fibre to the Premises (FTTP) product currently under development. These costs are apportioned from BT TSO to OR costs
PG502B - SG A Openreach Sales Product Management	This PG captures the Profit and Loss (Current non-ETG Pay) and Balance Sheet costs associated with the Sales and Product Management division of Openreach
PG574B - OR Service Centre Provision NGA	This PG captures the cost and balance sheet costs associated with the Service Centre for the Provision of NGA
PG579B - OR Service Centre Assurance NGA	This PG captures the cost and balance sheet costs associated with the Service Centre for NGA Assurance
PG800A - Ofcom Administration Fee	This PG captures costs related to fees paid to Ofcom
PG941A - Cumulo Rates NGA	This Plant Group (PG) includes the Cumulo charge payable for the NGA assets
PG950C - GEA Access Fibre Spine	This PG captures the costs of the NGA fibre cable between the local exchange and the distribution node. It captures the costs associated with the provision, installation and recovery of NGA fibre cable

Plant Group	Description
PG950M - GEA Access Fibre Spine Maintenance	This PG captures the maintenance costs associated with the provision, installation and recovery of access spine fibre cable segment in the access network
PG951C - GEA Distribution Fibre	This PG relates to the NGA fibre cable between the distribution node and the customer premises. It captures the costs associated with the provision, installation and recovery of NGA fibre cable
PG951M - GEA Distribution Fibre Maintenance	This PG captures the maintenance costs associated with the provision, installation and recovery of fibre cable in the distribution segment of the access network
PG952C - GEA Electronics	This PG captures the NGA costs associated with the provision, rearrangement, recovery, replacement and renewal of NGA Local Access Network equipment at the exchange end of Local Access Optical Fibre Cables
PG953C - GEA DSLAM Cabinets	This PG includes the NGA costs associated with DSLAM cabinets, including cabinet shells, electricity meters and ducts which connect copper and fibre cabinets
PG954C - GEA Customer Site Installations	This PG captures the capitalized costs associated with the provision, installation and recovery of any work related to the network segment between the overhead DP to the Network Termination Unit (NTU)
PG955M - GEA FTTC Maintenance	This PG includes the NGA FTTC costs associated with the repair/ maintenance of the head end electronics, and DSLAM cabinets and specific NGA customer equipment
PG956M - GEA FTTP Maintenance	This PG includes the NGA FTTP costs associated with the repair / maintenance of the head end electronics and specific NGA customer equipment
PG957P - GEA FTTP Provision	This PG includes the NGA FTTP costs associated with the expensed provision activities related to the head end electronics and specific NGA customer equipment
PG958P - GEA FTTC Provision	This PG includes the NGA FTTC costs associated with the expensed provision activities related to the head end electronics, and DSLAM cabinets and specific NGA customer equipment
PG998A - Fibre Rollout Funding	This PG captures the funding of the BDUK Development Programme
PG999A - Funded Fibre Rollout Spend	This PG captures the expenditure on fibre rollout across BDUK areas

Source: BT AMD 2015/16, Cartesian

2.2 PG Costs by Finance Type

2.2.1. Introduction

In this section, we analyse the composition of the GEA PGs by Finance Type.

As described in the scope section of this report, this assessment does not cover the cost attribution from the general ledger to the PG. Therefore, the aim of this section is to better understand the financial composition of each PG rather than assess their attribution methodology.

2.2.2. Routing and Records (PG140A)

The most significant cost components in PG140A are "Pay" and "Transfer Charges In", which make up 79% and 48% of the costs respectively. There is also a significant amount of negative costs, with the most notable being "Transfer Charges Out", as shown in Figure 3.

Figure 3. PG140A – Routing and Records Costs by Finance Type1 2

Plant Group	Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG140A - Routing and Records	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	79.04%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	48.35%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	12.88%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	2.99%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	1.83%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.12%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	0.91%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.81%
	TOT_RQ	Asset in Course Of Construction (AICC) Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	0.28%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	£0	-0.05%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.29%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-1.00%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-2.02%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-44.85%

Source: BT RFS 2015/16, Cartesian

[1] Some costs are zero due to rounding
[2] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.3. FTTC Copper Tie Cables (PG192A)

The most significant cost types in PG192A are "Registered GBV BS", "Other" and "Depreciation Charge Balance Sheet", which make up 64%, 34% and 20% of the costs respectively. There is a total of -53% in negative costs. The largest negative cost is "Accumulated Depreciation BS", as shown in Figure 4.

Figure 4. PG192A – FTTC Copper Tie Cables Finance Type Costs[3] [4]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG192A – FTTC Copper Tie Cables	TOT_RO	Registered GBV BS	£0	✂[£350 to £400]	✂[£10 to £50]	64.06%
	TOT_RH	Other	✂[£10 to £50]	✂[£10 to £50]	✂[£10 to £50]	34.32%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£10 to £50]	£0	✂[£10 to £50]	19.71%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	10.07%
	TOT_RS	CCA Gross THG BS	£0	✂[£10 to £50]	✂[£0 to £10]	5.56%
	TOT_RW	CCA Uplift GBV to GRC BS	£0	✂[£10 to £50]	✂[£0 to £10]	5.48%
	TOT_RB	Pay	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	5.44%
	TOT_RE	CCA Depreciation Other ADJs P&L	✂[£0 to £10]	£0	✂[£0 to £10]	4.25%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£10 to £50]	✂[£0 to £10]	2.49%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	0.92%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.41%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.13%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.07%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.12%
	TOT_RN	CCA Gross Other ADJs P&L	✂[-£10 to £0]	£0	✂[-£10 to £0]	-0.13%
	TOT_RY	CCA Gross Price Var P&L	✂[-£10 to £0]	£0	✂[-£10 to £0]	-2.32%
	TOT_RT	CCA Uplift HCAD to CCAD BS	£0	✂[-£50 to -£10]	✂[-£10 to £0]	-4.24%
	TOT_RR	AICC Registrations	£0	✂[-£50 to -£10]	✂[-£10 to £0]	-6.64%

[3] Some costs are zero due to rounding
[4] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-9.35%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£200 to -£150]	✂[-£50 to -£10]	-30.11%

Source: BT RFS 2015/16, Cartesian

2.2.4. *FTTC Service Delivery & Development (PG197A)*

The largest cost components of PG197A are "Gross Book Value (GBV)" and "Amortization". "Transfer Charges In" costs represent the largest share of FAC, followed by, "Transfer Charge Out" costs which represent a significant negative share of total FAC as shown in Figure 5.

Figure 5. PG197A – FTTC Service Delivery & Development Finance Type Costs [5] [6]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG197A – FTTC Service Delivery & Development	TOT_RL	Transfer Charges In	✂[£50 to £100]	£0	✂[£50 to £100]	268.45%
	TOT_RI	Amortisation charge (intangible assets)	✂[£10 to £50]	£0	✂[£10 to £50]	64.29%
	TOT_RO	Registered GBV BS	£0	✂[£100 to £150]	✂[£10 to £50]	63.50%
	TOT_RB	Pay	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	19.68%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	1.89%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.61%
	TOT_RD	Stores	✂[-£10 to £0]	✂[£0 to £10]	✂[£0 to £10]	1.59%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	0.43%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.23%
	TOT_RC	Creditors	£0	✂[£0 to £10]	✂[£0 to £10]	0.05%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-2.52%
	TOT_RH	Other	✂[-£10 to £0]	✂[£0 to £10]	✂[-£10 to £0]	-6.63%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£100 to -£50]	✂[-£10 to £0]	-45.10%
	TOT_RM	Transfer Charges Out	✂[-£100 to -£50]	£0	✂[-£100 to -£50]	-267.48%

[5] Some costs are zero due to rounding
[6] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

Source: BT RFS 2015/16, Cartesian

2.2.5. *FTTP Development (PG198A)*

The largest single cost type in PG198A is 'Transfer Charges In', which makes up 265% of the costs, as shown in Figure 6. Due to the presence of negative costs, this individual category is greater in value than the total. In particular, 'Transfer Charges Out' accounts for -263% of total costs.

Figure 6. PG198A – FTTP Development Finance Type Costs[7] [8]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG198A – FTTP Development	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	265.26%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	62.14%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	61.94%
	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	25.04%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	£0	1.80%
	TOT_RF	Depreciation Charge Balance Sheet	£0	£0	£0	0.85%
	TOT_RU	Unclassified	£0	✂[£0 to £10]	£0	0.52%
	TOT_RG	T & S	£0	£0	£0	0.28%
	TOT_RC	Creditors	£0	£0	£0	0.04%
	TOT_RD	Stores	£0	£0	£0	0.02%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-2.32%
	TOT_RH	Other	✂[-£10 to £0]	✂[£0 to £10]	✂[-£10 to £0]	-8.40%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-44.06%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-263.12%

Source: BT RFS 2015/16, Cartesian

[7] Some costs are zero due to rounding
[8] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.6. SG&A Openreach Sales Product Management (PG502B)

The majority of the costs in PG502B are "Pay" costs, which make up 57% of the costs. "Other" and "Transfer Charges In" are also significant costs, with 40% and 18% respectively. There is a total of -20% in negative costs, categorized as 'Transfer Charges Out', Unclassified', 'Accumulated Depreciation BS', 'Creditors' and 'AICC Registrations', as shown in Figure 7.

Figure 7. PG502B – SG&A Openreach Sales Product Management Finance Type Costs[9] [10]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG502B – SG&A Openreach Sales Product Management	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	56.72%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	39.69%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	18.31%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	2.03%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.97%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	0.96%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	0.91%
	TOT_RD	Stores	✂[£0 to £10]	£0	✂[£0 to £10]	0.15%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	0.13%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.11%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.16%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-1.46%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-2.98%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-15.16%

Source: BT RFS 2015/16, Cartesian

[9] Some costs are zero due to rounding
[10] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.7. OR Service Centre Provision NGA (PG574B)

The vast majority of the costs in PG574B are "Transfer Charges In" and "Pay", which make up 173% and 85% of costs respectively, as shown in Figure 8. Due to the presence of negative costs, the sum of these two individual items is greater in value than the total. In particular, 'Transfer Charges Out' accounts for -167% of total costs.

Figure 8. PG574B – OR Service Centre Provision NGA Finance Type Costs[11] [12]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG574B – OR Service Centre Provision NGA	TOT_RL	Transfer Charges In	✂[£10 to £50]	£0	✂[£10 to £50]	172.90%
	TOT_RB	Pay	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	84.84%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	5.05%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	4.50%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	2.68%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	1.61%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	1.39%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	1.00%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.33%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.03%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-1.09%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-2.03%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-3.78%
	TOT_RM	Transfer Charges Out	✂[-£50 to -£10]	£0	✂[-£50 to -£10]	-167.36%

Source: BT RFS 2015/16, Cartesian

[11] Some costs are zero due to rounding
[12] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.8. OR Service Centre Assurance NGA (PG579B)

The vast majority of the costs in PG579B are "Transfer Charges In" and "Pay", which make up 114% and 69% of costs respectively, as shown in Figure 9. Due to the presence of negative costs, the sum of these two individual items is greater in value than the total. In particular, "Transfer Charges Out" accounts for -110% of total costs.

Figure 9. PG579B – OR Service Centre Assurance NGA Finance Type Costs[13] [14]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG579B – OR Service Centre Assurance NGA	TOT_RL	Transfer Charges In	✂[£10 to £50]	£0	✂[£10 to £50]	114.22%
	TOT_RB	Pay	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	68.75%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	25.43%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	2.99%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	1.41%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	1.32%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	1.26%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	0.63%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.53%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.10%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.68%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-2.24%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-3.45%
	TOT_RM	Transfer Charges Out	✂[-£50 to -£10]	£0	✂[-£50 to -£10]	-110.07%

Source: BT RFS 2015/16, Cartesian

[13] Some costs are zero due to rounding

[14] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.9. Ofcom Administration Fee (PG800A)

The largest single cost in PG800A is "Other", which makes up 102% of the costs. Due to the presence of negative costs, this individual item is greater in value than the total. There are few negative costs, totalling -4% such as "Unclassified", "Creditors", "Accumulated Depreciation BS", "AICC Registrations", "Transfer Charges Out", "Depreciation Charge Balance Sheet", as shown in Figure 10.

Figure 10. PG800A – Ofcom Administration Fee Finance Type Costs[15] [16]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG800A – Ofcom administration fee	TOT_RH	Other	✂[£0 to £10]	£0	✂[£0 to £10]	102.02%
	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	1.31%
	TOT_RL	Transfer Charges In	£0	£0	£0	0.32%
	TOT_RI	Amortisation charge (intangible assets)	£0	£0	£0	0.14%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	£0	0.08%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	£0	0.08%
	TOT_RG	T & S	£0	£0	£0	0.02%
	TOT_RD	Stores	£0	£0	£0	0.00%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RF	Depreciation Charge Balance Sheet	£0	£0	£0	-0.01%
	TOT_RM	Transfer Charges Out	£0	£0	£0	-0.03%
	TOT_RR	AICC Registrations	£0	£0	£0	-0.03%
	TOT_RP	Accumulated Depreciation BS	£0	£0	£0	-0.04%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	£0	-0.37%
	TOT_RU	Unclassified	£0	✂[-£10 to £0]	✂[-£10 to £0]	-3.49%

Source: BT RFS 2015/16, Cartesian

[15] Some costs are zero due to rounding

[16] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.10. Cumulo Rates NGA (PG941A)

The largest single cost in PG941A is "Other", which makes up 97% of the costs. There are few negative costs, totalling -0.29% such as "Accumulated Depreciation BS", "AICC Registrations", and "Transfer Charges Out", as shown in Figure 11.

Figure 11. PG941A – Cumulo Rates NGA Finance Type Costs[17] [18]

Plant Group	Finance Type	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG941A – Cumulo Rates NGA	TOT_RH	Other	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	97.45%
	TOT_RB	Pay	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.41%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.45%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	0.37%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	0.27%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	0.17%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	0.11%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	0.04%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.03%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	£0	0.00%
	TOT_RD	Stores	£0	£0	£0	0.00%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-0.03%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.05%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.21%

Source: BT RFS 2015/16, Cartesian

[17] Some costs are zero due to rounding

[18] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.11. GEA Access Fibre Spine (PG950C)

The largest single cost in PG950C is "Registered GBV BS" category, which makes up 81% of the costs. There are significant negative costs, totalling -64%, such as "Accumulated Depreciation BS", "Transfer Charges Out" and "AICC Registrations", as shown in Figure 12.

Figure 12. PG950C – GEA Access Fibre Spine Finance Type Costs[19] [20]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG950C – GEA Access Fibre Spine	TOT_RO	Registered GBV BS	£0	✂[£50 to £100]	✂[£0 to £10]	80.81%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	26.55%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	15.06%
	TOT_RN	CCA Gross Other ADJs P&L	✂[£0 to £10]	£0	✂[£0 to £10]	14.22%
	TOT_RB	Pay	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	6.99%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	5.28%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	4.48%
	TOT_RT	CCA Uplift HCAD to CCAD BS	£0	✂[£0 to £10]	✂[£0 to £10]	3.23%
	TOT_RW	CCA Uplift GBV to GRC BS	£0	✂[£0 to £10]	✂[£0 to £10]	2.73%
	TOT_RS	CCA Gross THG BS	£0	✂[£0 to £10]	✂[£0 to £10]	1.46%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	1.12%
	TOT_RE	CCA Depreciation Other ADJs P&L	✂[£0 to £10]	£0	✂[£0 to £10]	1.01%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.60%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.15%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	£0	-0.01%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-0.18%
	TOT_RY	CCA Gross Price Var P&L	✂[-£10 to £0]	£0	✂[-£10 to £0]	-2.23%
	TOT_RR	AICC Registrations	£0	✂[-£50 to -£10]	✂[-£10 to £0]	-9.76%

[19] Some costs are zero due to rounding
[20] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-14.19%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£50 to -£10]	✂[-£10 to £0]	-37.33%

Source: BT RFS 2015/16, Cartesian

2.2.12. GEA Access Fibre Spine Maintenance (PG950M)

The largest costs in PG950M are "Pay", "Transfer Charges In" and "Other", which make up 79%, 29% and 14% of the costs respectively. There are some negative costs, mainly driven by "Transfer Charges Out", which account for -26%, as shown in Figure 13.

Figure 13. PG950M – GEA Access Fibre Spine Maintenance Finance Type Costs[21] [22]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG950M – GEA Access Fibre Spine Maintenance	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	78.65%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	29.31%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	13.77%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	3.51%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	1.56%
	TOT_RD	Stores	£0	£0	£0	1.04%
	TOT_RI	Amortisation charge (intangible assets)	£0	£0	£0	0.89%
	TOT_RG	T & S	£0	£0	£0	0.59%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	£0	0.18%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	£0	£0	-0.06%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	£0	-0.32%
	TOT_RU	Unclassified	£0	✂[-£10 to £0]	✂[-£10 to £0]	-1.51%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-2.33%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-25.29%

Source: BT RFS 2015/16, Cartesian

[21] Some costs are zero due to rounding
[22] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.13. GEA Distribution Fibre (PG951C)

The largest costs in PG951C are "Registered GBV BS" and "Transfer Charges In", which make up 90% and 37% of the costs respectively. Due to the presence of negative costs, the sum of these two individual items is greater in value than the total. These negative costs total -119%, mainly "Accumulated Depreciation BS" and "Transfer Charges Out", as can be seen on Figure 14.

Figure 14. PG951C – GEA Distribution Fibre Finance Type Costs[23] [24]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG951C – GEA Distribution Fibre	TOT_RO	Registered GBV BS	£0	✂[£500 to £1000]	✂[£50 to £100]	89.67%
	TOT_RL	Transfer Charges In	✂[£10 to £50]	£0	✂[£10 to £50]	36.65%
	TOT_RB	Pay	✂[£10 to £50]	✂[£10 to £50]	✂[£10 to £50]	27.04%
	TOT_RN	CCA Gross Other ADJs P&L	✂[£10 to £50]	£0	✂[£10 to £50]	24.60%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£10 to £50]	£0	✂[£10 to £50]	15.62%
	TOT_RH	Other	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	13.38%
	TOT_RT	CCA Uplift HCAD to CCAD BS	£0	✂[£10 to £50]	✂[£0 to £10]	6.10%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£10 to £50]	✂[£0 to £10]	2.70%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.34%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	1.08%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.65%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.04%
	TOT_RY	CCA Gross Price Var P&L	✂[-£10 to £0]	£0	✂[-£10 to £0]	-0.51%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-1.05%
	TOT_RR	AICC Registrations	£0	✂[-£100 to -£50]	✂[-£10 to £0]	-9.37%
	TOT_RW	CCA Uplift GBV to GRC BS	£0	✂[-£100 to -£50]	✂[-£10 to £0]	-11.44%
	TOT_RE	CCA Depreciation Other ADJs P&L	✂[-£10 to £0]	£0	✂[-£10 to £0]	-12.27%

[23] Some costs are zero due to rounding
[24] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
	TOT_RS	CCA Gross THG BS	£0	✂[-£100 to -£50]	✂[-£10 to £0]	-14.05%
	TOT_RM	Transfer Charges Out	✂[-£50 to -£10]	£0	✂[-£50 to -£10]	-33.11%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£250 to -£200]	✂[-£50 to -£10]	-37.00%

Source: BT RFS 2015/16, Cartesian

2.2.14. GEA Distribution Fibre Maintenance (PG951M)

The largest costs in PG961M are "Pay" and "Transfer Charges In", which make up 79% and 29% of the costs respectively, as shown in Figure 15. Due to the presence of negative costs, the sum of these two individual items is greater in value than the total. In particular, "Transfer Charges Out" accounts for -25% of total costs.

Figure 15. PG951M – GEA Distribution Fibre Maintenance Finance Type Costs[25] [26]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG951M – GEA Distribution Fibre Maintenance	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	78.58%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	29.30%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	13.81%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	3.50%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	1.56%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.04%
	TOT_RI	Amortisation charge (intangible assets)	£0	£0	£0	0.89%
	TOT_RG	T & S	£0	£0	£0	0.60%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	£0	0.18%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	£0	£0	-0.06%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	£0	-0.32%
	TOT_RU	Unclassified	£0	✂[-£10 to £0]	✂[-£10 to £0]	-1.51%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-2.33%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-25.26%

Source: BT RFS 2015/16, Cartesian

[25] Some costs are zero due to rounding
[26] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.15. GEA Electronics (PG952C)

The largest costs in PG952C are "Registered GBV BS", "Stores", "Other" and "Depreciation Charge Balance Sheet", which make up 36%, 32%, 22% and 21% of the costs respectively, as shown in Figure 16. Due to the presence of negative costs, the sum of these individual items is greater in value than the total. In particular, "Accumulated Depreciation BS" accounts for -17% of total costs.

Figure 16. PG952C – GEA Electronics Finance Type Costs[27] [28]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG952C – GEA Electronics	TOT_RO	Registered GBV BS	£0	✂[£50 to £100]	✂[£0 to £10]	35.47%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	31.56%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	22.18%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	21.05%
	TOT_RB	Pay	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	8.42%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	6.16%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	2.98%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	1.05%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.15%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.18%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-1.89%
	TOT_RR	AICC Registrations	£0	✂[-£50 to -£10]	✂[-£10 to £0]	-4.47%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-5.41%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£50 to -£10]	✂[-£10 to £0]	-17.06%

Source: BT RFS 2015/16, Cartesian

[27] Some costs are zero due to rounding
[28] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.16. GEA DSLAM & Cabinets (PG953C)

The largest costs in PG953C are "Registered GBV BS" and "Depreciation Charge Balance Sheet", which make up 57% and 51% of the costs respectively, as shown in Figure 17. Due to the presence of negative costs, the sum of these two individual items is greater in value than the total. These negative costs total -48%, and are mainly driven by "Accumulated Depreciation BS", "AICC Registrations" and "Transfer Charges Out".

Figure 17. PG953C – GEA DSLAM & Cabinets Finance Type Costs[29] [30]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG953C – GEA DSLAM & Cabinets	TOT_RO	Registered GBV BS	£0	✂[£400 to £450]	✂[£10 to £50]	56.62%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£10 to £50]	£0	✂[£10 to £50]	50.38%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	11.83%
	TOT_RB	Pay	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	8.92%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£50 to £100]	✂[£0 to £10]	7.86%
	TOT_RH	Other	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	6.96%
	TOT_RD	Stores	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	2.65%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	1.49%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.93%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.17%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.01%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-10.74%
	TOT_RR	AICC Registrations	£0	✂[-£100 to -£50]	✂[-£10 to £0]	-11.03%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£250 to -£200]	✂[-£50 to -£10]	-26.02%

Source: BT RFS 2015/16, Cartesian

[29] Some costs are zero due to rounding
[30] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.17. GEA Customer Site Installations (PG954C)

The largest costs in PG954C are "Transfer Charges In" and "Pay", which make up 46% and 32% of the costs respectively, as shown in Figure 18. There are significant negative costs, such as "Transfer Charges Out", which contributes -41% to the total PG costs.

Figure 18. PG954C – GEA Customer Site Installations Finance Type Costs[31] [32]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG954C – GEA Customer Site Installations	TOT_RL	Transfer Charges In	✂[£10 to £50]	£0	✂[£10 to £50]	45.75%
	TOT_RB	Pay	✂[£10 to £50]	✂[£10 to £50]	✂[£10 to £50]	32.06%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£10 to £50]	£0	✂[£10 to £50]	29.88%
	TOT_RO	Registered GBV BS	£0	✂[£150 to £200]	✂[£10 to £50]	27.94%
	TOT_RH	Other	✂[£0 to £10]	✂[£10 to £50]	✂[£10 to £50]	17.62%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.75%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	1.08%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	1.07%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	0.90%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.06%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£50 to -£10]	✂[-£10 to £0]	-1.45%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£50 to -£10]	✂[-£10 to £0]	-6.52%
	TOT_RR	AICC Registrations	£0	✂[-£100 to -£50]	✂[-£10 to £0]	-9.42%
	TOT_RM	Transfer Charges Out	✂[-£50 to -£10]	£0	✂[-£50 to -£10]	-40.61%

Source: BT RFS 2015/16, Cartesian

[31] Some costs are zero due to rounding
[32] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.18. GEA FTTC Maintenance (PG955M)

The largest single cost in PG955M is "Pay", which makes up 79% of the costs, as shown in Figure 19. There are some negative costs, such as "Transfer Charges Out", which contributes -25% to the total PG costs.

Figure 19. PG955M – GEA FTTC Maintenance Finance Type Costs[33] [34]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG955M – GEA FTTC Maintenance	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	79.19%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	29.06%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	13.08%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	2.58%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	1.54%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	0.91%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.67%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.63%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	0.14%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.05%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.17%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-0.81%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-1.79%
	TOT_RM	Transfer Charges Out	✂[£0 to £10]	£0	✂[£0 to £10]	-24.99%

Source: BT RFS 2015/16, Cartesian

[33] Some costs are zero due to rounding
[34] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.19. GEA FTTP Maintenance (PG956M)

The largest single cost in PG956M is "Pay", which makes up 81% of the costs, as shown in Figure 20. There are significant negative costs such as "Transfer Charges Out", which contributes -30% to the total PG costs.

Figure 20. PG956M – GEA FTTP Maintenance Finance Type Costs[35] [36]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG956M – GEA FTTP Maintenance	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	80.48%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	33.62%
	TOT_RH	Other	✂[£0 to £10]	£0	✂[£0 to £10]	11.25%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	£0	3.76%
	TOT_RF	Depreciation Charge Balance Sheet	£0	£0	£0	1.69%
	TOT_RD	Stores	£0	£0	£0	1.49%
	TOT_RI	Amortisation charge (intangible assets)	£0	£0	£0	0.83%
	TOT_RG	T & S	£0	£0	£0	0.70%
	TOT_RQ	AICC Opening Balance BS	£0	£0	£0	0.20%
	TOT_RC	Creditors	£0	£0	£0	-0.05%
	TOT_RR	AICC Registrations	£0	£0	£0	-0.33%
	TOT_RU	Unclassified	£0	✂[-£10 to £0]	£0	-1.31%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	£0	-2.46%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-29.87%

Source: BT RFS 2015/16, Cartesian

[35] Some costs are zero due to rounding
[36] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.20. GEA FTTP Provision (PG957P)

The largest single cost in PG957P is "Pay", which makes up 79% of the costs, as shown in Figure 21. There are significant negative costs, such as "Transfer Charges Out", which contributes -29% to the total PG costs.

Figure 21. PG957P – GEA FTTP Provision Finance Type Costs[37] [38]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG957P – GEA FTTP Provision	TOT_RB	Pay	✂[£0 to £10]	£0	✂[£0 to £10]	79.33%
	TOT_RL	Transfer Charges In	✂[£0 to £10]	£0	✂[£0 to £10]	33.11%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	11.48%
	TOT_RO	Registered GBV BS	£0	✂[£0 to £10]	✂[£0 to £10]	2.66%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	1.72%
	TOT_RD	Stores	✂[£0 to £10]	£0	✂[£0 to £10]	1.45%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	0.88%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.84%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	£0	0.13%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	£0	£0	-0.04%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	£0	-0.20%
	TOT_RU	Unclassified	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.70%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£10 to £0]	✂[-£10 to £0]	-1.78%
	TOT_RM	Transfer Charges Out	✂[-£10 to £0]	£0	✂[-£10 to £0]	-28.87%

Source: BT RFS 2015/16, Cartesian

[37] Some costs are zero due to rounding
[38] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.21. GEA FTTP Provision (PG958P)

The largest single cost in PG958P is "Pay", which makes up 79% of the costs, as shown in Figure 22. There are significant negative costs, such as "Transfer Charges Out", which contributes -29% to the total PG costs.

Figure 22. PG958P – GEA FTTC Provision Finance Type Costs[39] [40]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG958P – GEA FTTC Provision	TOT_RB	Pay	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	79.16%
	TOT_RL	Transfer Charges In	✂[£10 to £50]	£0	✂[£10 to £50]	33.07%
	TOT_RH	Other	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	11.64%
	TOT_RO	Registered GBV BS	£0	✂[£10 to £50]	✂[£0 to £10]	2.70%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£0 to £10]	£0	✂[£0 to £10]	1.71%
	TOT_RD	Stores	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.45%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	0.89%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	0.86%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	0.13%
	TOT_RK	Debtors	£0	£0	£0	0.00%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.04%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.21%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£10 to £0]	✂[-£10 to £0]	-0.70%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£50 to -£10]	✂[-£10 to £0]	-1.80%
	TOT_RM	Transfer Charges Out	✂[-£50 to -£10]	£0	✂[-£50 to -£10]	-28.85%

Source: BT RFS 2015/16, Cartesian

[39] Some costs are zero due to rounding
[40] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.2.22. GEA Fibre Rollout Funding (PG998A)

The largest costs in PG998A are "Transfer Charges In" and "Other", which make up 39% and 35% of the costs respectively, as shown in Figure 23. There are significant negative costs, such as "Transfer Charges Out" and "AICC Registrations", which contribute -34% and -13% to the total costs respectively.

Figure 23. PG998A – GEA Fibre Rollout Funding Finance Type Costs[41] [42]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG998A – Fibre Rollout Funding	TOT_RL	Transfer Charges In	✂[-£50 to -£10]	£0	✂[-£50 to -£10]	38.64%
	TOT_RH	Other	✂[-£50 to -£10]	✂[-£150 to -£100]	✂[-£50 to -£10]	34.83%
	TOT_RQ	AICC Opening Balance BS	£0	✂[-£300 to -£250]	✂[-£50 to -£10]	25.73%
	TOT_RO	Registered GBV BS	£0	✂[-£250 to -£200]	✂[-£50 to -£10]	20.47%
	TOT_RB	Pay	✂[-£50 to -£10]	✂[-£150 to -£100]	✂[-£50 to -£10]	20.22%
	TOT_RF	Depreciation Charge Balance Sheet	✂[-£50 to -£10]	£0	✂[-£50 to -£10]	11.32%
	TOT_RI	Amortisation charge (intangible assets)	✂[-£10 to £0]	£0	✂[-£10 to £0]	1.56%
	TOT_RG	T & S	✂[-£10 to £0]	£0	✂[-£10 to £0]	0.17%
	TOT_RD	Stores	✂[-£10 to £0]	✂[£0 to £10]	✂[-£10 to £0]	0.05%
	TOT_RC	Creditors	£0	✂[£0 to £10]	£0	0.00%
	TOT_RU	Unclassified	£0	✂[£10 to £50]	✂[£0 to £10]	-1.97%
	TOT_RP	Accumulated Depreciation BS	£0	✂[£10 to £50]	✂[£0 to £10]	-4.29%
	TOT_RR	AICC Registrations	£0	✂[£100 to £150]	✂[£10 to £50]	-12.59%
	TOT_RM	Transfer Charges Out	✂[£10 to £50]	£0	✂[£10 to £50]	-34.15%

Source: BT RFS 2015/16, Cartesian

2.2.23. GEA BDUK Funding (PG999A)

The largest cost in PG999A is "Transfer Charges In", which makes up 33% of the costs, as shown in Figure 24. There are significant negative costs, such as "Transfer Charges Out", which contributes -30% to the total PG costs.

[41] Some costs are zero due to rounding

[42] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

Figure 24. PG999A – BDUK Funding Finance Type Costs[43] [44]

Plant Group	Finance Code	Finance Type	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG999A – BDUK Funding	TOT_RL	Transfer Charges In	✂[£50 to £100]	£0	✂[£50 to £100]	33.14%
	TOT_RO	Registered GBV BS	£0	✂[£500 to £1000]	✂[£50 to £100]	27.91%
	TOT_RB	Pay	✂[£10 to £50]	✂[£100 to £150]	✂[£50 to £100]	25.32%
	TOT_RF	Depreciation Charge Balance Sheet	✂[£10 to £50]	£0	✂[£10 to £50]	24.20%
	TOT_RH	Other	✂[£0 to £10]	✂[£300 to £350]	✂[£10 to £50]	20.22%
	TOT_RD	Stores	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	4.68%
	TOT_RI	Amortisation charge (intangible assets)	✂[£0 to £10]	£0	✂[£0 to £10]	3.27%
	TOT_RG	T & S	✂[£0 to £10]	£0	✂[£0 to £10]	1.22%
	TOT_RQ	AICC Opening Balance BS	£0	✂[£0 to £10]	✂[£0 to £10]	0.35%
	TOT_RC	Creditors	£0	✂[-£10 to £0]	✂[-£10 to £0]	0.00%
	TOT_RR	AICC Registrations	£0	✂[-£10 to £0]	✂[-£10 to £0]	-0.36%
	TOT_RP	Accumulated Depreciation BS	£0	✂[-£100 to -£50]	✂[-£10 to £0]	-3.85%
	TOT_RU	Unclassified	✂[£0 to £10]	✂[-£150 to -£100]	✂[-£50 to -£10]	-6.51%
	TOT_RM	Transfer Charges Out	✂[-£100 to -£50]	£0	✂[-£100 to -£50]	-29.60%

Source: BT RFS 2015/16, Cartesian

[43] Some costs are zero due to rounding
[44] Segmented cost data in this table excludes transactions of less than £5 and therefore the totals may not match those of other tables for this PG.

2.3 Cost Attribution from Plant Groups (PGs) to Network Components

2.3.1. Introduction

In this section of the report, we review each of the 22 PGs in turn. For each PG, we review its description, cost composition, and the methodology used to attribute costs to NCs. In addition, we compare the findings to the Ofcom Cost Attribution Review Report (2015) where applicable.

The main finding of this section is that all PGs except for two allocate 100% of their costs into one component. As a consequence, each PG and their component are synonymous in that they will share the same definition and cost composition.

2.3.2. Routing and Records (PG140A)

The PG140A cost category captures costs and balance sheet items (Depreciation, ETG and Non-ETG Pay and Non Pay) related to Routing and Records work for provision of analogue / ISDN lines, Local Loop Unbundling (LLU) and Fibre based circuits. The main activities related to this PG include the physical verification of routings within the network, keeping details on network inventory, and various associated customer service activities.

Costs in PG140A are directly allocated to a single NC, (CL160) (Routing records) as shown in Figure 25.

Figure 25. PG140A – Routing and Records Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG140A - Routing and Records	CL160 - Routing Records	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	100.00%

Source: BT RFS 2015/16, Cartesian

2.3.3. FTTC Copper Tie Cables (PG192A)

PG192A was within the scope of the Ofcom Cost Attribution Review Report (2015). That study also found that PG192AA attributed its costs to CL160. FTTC Copper Tie Cables (PG192A)

The PG192A cost category captures current and capital costs associated with copper tie cables that are used to connect fibre and copper street cabinets in FTTC deployments. This includes NGA tie copper cables used to connect copper cabinet to GEA cabinets, and local exchange side duct for copper.

Costs from this PG are allocated directly to CL192 (NGA E-Side Copper Capital) as shown in Figure 26.

Figure 26. PG192A - FTTC Copper Tie Cables Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG192A - FTTC Copper Tie Cables	CL192 - NGA E side Copper Capital	✂[£10 to £50]	✂[£200 to £250]	✂[£50 to £100]	100.00%

Source: BT RFS 2015/16, Cartesian

PG192A was within the scope of the Ofcom Cost Attribution Review Report (2015). That study also found that PG192A attributed its costs to the CL192.

2.3.4. GEA Development Cost (PG197A and PG198A)

GEA development cost includes costs associated with Openreach (OR) Next Generation Access Fibre to the Cabinet (FTTC) and Fibre to the Premises (FTTP), PG197A and PG198A respectively. The main activities associated with these PGs include development of customer service systems such as inventory systems, billing, etc., as well as costs related to Openreach Chief Information Office, which define, design and deploy Openreach's systems, processes and networks. These PGs also include costs related to BT Wholesale Development projects and software depreciation costs.

The AMD states that BT wholesale costs are attributed to both PGs, which seems to be incorrect. During the assessment, BT confirmed that these costs are related to BT TSO rather than to BT Wholesale. However, BT subsequently identified that these costs relate refer to the use of NGA as an input for WBC services, rather than GEA development per se. BT considers this error to be an immaterial and it plans to correct it in the 2016/2017 RFS.

Both PGs each attribute the entirety of their costs to a single component; CL197 (FTTC Development) CL198 (FTTP Development) as shown in Figure 27.

Figure 27. GEA Development PGs Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG197A - FTTC Service Delivery Development	CL197 - FTTC Development	✂[£10 to £50]	✂[£10 to £100]	✂[£10 to £50]	100.00%
PG198A - FTTP Development	CL198 - FTTP Development	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	100.00%
Total		**✂[£10 to £50]**	**✂[£10 to £100]**	**✂[£10 to £50]**	

Source: BT RFS 2015/16, Cartesian

As shown in Figure 28, most of the costs attributed to the GEA Development PGs refer to Other Depreciation and General Management.

Other Depreciation costs include the asset values for a range of assets used by BT businesses including categories such as Software, Motor Transport and 21CN. General Management costs are those associated with general management activities and other general expenses (e.g. New Starter/Leaver payments, General management pay costs for board members for business units, senior managers and support staff working on general management activities).

Planning and Development costs represent a significant negative share of the FAC for both PG197A and PG198A (see Figure 28). This type of cost refers to the planning of the network and the development of new technologies and service offerings. The values are negative since they represent transfer charge to other departments within BT Group.

Figure 28. Type of Costs Attributed to GEA Development PGs

Cost Code	Type of Cost	PG197A FAC (%)	PG198A FAC (%)
15_PNL	Other Depreciation	64.52%	62.73%
BF_PNL	General Management & Other	47.09%	50.61%
H_MCE	Other MCE	21.11%	20.07%
B4_PNL	Planning & Development	-48.73%	-47.12%
Other	Other	16.00%	13.70%
Total		**100.00%**	**100.00%**

Source: BT RFS 2015/16, Cartesian

We note that the development costs relating FTTC services (PG197A) are significantly higher than those of FTTP services. The method by which costs are attributed into these PGs was beyond the scope of the study.

PG197A and PG198 were within the scope of the Ofcom Cost Attribution Review Report (2015). In that occasion, the two PGs had costs attributed to Wholesale Residual Markets, which included GEA services.

2.3.5. *SG A Openreach Sales Product Management (PG502B)*

PG502B captures the Profit and Loss (Current non-ETG Pay) and Balance Sheet (Fixed Asset, Gross Book Value) costs associated with Organisational Unit Code (OUC) BP. BP is the Sales and Product Management division of Openreach. This PG includes costs related to the management of Openreach's product portfolio, as well as sales and marketing activities.

Costs from this PG are allocated entirely to CP502 (Openreach sales product management), as shown in Figure 29. PG502B was not in the scope of Ofcom Cost Attribution Review Report (2015).

Figure 29. PG502B - SG A Openreach Sales Product Management Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG502B - SG A Openreach Sales Product Management	CP502 - Openreach sales product management	✂[£10 to £50]	✂[-£50 to -£10]	✂[£10 to £50]	100.00%

Source: BT RFS 2015/16, Cartesian

2.3.6. *Openreach Service Centre (PG574B and PG579B)*

PG574B (NGA Provision) and PG579B (NGA Assurance) capture the costs and balance sheet related to Openreach Service Centre, which is responsible for the provision orders and fault reporting of Next Generation Access (NGA). This includes costs related to Openreach customer service activities, such as customer complaint management and network incident management, as well as overheads in Openreach HR learning and development function. The Provision PG is associated with the costs of new connections (refers to customer premise broadband connection), whereas the Assurance PG is related to on-going costs from existing connections.

Costs from the two PGs are allocated fully to NCs CL574 (OR Service Centre Provision NGA) and CL579 (OR Service Centre Assurance NGA), from PG574B and PG579B respectively, as shown in Figure 30.

Figure 30. Openreach Service Centre Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG574B - OR Service Centre Provision NGA	CL574 - OR Service Centre Provision NGA	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	100.00%
PG579B - OR Service Centre Assurance NGA	CL579 - OR Service Centre Assurance NGA	✂[£10 to £50]	✂[-£10 to £0]	✂[£10 to £50]	100.00%
Total		**✂[£10 to £50]**	**✂[-£10 to £0]**	**✂[£10 to £50]**	

Source: BT RFS 2015/16, Cartesian

In the Ofcom Cost Attribution Review Report (2015), PG574B was considered as part of the overall Openreach Service Centre costs. PG579B was out of scope at that occasion.

2.3.7. *Ofcom administration fee (PG800A)*

This PG relates to fees levied by Ofcom.

In the context of GEA services, PG800A attributes costs into two different components: CO800 (Ofcom administration fee Wholesale) and CO801 (Ofcom administration fee Openreach), which refer to Ofcom administration fees for both BT wholesale and Openreach (see Figure 31). The driver of PG800A cost attribution is revenue and it uses a usage factor of one.

Figure 31. PG800A - Ofcom Administration Fee Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG800A - Ofcom Administration Fee	CO800 - Ofcom Administration Fee Wholesale	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	36.29%
	CO801 - Ofcom Administration Fee Openreach	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	63.71%
	Total	**✂[£10 to £50]**	**✂[-£10 to £0]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

PG800A was created as a result of the conclusions from the Ofcom Cost Attribution Review Report (2015).

2.3.8. *Cumulo Rates NGA (PG941A)*

This PG includes the Cumulo charge payable for the NGA (Next Generation Access) assets. These costs are the business rates for network assets such as exchange buildings, telegraph poles, duct, manholes, cabinets, payphones, copper and fibre.

Costs are apportioned to various NGA components, primarily CL999 (Funded Fibre Rollout Spend), CL953 (GEA DSLAM Cabinets), CL192 (NGA E side Copper Capital), and CL951 (GEA Distribution Fibre) as shown in Figure 32. Following Ofcom's 2015 Regulatory Reporting Directions Statement, BT was directed to attribute the NGA related Cumulo costs to the NGA network components. The Cumulo charge is divided between NGA and non-NGA PGs. The NGA PG apportion costs to the NCs only on the basis of Profit Weighted Net Replacement Costs (PWNRC).

Figure 32. PG941A - Cumulo Rates NGA Cost Attribution to Components[45]

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG941A - Cumulo Rates NGA	CL192 - NGA E side Copper Capital	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	13.26%
	CL197 - FTTC Development	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.48%
	CL198 - FTTP Development	£0	£0	£0	0.00%
	CL574 - OR Service Centre Provision NGA	✂[£0 to £10]	£0	✂[£0 to £10]	0.04%
	CL579 - OR Service Centre Assurance NGA	✂[£0 to £10]	£0	✂[£0 to £10]	0.02%
	CL950 - GEA Access Fibre Spine	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	4.07%
	CL951 - GEA Distribution Fibre	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	13.31%
	CL952 - GEA Electronics	✂[£0 to £10]	£0	✂[£0 to £10]	0.06%
	CL953 - GEA DSLAM Cabinets	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	12.95%
	CL954 - GEA Customer Site Installation	✂[£0 to £10]	£0	✂[£0 to £10]	0.27%
	CL955 - GEA FTTC Repairs	✂[£0 to £10]	£0	✂[£0 to £10]	0.02%
	CL956 - GEA FTTP Repairs	£0	£0	£0	0.00%
	CL957 - GEA FTTP Provisions	£0	£0	£0	0.00%
	CL958 - GEA FTTC Provisions	✂[£0 to £10]	£0	✂[£0 to £10]	0.14%
	CL998 - Fibre Rollout Funding	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.85%
	CL999 - Funded Fibre Rollout Spend	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	53.51%
	Total	**✂[£10 to £50]**	**✂[£0 to £10]**	**✂[£10 to £50]**	**100.00%**

[45] Some costs are zero due to rounding

Source: BT RFS 2015/16, Cartesian

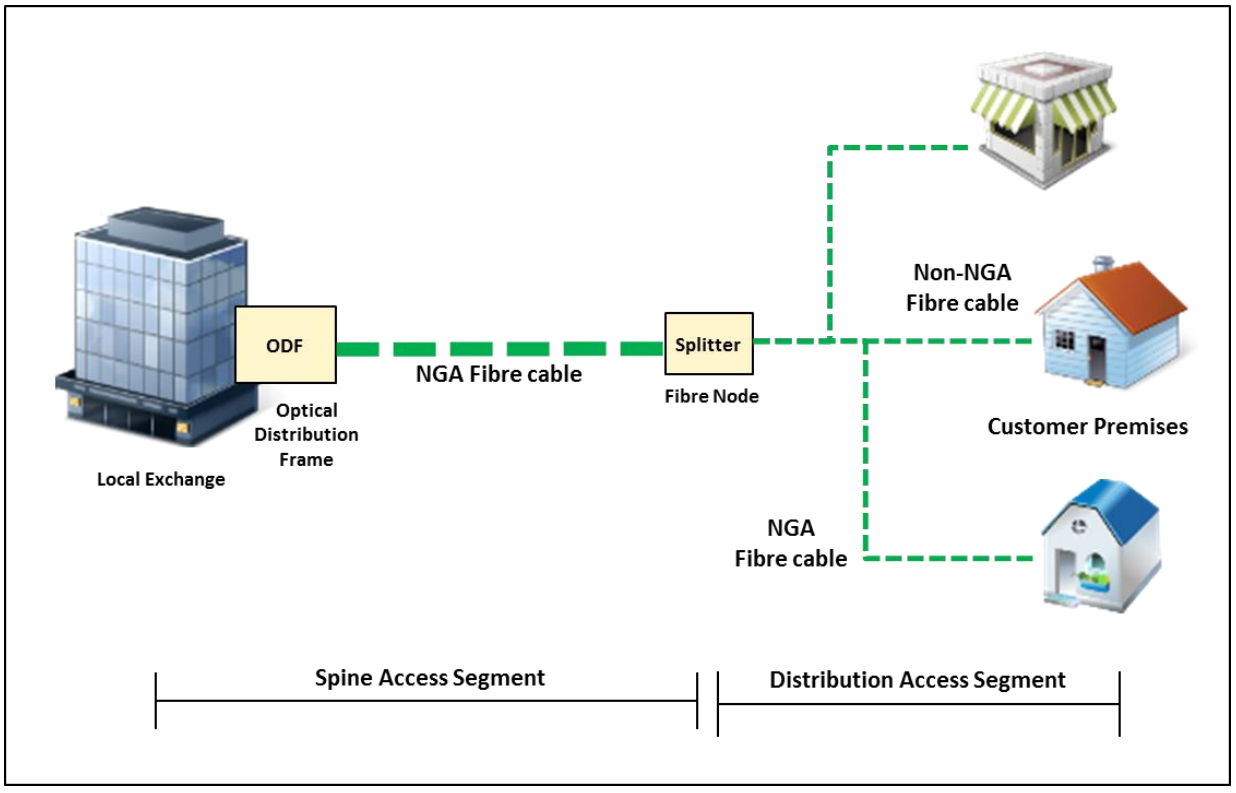
In the Ofcom Cost Attribution Review Report (2015), PG941A was not included in the assessment.

2.3.9. GEA Access and Distribution Fibre (PG950C, PG950M, PG951C and PG951M)

GEA Access and Distribution Fibre represents the costs associated with the provision, installation and recovery of NGA fibre cables in the access network.

There are two fibre segments in the access network. The access spine segment runs from the local exchange to the distribution node. The distribution segment relates to the segment between the fibre distribution node and the customer premises (see Figure 33).

Figure 33. High Level Representation of BT's Fibre Access Network



Source: Cartesian

This cost category includes costs related to clearing duct, jointing and spine cable and it captures costs from the following areas/functions:

- Pay costs associated with the installation of NGA access fibre;
- Indirect costs of optical fibre replacement from the Local Optical Fibre Cable Renewal (LFCR) Classes of Work (CoW);
- Contract costs associated with renewal of optical fibre;
- Planning costs, adding fibre to the access network;

- Costs associated with installing optical spine cable between the local exchange and last connection point before local distribution fibre or street optical Multiplexors (MUX) and
- Depreciation costs from the following CoW – Local Fibre Spine Cable (LFSC).

However, the AMD does not define what is exactly included in the indirect costs of optical fibre replacement, which are attributed to access and distribution PGs.

GEA Access Fibre costs is split into four different PGs. PG950C and PG950M relate to GEA Access Fibre Spine for access and maintenance respectively. The costs for PG950C and PG951C are related to up-front costs of providing and installing fibre, such as overheads for engineers engaged, mean capital employed, depreciation costs, etc. All of these costs are capitalised.

Each PG related to GEA Access Fibre attributes its full costs to one specific component (see Figure 34)

Figure 34. Access and Distribution Fibre Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG950C - GEA Access Fibre Spine	CL950 - GEA Access Fibre Spine	✂[£0 to £10]	✂[£50 to £100]	✂[£10 to £50]	100.00%
PG950M - GEA Access Fibre Spine Maintenance	CL950 - GEA Access Fibre Spine	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	100.00%
PG951C - GEA Distribution Fibre	CL951 - GEA Distribution Fibre	✂[£10 to £50]	✂[£200 to £250]	✂[£50 to £100]	100.00%
PG951M - GEA Distribution Fibre Maintenance	CL951 - GEA Distribution Fibre	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	100.00%
Total		**✂[£50 to £100]**	**✂[£250 to £300]**	**✂[£50 to £100]**	

Source: BT RFS 2015/16, Cartesian

All the PGs related to Access and Distribution Fibre were considered in the Ofcom Cost Attribution Review Report (2015). They were all attributing costs to the same components described in Figure 34

2.3.10. GEA Electronics (PG952C)

PG952C captures the NGA costs associated with the provision, rearrangement, recovery, replacement and renewal of NGA Local Access Network equipment at the exchange. The costs refer to engineering activities related to head-end and other GEA equipment and they include:

- Pay costs associated with the installation of NGA access electronics
- Contract costs associated with renewal of NGA Electronics.
- Planning costs.
- Depreciation costs from construction of local line exchange service module (LFXE), circuit Provision, Megastream Services (CPDM), Circuit Provision - Asymmetric Digital Subscriber line (ADSL) (CPDSL)

CPDM, ADSL and CPDSL costs are related to non-NGA Class of Works. During this assessment BT confirmed that these costs are indeed related to NGA services. However, BT was not able to clarify what exactly these costs refer to.

The PG definition in the AMD is not completely clear since it does not define the exact equipment that the engineering work (provisioning) refers to.

All costs from this PG are allocated to the component CL952 (GEA electronics) as shown in Figure 35.

Figure 35. PG952C - GEA Electronics Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG952C - GEA Electronics	CL952 - GEA Electronics	✂[£10 to £50]	✂[£10 to £50]	✂[£10 to £50]	100.00%

Source: BT RFS 2015/16, Cartesian

PG952C was included in the Ofcom Cost Attribution Review Report (2015) within the NGA services scope. In that occasion, costs from PG952C are fully allocated to GEA Electronics component CL952, which was then fully allocated to Wholesale Residual Markets.

2.3.11. GEA DSLAM Cabinets (PG953C)

PG953C attributes the NGA costs associated with DSLAM cabinets, cabinet shells, and cabinet tie cables relevant for installation /provision. More specifically, it includes:

- Pay costs associated with the installation of NGA DSLAM and Cabinets;
- Contract costs associated with renewal DSLAM and Cabinets;
- Planning costs and
- Depreciation costs from the following CoW – Construction, Local Network Service Module Equipment (LFME).

All costs from this PG are directly allocated to the component CL953 (GEA DSLAM Cabinets) as shown in Figure 36.

Figure 36. PG953C - GEA DSLAM Cabinets Costs into Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG953C - GEA DSLAM Cabinets	CL953 - GEA DSLAM Cabinets	✂[£50 to £100]	✂[£250 to £300]	✂[£50 to £100]	100.00%

Source: BT RFS 2015/16, Cartesian

2.3.12. GEA Customer Site Installations (PG954C)

PG954C captures the capitalised CoW related to provision, installation and recovery costs of NGA customer sited equipment such as the equipment located between the Distribution Point (DP) and the Network Termination Equipment (NTE). This PG specifically capture costs from the following areas/functions:

- Pay costs associated with the installation of NGA Customer-sited Installs;
- Indirect costs of Customer-sited Installs;
- Contract costs;
- Planning costs; and
- Depreciation costs from the following CoW – Customer Premises Provision (FTTX).

All costs from this PG are allocated to CL954 (GEA customer site installation) as shown in Figure 37, which was the same situation during the Ofcom Cost Attribution Review Report (2015).

Figure 37. PG954C - GEA Customer Site Installations Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG954C - GEA Customer Site Installations	CL954 - GEA Customer Site Installation	✂[£50 to £100]	✂[£100 to £150]	✂[£50 to £100]	100.00%

Source: BT RFS 2015/16, Cartesian

2.3.13. GEA Maintenance (PG955M and PG956M)

GEA Maintenance includes the NGA FTTC (PG955M) and FTTP (PG956M) costs associated with the repair and maintenance of the head-end electronics, DSLAM cabinets and specific NGA customer equipment. The two PGs include:

- Pay costs associated with the repair / maintenance of NGA equipment.
- Indirect costs of any repair / maintenance of NGA specific equipment.

The costs from PG955M are allocated to CL955 (GEA FTTC Repairs) and the costs from PG956M are allocated to CL956 (GEA FTTP Repairs) as shown in Figure 38. This has not changed from the previous Ofcom Cost Attribution Review Report in 2015.

Figure 38. GEA Maintenance Cost Attribution to Components[46]

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG955M - GEA FTTC Maintenance	CL955 - GEA FTTC Repairs	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	100.00%
PG956M - GEA FTTP Maintenance	CL956 - GEA FTTP Repairs	✂[£0 to £10]	£0	✂[£0 to £10]	100.00%
Total		**✂[£0 to £10]**	**✂[-£10 to £0]**	**✂[£0 to £10]**	

Source: BT RFS 2015/16, Cartesian

[46] Some costs are zero due to rounding

2.3.14. GEA Provision (PG957P and PG958P)

GEA Provisioning includes FTTP (PG957P) and FTTC (PG958P) costs associated with the provision activities related to the head end electronics, and specific NGA customer equipment. The two PGs include:

- Pay costs associated with the repair / maintenance of NGA equipment.
- Indirect costs of any repair / maintenance of NGA specific equipment.

These PGs are associated only with the cost of equipment installation itself at the customer premise.

The costs from PG957P are allocated to CL957 (GEA FTTC Provisions) and the costs from PG958P are allocated to CL958 (GEA FTTP Provisions) as shown in Figure 39. This has not changed since the Ofcom Cost Attribution Review Report (2015).

Figure 39. GEA Provision Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG957P - GEA FTTP Provision	CL957 - GEA FTTP Provisions	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	100.00%
PG958P - GEA FTTC Provision	CL958 - GEA FTTC Provisions	✂[£50 to £100]	✂[£0 to £10]	✂[£50 to £100]	100.00%
Total		**✂[£50 to £100]**	**✂[£0 to £10]**	**✂[£50 to £100]**	

Source: BT RFS 2015/16, Cartesian

2.3.15. *Fibre Rollout (PG998A and PG999A)*

Fibre rollout covers the funding and expenditure for fibre rollout across BDUK areas.

PG998A (Fibre Rollout Funding), contains the subsidy received by BT for BDUK areas. The costs (funds) from this PG are fully allocated to the component CL998 (Fibre Rollout Funding). This PG receives all funds received from BDUK directly from the general ledger.

PG999A (Funded Fibre Rollout Spend) contains the costs from Organisation Unit Code (OUC) BK, which is specific to operating costs associated with the BDUK team within Openreach. The costs from this PG are fully allocated to the component CL999 (Funded Fibre Rollout Spend), as shown in Figure 40.

Figure 40. Fibre Rollout Cost Attribution to Components

Plant Group	Component	CCA (£M)	Total PG MCE (£M)	FAC (£M)	FAC (%)
PG998A - Fibre Rollout Funding	CL998 - Fibre Rollout Funding	✂[-£100 to -£50]	✂[-£1000 to -£500]	✂[-£150 to -£100]	100.00%
PG999A - Funded Fibre Rollout Spend	CL999 - Funded Fibre Rollout Spend	✂[£100 to £150]	✂[£500 to £1000]	✂[£200 to £250]	100.00%
Total		**✂[£50 to £100]**	**✂[£250 to £300]**	**✂[£50 to £100]**	

Source: BT RFS 2015/16, Cartesian

Given the scope of our assessment, we did not review the ledgered costs and the way in which they were attributed. As these costs are directly attributed from the ledger there is less granularity in the RFS data that we reviewed versus the commercial deployment. Ofcom may wish to further investigate what costs are included in these two PGs to have a better understanding on how BDUK fund is being spent.

2.4 Network Component to Market and Service Attribution

2.4.1. Overview of Network Component to Service Cost Attribution Methodology

This section of the report examines the attribution of costs from NCs to Services. For each of the NCs that receive costs from the 22 PGs in the scope of this study we review the definition and examine the attribution methodology by looking at the usage factors and drivers for each component.

The main finding of this section is that almost all components use the number of new and existing connections as a usage driver, and have usage factors of 1. There are a few exceptions; Ofcom Administration Fee (CO801), Openreach sales product management (CP502) and Openreach Copper (CW900) use revenue as their drivers.

It is relevant to note that there are components (i.e. CL160, CL574, CO801, CP502 and CW900) which attribute costs to both GEA and non-GEA services. The combination of non-GEA receiving costs varies from component to component. Therefore, the cost attribution share for non-GEA services will be different for each component.

2.4.2. Routing records (CL160)

The component CL160 captures the costs and balance sheet items (Depreciation, ETG and Non-ETG Pay and Non-Pay) of Routing and Records work for provision of analogue / ISDN lines, Local Loop Unbundling (LLU) and Fibre based circuits.

Costs from CL160 are allocated to services that make use of the Routing & Records function. The driver used to attribute costs to the services is the number of new connections, and the usage factor for each service is 1.

The majority of CL160 costs (60.6%) are attributed to non-NGA services. Of those costs attributed to NGA services, the vast majority go to SL951 (GEA FTTC Connect. Costs Internal) and SL961 (GEA FTTC Connectivity External) as shown in Figure 41.

Figure 41. Routing Records (CL160) Cost Attribution to Services[47]

Code	Service Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL951	GEA FTTC Connections Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	22.88%
SL953	GEA FTTP Connections Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.50%
SL955	GEA CP to CP Migration Costs Internal	✂[£0 to £10]	£0	✂[£0 to £10]	1.20%
SL956	GEA CP to CP Migration External	✂[£0 to £10]	£0	✂[£0 to £10]	1.22%
SL961	GEA FTTC Connections External	✂[£0 to £10]	£0	✂[£0 to £10]	13.59%
SL963	GEA FTTP Connections External	£0	✂[£0 to £10]	£0	0.01%
Other	Non-NGA Services	✂[£0 to £10]	£0	✂[£0 to £10]	60.60%
Total		**✂[£10 to £50]**	**✂[£0 to £10]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

In the Ofcom Cost Attribution Review Report (2015), the NC CL160 had costs attributed to various services (the main ones were ISDN2 and ISDN30), and wholesale residual, which incorporated GEA services.

[47] Some costs are zero due to rounding

2.4.3. NGA E side Copper Capital (CL192)

Copper cables connect BT's exchanges to distribution points in the access network and are used to provide voice and broadband services to customers. These cables are categorised as Exchange side (E-side) and Distribution side (D-side) copper. E-side cables refer to copper cables connecting fibre and copper cabinets.

The component CL192 captures costs related to the provision and use of NGA E-side Copper cable.

Costs from CL192 are attributed to NGA services that use E-side copper, i.e. FTTC rentals. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1.

This component attributes costs to SL950 (GEA FTTC Rentals Costs Internal) and SL960 (GEA FTTC Rentals External), as shown in Figure 42.

Figure 42. NGA E side Copper Capital (CL192) Cost Attribution to Services

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL960	GEA FTTC Rentals External	✂[£0 to £10]	✂[£50 to £100]	✂[£10 to £50]	26.34%
SL950	GEA FTTC Rentals Costs Internal	✂[£10 to £50]	✂[£150 to £200]	✂[£10 to £50]	73.66%
Total		**✂[£10 to £50]**	**✂[£200 to £250]**	**✂[£50 to £100]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.4. FTTC Development (CL197)

The component CL197 attributes the FTTC development costs to Fibre To The Cabinet (FTTC) connection and rental services.

The driver used to attribute costs is the number of new connections (for connections and migration services) and existing connections (for rental services), and the usage factor for each service is 1.

This component attributes the majority of its costs to SL950 (GEA FTTC Rentals Costs Internal) and SL951 (GEA FTTC Connections Costs Internal), as shown in Figure 43.

We note that in the 2015 study, other NCs relating to development activities were found to attribute costs to connections and rentals in a similar manner (e.g. OR systems & development – Ethernet (CO772)).

Figure 43. FTTC Development (CL197) Cost Attribution to Services

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL961	GEA FTTC Connections External	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	12.13%
SL960	GEA FTTC Rentals External	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	17.21%
SL956	GEA CP to CP Migration External	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.09%
SL955	GEA CP to CP Migration Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.07%
SL951	GEA FTTC Connections Costs Internal	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	20.37%
SL950	GEA FTTC Rentals Costs Internal	✂[£0 to £10]	✂[£10 to £50]	✂[£10 to £50]	48.13%
Total		**✂[£10 to £50]**	**✂[£10 to £50]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.5. *FTTP Development (CL198)*

The component CL198 attributes FTTP development costs to FTTP connection and rental services.

The driver used to attribute costs is the number of new (for connection and migration services) and existing connections (for rental services), and the usage factor for each service is 1.

This component attributes the majority of its costs to SL952 (GEA FTTP Rentals Costs Internal) and SL953 (GEA FTTP Connections Costs Internal), as shown in Figure 44.

Figure 44. FTTP Development (CL198) Cost Attribution to Services[48]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL963	GEA FTTP Connections External	£0	£0	£0	0.01%
SL962	GEA FTTP Rentals External	£0	£0	£0	0.02%
SL953	GEA FTTP Connections Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	44.46%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	55.51%
Total		**✂[£0 to £10]**	**✂[£0 to £10]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[48] Some costs are zero due to rounding

2.4.6. OR Service Centre Provision NGA (CL574)

The component CL574 captures the cost and balance sheet items of the Service Centre for NGA provisioning. The component is associated with the up-front costs of provisioning new connections.

CL574 costs are attributed to the FTTC and FTTP connection services. The driver used to attribute costs is the number of new connections, and the usage factor for each service is 1.

This component attributes the majority of its costs to SL574 (GEA Other Costs Internal) and SL951 (GEA FTTC Connections Costs Internal), as shown in Figure 45.

Figure 45. OR Service Centre Provision NGA (CL574) Cost Attribution to Services[49]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL964	GEA Other External	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	7.49%
SL963	GEA FTTP Connections External	£0	£0	£0	0.00%
SL961	GEA FTTC Connections External	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	14.53%
SL956	GEA CP to CP Migration External	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.30%
SL955	GEA CP to CP Migration Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	1.28%
SL953	GEA FTTP Connections Costs Internal	✂[£0 to £10]	£0	✂[£0 to £10]	0.51%
SL951	GEA FTTC Connections Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	24.40%
SL574	GEA Other Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	50.48%
Total		**✂[£10 to £50]**	**✂[£0 to £10]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[49] Some costs are zero due to rounding

2.4.7. OR Service Centre Assurance NGA (CL579)

The component CL579 captures the costs of Openreach service management centres that deal with the repair of NGA (Next Generation Access) services.

CL579 costs are attributed to FTTC and FTTP rentals. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1.

This component attributes the majority of its costs to SL574 (GEA Other Costs Internal) and SL951 (GEA FTTC Connections Costs Internal), as shown in Figure 46.

Figure 46. OR Service Centre Assurance NGA (CL579) Cost Attribution to Services[50]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL964	GEA Other External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	5.47%
SL962	GEA FTTP Rentals External	£0	£0	£0	0.00%
SL960	GEA FTTC Rentals External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	15.06%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.47%
SL950	GEA FTTC Rentals Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	42.12%
SL574	GEA Other Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	36.88%
Total		**✂[£10 to £50]**	**✂[-£10 to £0]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[50] Some costs are zero due to rounding

2.4.8. GEA Access Fibre Spine (CL950)

The component CL950 captures costs associated with the provision, installation and recovery of NGA fibre cable in the access network, as well as the costs of maintaining and repairing this network.

CL950 costs are attributed to FTTC and FTTP rentals. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1. The usage factor is inaccurate given that the costs associated with providing FTTC as compared to FTTP will differ significantly per connection. It may be more precise to have separate components for FTTP and FTTC in order to allow for different usage factors.

This component attributes the majority of its costs to SL950 (GEA FTTC Rentals Costs Internal) and SL960 (GEA FTTC Rentals External), as shown in Figure 47.

Figure 47. GEA Access Fibre Spine (CL950) Cost Attribution to Services[51]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL962	GEA FTTP Rentals External	£0	£0	£0	0.00%
SL960	GEA FTTC Rentals External	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	26.13%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.81%
SL950	GEA FTTC Rentals Costs Internal	✂[£0 to £10]	✂[£10 to £50]	✂[£10 to £50]	73.06%
Total		**✂[£0 to £10]**	**✂[£50 to £100]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.9. GEA Distribution Fibre (CL951)

The component CL951 contains costs for the provision, installation, recovery and depreciation of NGA distribution fibre cable, i.e. the fibre cables between the Cabinet and the T-node in the fibre network.

CL951 costs are attributed to FTTC and FTTP rentals. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1. The usage factor is inaccurate given that the costs associated with providing FTTC as compared to FTTP will differ significantly per connection. It may be more transparent to split the components into FTTP and FTTC in order to allow for different usage factors.

This component attributes the majority of its costs to SL950 (GEA FTTC Rentals Costs Internal) and SL960 (GEA FTTC Rentals External), as shown in Figure 48.

[51] Some costs are zero due to rounding

Figure 48. GEA Distribution Fibre (CL951) Cost Attribution to Services[52]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL962	GEA FTTP Rentals External	£0	£0	£0	0.00%
SL960	GEA FTTC Rentals External	✂[£10 to £50]	✂[£50 to £100]	✂[£10 to £50]	26.13%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.81%
SL950	GEA FTTC Rentals Costs Internal	✂[£10 to £50]	✂[£150 to £200]	✂[£50 to £100]	73.06%
Total		**✂[£10 to £50]**	**✂[£200 to £250]**	**✂[£50 to £100]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.10. GEA Electronics (CL952)

The component CL952 captures the costs of the exchange based electronics required for the delivery of GEA (Generic Ethernet Access). It connects the high-speed digital communications channels from the customer to the backhaul network.

CL952 costs are attributed to FTTC and FTTP rentals. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1.

This component attributes the majority of its costs to SL950 (GEA FTTC Rentals Costs Internal) and SL960 (GEA FTTC Rentals External), as shown in Figure 49.

Figure 49. GEA Electronics (CL952) Cost Attribution to Services[53]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL962	GEA FTTP Rentals External	£0	£0	£0	0.00%
SL960	GEA FTTC Rentals External	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	26.13%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.81%
SL950	GEA FTTC Rentals Costs Internal	✂[£10 to £50]	✂[£10 to £50]	✂[£10 to £50]	73.06%
Total		**✂[£10 to £50]**	**✂[£10 to £50]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.11. GEA DSLAM Cabinets (CL953)

The component CL953 captures the costs of the DSLAM network device required for the delivery of GEA (Generic Ethernet Access). It connects multiple customer digital subscriber line (DSL) interfaces to a high-speed digital communications channel using multiplexing techniques.

[52] Some costs are zero due to rounding
[53] Some costs are zero due to rounding

CL953 costs are attributed to FTTC rental services. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1.

This component attributes all of its costs to SL950 (GEA FTTC Rentals Costs Internal) and SL960 (GEA FTTC Rentals External), as shown in Figure 50.

Figure 50. GEA DSLAM Cabinets (CL953) Cost Attribution to Services

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL960	GEA FTTC Rentals External	✂[£10 to £50]	✂[£50 to £100]	✂[£10 to £50]	26.34%
SL950	GEA FTTC Rentals Costs Internal	✂[£10 to £50]	✂[£150 to £200]	✂[£50 to £100]	73.66%
Total		**✂[£50 to £100]**	**✂[£250 to £300]**	**✂[£50 to £100]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.12. GEA Customer Site Installation (CL954)

The component CL954 captures the costs for customer site Super-Fast Fibre Broadband provision and installation activity. It covers costs for the part of the network that is beyond the end of the Access Network and up to the Modem in the customer premises.

CL954 costs are attributed to FTTC and FTTP rentals. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1.

The methodology applied does not take into consideration the difference between FTTC and FTTP customer site installations. Arguably, FTTC requires a much simpler installation (i.e. the service provider sends the modem by post and the customer installs it). In most cases on FTTP, an engineer is required to install equipment at the customer premises. Consequently, the usage factor should reflect the difference in installation approaches.

This component attributes the majority of its costs to SL950 (GEA FTTC Rentals Costs Internal) and SL960 (GEA FTTC Rentals External), as shown in Figure 51.

Figure 51. GEA Customer Site Installation (CL954) Cost Attribution to Services[54]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL962	GEA FTTP Rentals External	£0	£0	£0	0.00%
SL960	GEA FTTC Rentals External	✂[£10 to £50]	✂[£10 to £50]	✂[£10 to £50]	26.13%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	0.81%
SL950	GEA FTTC Rentals Costs Internal	✂[£10 to £50]	✂[£100 to £150]	✂[£50 to £100]	73.06%
Total		**✂[£50 to £100]**	**✂[£100 to £150]**	**✂[£50 to £100]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.13. GEA FTTC Repairs (CL955)

The component CL955 includes the NGA FTTC costs associated with the repair/ maintenance of the head end electronics, and DSLAM cabinets and specific NGA customer equipment. This involves pay for engineering time and overheads associated with this.

CL955 costs are attributed to FTTC rentals. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1.

This component attributes all of its costs to SL950 (GEA FTTC Rentals Costs Internal) and SL960 (GEA FTTC Rentals External), as shown in Figure 52.

Figure 52. GEA FTTC Repairs (CL955) Cost Attribution to Services

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL960	GEA FTTC Rentals External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	26.34%
SL950	GEA FTTC Rentals Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	73.66%
Total		**✂[£0 to £10]**	**✂[-£10 to £0]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.14. GEA FTTP Repairs (CL956)

The component CL956 includes the NGA FTTP costs associated with the repair/ maintenance of the head end electronics, and specific NGA customer equipment. This involves pay for engineering time and overheads associated with this.

CL956 costs are attributed to FTTP rentals. The driver used to attribute costs is the number of existing connections, and the usage factor for each service is 1.

[54] Some costs are zero due to rounding

This component attributes almost all of its costs to SL952 (GEA FTTP Rentals Costs Internal), and a small proportion to SL962 (GEA FTTP Rentals External), as shown in Figure 53.

Figure 53. GEA FTTP Repairs (CL956) Cost Attribution to Services[55]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL962	GEA FTTP Rentals External	£0	£0	£0	0.04%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	£0	✂[£0 to £10]	99.96%
Total		**✂[£0 to £10]**	**£0**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.15. GEA FTTP Provisions (CL957)

The component CL957 includes the NGA FTTP costs associated with the Provision of the head end electronics, and specific NGA customer equipment. This involves the cost of the equipment and kit used when provisioning fibre.

CL957 costs are attributed to new FTTP connections. The driver used to attribute costs is the number of new connections, and the usage factor for each service is 1.

This component attributes almost all of its costs to SL953 (GEA FTTP Connections Costs Internal), and a small proportion to SL963 (GEA FTTP Connections External), as shown in Figure 54.

Figure 54. GEA FTTP Provisions (CL957) Cost Attribution to Services[56]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL963	GEA FTTP Connections External	£0	£0	£0	0.03%
SL953	GEA FTTP Connections Costs Internal	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	99.97%
Total		**✂[£0 to £10]**	**✂[£0 to £10]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[55] Some costs are zero due to rounding
[56] Some costs are zero due to rounding

2.4.16. GEA FTTC Provisions (CL958)

The component CL958 includes the NGA FTTC costs associated with the Provision of the head end electronics, and DSLAM cabinets and specific NGA customer equipment. This involves the cost of the equipment and kit used when provisioning fibre.

CL958 costs are attributed to new FTTC connections. The driver used to attribute costs is the number of new connections, and the usage factor for each service is 1.

This component attributes all of its costs to SL951 (GEA FTTC Connections Costs Internal) and SL961 (GEA FTTC Connect. External), as shown in Figure 55.

Figure 55. GEA FTTC Provisions (CL958) Cost Attribution to Services

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL961	GEA FTTC Connections External	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	37.32%
SL951	GEA FTTC Connections Costs Internal	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	62.68%
Total		**✂[£50 to £100]**	**✂[£0 to £10]**	**✂[£50 to £100]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.17. Fibre Rollout Funding (CL998)

The component CL998 captures the funding of the BDUK Development Programme. This represents the sum of subsidy that BT received.

CL998 costs are attributed to FTTC connections and rentals. The driver used to attribute costs is the number of new (for connection services) and existing connections (for rental services), and the usage factor for each service is 1.

This component attributes its costs to four different FTTC services, as shown in Figure 56.

Figure 56. Fibre Rollout Funding (CL998) Cost Attribution to Services

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL961	GEA FTTC Connections External	✂[-£10 to £0]	✂[-£100 to -£50]	✂[-£50 to -£10]	12.40%
SL960	GEA FTTC Rentals External	✂[-£10 to £0]	✂[-£100 to -£50]	✂[-£50 to -£10]	17.59%
SL951	GEA FTTC Connections Costs Internal	✂[-£50 to -£10]	✂[-£150 to -£100]	✂[-£50 to -£10]	20.82%
SL950	GEA FTTC Rentals Costs Internal	✂[-£50 to -£10]	✂[-£300 to -£250]	✂[-£100 to -£50]	49.19%
Total		**✂[-£100 to -£50]**	**✂[-£500 to -£1000]**	**✂[-£150 to -£100]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.18. Funded Fibre Rollout Spend (CL999)

The component CL998 attributes the funded region fibre rollout spend for BDUK Development Programme. This represents the sum of subsidy that BT actually spends.

CL999 costs are attributed to FTTC connections and rentals. The driver used to attribute costs is the number of new (for connection services) and existing connections (for rental services), and the usage factor for each service is 1.

This component attributes its costs to four different FTTC services, as shown in Figure 57.

Figure 57. Funded Fibre Rollout Spend (CL999) Cost Attribution to Services

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL961	GEA FTTC Connections External	✂[£10 to £50]	✂[£100 to £150]	✂[£10 to £50]	12.40%
SL960	GEA FTTC Rentals External	✂[£10 to £50]	✂[£150 to £200]	✂[£10 to £50]	17.59%
SL951	GEA FTTC Connections Costs Internal	✂[£10 to £50]	✂[£150 to £200]	✂[£10 to £50]	20.82%
SL950	GEA FTTC Rentals Costs Internal	✂[£50 to £100]	✂[£400 to £450]	✂[£100 to £150]	49.19%
Total		**✂[£100 to £150]**	**✂[£500 to £1000]**	**✂[£200 to £250]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.4.19. Ofcom Administration Fee Openreach (CO801)

The component CO801 receives an apportionment of the telecommunication license fees levied by Ofcom.

CO801 is attributed to NGA and non-NGA connection and rental services. The driver used to allocate costs is services revenues and the usage factor is one. Therefore, the cost allocation across each service is a proportion of the relevant turnover of that service within the fiscal year.

This component attributes most of its costs (86.43%) to non-NGA services. The largest NGA service by attribution volume is SL950 (GEA FTTC Rentals Costs Internal), as shown in Figure 58.

Figure 58. Ofcom Administration Fee Openreach (CO801) Cost Attribution to Services[57]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL964	GEA Other External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.45%
SL963	GEA FTTP Connections External	£0	£0	£0	0.00%
SL962	GEA FTTP Rentals External	£0	£0	£0	0.00%
SL961	GEA FTTC Connections External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.90%
SL960	GEA FTTC Rentals External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	2.24%
SL956	GEA CP to CP Migration External	£0	£0	£0	0.02%
SL955	GEA CP to CP Migration Costs Internal	£0	£0	£0	0.02%
SL953	GEA FTTP Connections Costs Internal	£0	£0	£0	0.06%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	£0	✂[£0 to £10]	0.15%
SL951	GEA FTTC Connections Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	1.77%
SL950	GEA FTTC Rentals Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	6.65%
SL574	GEA Other Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	1.31%
Other	Non-NGA Services	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	86.43%
Total		**✂[£0 to £10]**	**✂[-£10 to £0]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[57] Some costs are zero due to rounding

2.4.20. Openreach sales product management (CP502)

The component CP502 captures costs related to the management of Openreach's product portfolio and marketing and sales activities.

CP502 costs are attributed to NGA and non-NGA services. There are two methods used for the cost attribution. For non-sales and market activities such as product management, Usage Factors are calculated using a survey of staff which relates people to activities. For sales and marketing activities costs are allocated based on revenue data.

This component attributes most of its costs (85.8%) to non-NGA services. The largest NGA service by attribution volume is SL950 (GEA FTTC Rentals Costs Internal), as shown in Figure 59.

Figure 59. Openreach sales product management (CP502) Cost Attribution to Services[58]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL964	GEA Other External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.47%
SL963	GEA FTTP Connections External	£0	£0	£0	0.00%
SL962	GEA FTTP Rentals External	£0	£0	£0	0.00%
SL961	GEA FTTC Connections External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.94%
SL960	GEA FTTC Rentals External	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	2.35%
SL956	GEA CP to CP Migration External	✂[£0 to £10]	£0	✂[£0 to £10]	0.02%
SL955	GEA CP to CP Migration Costs Internal	✂[£0 to £10]	£0	✂[£0 to £10]	0.02%
SL953	GEA FTTP Connections Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.06%
SL952	GEA FTTP Rentals Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.16%
SL951	GEA FTTC Connections Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	1.86%
SL950	GEA FTTC Rentals Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	6.97%
SL574	GEA Other Costs Internal	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	1.37%
Other	Non-NGA Services	✂[£10 to £50]	✂[-£10 to £0]	✂[£10 to £50]	85.78%
Total		**✂[£10 to £50]**	**✂[-£50 to -£10]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[58] Some costs are zero due to rounding

2.4.21. Openreach Copper (CW900)

The component CW900 captures system generated figures for receivables for the RFS. These receivables approximate the amounts owed to BT, both internal and external. They are based upon the average trading terms of BT Group's external trades which BT calculates external to the REFINE system on an annual basis and the revenue calculated using price times volume (PxV) calculations as part of the attribution process. The calculation is based on 22 debtor dates. They are related to Openreach copper markets which NGA uses.

CW900 attributes costs to NGA and Non-NGA services. The attribution of receivables is directly in proportion to the revenue of each revenue-generating service, i.e. REFINE uses the price of each service as the Usage Factor.

This component attributes approximately 70% of its costs to NGA services. Within NGA services, the majority of costs are attributed to SL950 (GEA FTTC Rentals Costs Internal) SL960 (GEA FTTC Rentals External), as shown in Figure 60.

Figure 60. Openreach Copper (CW900) Cost Attribution to Services[59]

Code	Component	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
SL574	GEA Other Costs Internal	£0	✂[£0 to £10]	✂[£0 to £10]	6.83%
SL600	Other WLA External	£0	✂[£0 to £10]	£0	0.03%
SL950	GEA FTTC Rentals Costs Internal	£0	✂[£10 to £50]	✂[£0 to £10]	34.63%
SL951	GEA FTTC Connections Costs Internal	£0	✂[£0 to £10]	✂[£0 to £10]	9.23%
SL952	GEA FTTP Rentals Costs Internal	£0	✂[£0 to £10]	✂[£0 to £10]	0.80%
SL953	GEA FTTP Connections Costs Internal	£0	✂[£0 to £10]	✂[£0 to £10]	0.30%
SL955	GEA CP to CP Migration Costs Internal	£0	✂[£0 to £10]	✂[£0 to £10]	0.09%
SL956	GEA CP to CP Migration External	£0	✂[£0 to £10]	✂[£0 to £10]	0.09%
SL960	GEA FTTC Rentals External	£0	✂[£0 to £10]	✂[£0 to £10]	11.69%
SL961	GEA FTTC Connections External	£0	✂[£0 to £10]	✂[£0 to £10]	4.69%
SL962	GEA FTTP Rentals External	£0	£0	£0	0.00%
SL963	GEA FTTP Connections External	£0	£0	£0	0.00%
SL964	GEA Other External	£0	✂[£0 to £10]	✂[£0 to £10]	2.35%
Other	Non-NGA Services	£0	✂[£10 to £50]	✂[£0 to £10]	29.27%
Total		**£0**	**✂[£50 to £100]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[59] Some costs are zero due to rounding

2.5 GEA Market Composition

2.5.1. *Overview of Component to Service Cost Attribution Methodology*

This section provides an overview of all components which allocate costs to a specific GEA service. The section is divided by GEA services and it shows the cost components and the contribution of Current Cost Accounting (CCA), MCE and FAC.

2.5.2. *GEA Other Costs Internal (SL574)*

'GEA Other Costs Internal' refers to sundry costs associated with the provision of GEA from Openreach to BT. The service has costs attributed from five different components. The top two components, OR Service Centre Provision NGA (CL574) and OR Service Centre Assurance NGA (CL579) make up approximately 93% of the total costs for SL574 (see Figure 61).

Figure 61. Costs Attributed to Service GEA Other Costs Internal (SL574)[60]

Component Code	Component Description	CCA(£M)	MCE (£M)	FAC (£M)	FAC (%)
CL574	OR Service Centre Provision NGA	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	58.93%
CL579	OR Service Centre Assurance NGA	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	34.18%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.52%
CP502	Openreach Sales Product Management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	3.69%
CW900	Openreach Copper	£0	✂[£0 to £10]	✂[£0 to £10]	2.68%
Total		**✂[£10 to £50]**	**✂[£0 to £10]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[60] Some costs are zero due to rounding

2.5.3. GEA FTTC Rentals Costs Internal (SL950)

'GEA FTTC Rentals Costs Internal' refers to costs associated with connecting customers to GEA services via FTTC access technology. The service has thirteen different components attributing costs to it, amounting to a total of ✂[£500-1000 million] (see Figure 62).

Figure 62. Costs Attributed to Service GEA FTTC Rentals Costs Internal (SL950)

Component Code	Component Description	CCA(£M)	MCE (£M)	FAC (£M)	FAC (%)
CL192	NGA E side Copper Capital	✂[£10 to £50]	✂[£150 to £200]	✂[£10 to £50]	13.97%
CL197	FTTC Development	✂[£0 to £10]	✂[£10 to £50]	✂[£10 to £50]	3.20%
CL579	OR Service Centre Assurance NGA	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	1.93%
CL950	GEA Access Fibre Spine	✂[£0 to £10]	✂[£10 to £50]	✂[£10 to £50]	3.26%
CL951	GEA Distribution Fibre	✂[£10 to £50]	✂[£150 to £200]	✂[£50 to £100]	16.46%
CL952	GEA Electronics	✂[£10 to £50]	✂[£10 to £50]	✂[£10 to £50]	5.75%
CL953	GEA DSLAM Cabinets	✂[£10 to £50]	✂[£150 to £200]	✂[£50 to £100]	19.37%
CL954	GEA Customer Site Installation	✂[£10 to £50]	✂[£100 to £150]	✂[£50 to £100]	15.99%
CL955	GEA FTTC Repairs	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	2.34%
CL998	Fibre Rollout Funding	✂[-£50 to -£10]	✂[-£300 to -£250]	✂[-£100 to -£50]	-17.59%
CL999	Funded Fibre Rollout Spend	✂[£50 to £100]	✂[£400 to £450]	✂[£100 to £150]	34.27%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.13%
CP502	Openreach sales product management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.93%
Total		**✂[£200 to £250]**	**✂[£500 to £1000]**	**✂[£300 to £350]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

The top component by percentage attribution is 'Funded Fibre Rollout Spend' (CL999), providing 34.27% of the total service cost. This component attributes the funded region fibre rollout spend. The second largest attributor of costs is 'GEA DSLAM Cabinets' (CL953), accounting for 19.37% of total FAC.

2.5.4. GEA FTTC Connections Costs Internal (SL951)

'GEA FTTC Connection Costs Internal' (SL951) refers to costs associated with connecting customers to GEA services via FTTC access technology. The service receives cost attributions from eight components, amounting to a total of ✂[£50-100 million]. GEA FTTC Provisions (CL958) and Funded Fibre Rollout Spend (CL999) account for 51% and 63% respectively. Due to the presence of negative costs, the sum of these two individual items is greater in value than the sub-totals and totals, leading to a combined percentage of 114% of costs (Figure 63).

Figure 63. Costs Attributed to Service GEA FTTC Connections Costs Internal (SL951)

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL160	Routing Records	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	3.35%
CL197	FTTC Development	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	6.14%
CL574	OR Service Centre Provision NGA	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	6.38%
CL958	GEA FTTC Provisions	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	50.87%
CL998	Fibre Rollout Funding	✂[-£50 to -£10]	✂[-£150 to -£100]	✂[-£50 to -£10]	-33.74%
CL999	Funded Fibre Rollout Spend	✂[£10 to £50]	✂[£150 to £200]	✂[£10 to £50]	65.72%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.16%
CP502	Openreach sales product management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	1.12%
Total		**✂[£50 to £100]**	**✂[£50 to £100]**	**✂[£50 to £100]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.5.5. GEA FTTP Rentals Costs Internal (SL952)

'GEA FTTP Rentals Costs Internal' (SL952) refers to costs associated with the provision of rentals of GEA services via FTTP access technology. The service has a total cost of ✂[£0-10 million], coming from nine components. The top two components, GEA Distribution Fibre (CL951) and GEA Customer Site Installation (CL954) attribute ✂[£0-10 million] to this service, representing 63% of the costs (Figure 64).

Figure 64. Costs Attributed to Service GEA FTTP Rentals Costs Internal (SL952)[61]

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL198	FTTP Development	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	7.95%
CL579	OR Service Centre Assurance NGA	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	3.78%
CL950	GEA Access Fibre Spine	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	6.38%
CL951	GEA Distribution Fibre	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	32.22%
CL952	GEA Electronics	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	11.25%
CL954	GEA Customer Site Installation	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	31.31%
CL956	GEA FTTP Repairs	✂[£0 to £10]	£0	✂[£0 to £10]	2.81%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	£0	✂[£0 to £10]	0.53%
CP502	Openreach sales product management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	3.76%
Total		**✂[£0 to £10]**	**✂[£0 to £10]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.5.6. GEA FTTP Connections Costs Internal (SL953)

'GEA FTTP Connections Costs Internal' (SL953) refers to costs associated with connecting customers to GEA services via FTTP access technology. The service has costs attributed from six different components. The largest attribution comes from component 'GEA FTTP Provisions' (CL957), which accounts for 72% of the total cost for SL953 (see Figure 65).

[61] Some costs are zero due to rounding

Figure 65. Costs Attributed to Service GEA FTTP Connections Costs Internal (SL953)[62]

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL160	Routing Records	✂[£0 to £10]	£0	✂[£0 to £10]	4.74%
CL198	FTTP Development	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	11.03%
CL574	OR Service Centre Provision NGA	✂[£0 to £10]	£0	✂[£0 to £10]	9.04%
CL957	GEA FTTP Provisions	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	72.40%
CO801	Ofcom Administration Fee Openreach	£0	£0	£0	0.34%
CP502	Openreach sales product management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	2.44%
Total		**✂[£0 to £10]**	**✂[£0 to £10]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.5.7. GEA CP to CP Migration Costs Internal (SL955)

'GEA CP to CP Migration Costs Internal' (SL955) refers to transfer or change of CP or customer moving between providers for GEA and it is exclusive for services provided for BT's Consumer lines of business.

'FTTC Development' (CL197) and 'OR Service Centre Provision NGA' (CL574) are the largest cost attributors for SL955, accounting for 78% of the FAC. A large proportion of the costs (21%) is attributed from the third highest component Routing Records (CL160). The remaining two components account for the rest of the SL955 costs (see Figure 66).

Figure 66. Costs Attributed to Service GEA CP to CP Migration (SL955)[63]

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL160	Routing Records	✂[£0 to £10]	£0	✂[£0 to £10]	20.79%
CL197	FTTC Development	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	38.10%
CL574	OR Service Centre Provision NGA	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	39.64%
CO801	Ofcom Administration Fee Openreach	£0	£0	£0	0.18%
CP502	Openreach sales product management	✂[£0 to £10]	£0	✂[£0 to £10]	1.28%

[62] Some costs are zero due to rounding
[63] Some costs are zero due to rounding

Total		**✂[£0 to £10]**	**✂[£0 to £10]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.5.8. GEA CP to CP Migration External (SL956)

'GEA CP to CP Migration External' (SL956) refers to transfer or change of CP or customer moving between providers for GEA.

The service has a total cost of ✂[£0-10 million], coming from five different components. The costs for this service are being attributed in a similar way than for SL955, with components CL574, CL197 and CL160 (in order of FAC) accounting for 99% of the total (see Figure 67).

Figure 67. Costs Attributed to Service GEA CP to CP Migration External (SL956)[64]

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL160	Routing Records	✂[£0 to £10]	£0	✂[£0 to £10]	20.79%
CL197	FTTC Development	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	38.10%
CL574	OR Service Centre Provision NGA	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	39.64%
CO801	Ofcom Administration Fee Openreach	£0	£0	£0	0.18%
CP502	Openreach sales product management	✂[£0 to £10]	£0	✂[£0 to £10]	1.28%
Total		**✂[£0 to £10]**	**✂[£0 to £10]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.5.9. GEA FTTC Rentals External (SL960)

'GEA FTTC Rentals External' (SL960) refers to costs associated with the provision of rentals of GEA via FTTC access technology to external service providers (other than BT consumer).

The service has a total cost of ✂[£100-150 million], coming from 13 different components. The component attributing the highest value to SL960 is 'Funded Fibre Rollout Spend' (CL999), which accounts for 34% of the total FAC. The next highest component ('GEA DSLAM Cabinets' (CL953)) accounts for almost 20% of the total cost (see Figure 68).

[64] Some costs are zero due to rounding

Figure 68. Costs Attributed to Service GEA FTTC Rentals External (SL960)

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL192	NGA E side Copper Capital	✂[£0 to £10]	✂[£50 to £100]	✂[£10 to £50]	13.98%
CL197	FTTC Development	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	3.20%
CL579	OR Service Centre Assurance NGA	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	1.93%
CL950	GEA Access Fibre Spine	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	3.26%
CL951	GEA Distribution Fibre	✂[£10 to £50]	✂[£50 to £100]	✂[£10 to £50]	16.46%
CL952	GEA Electronics	✂[£0 to £10]	✂[£10 to £50]	✂[£0 to £10]	5.75%
CL953	GEA DSLAM Cabinets	✂[£10 to £50]	✂[£50 to £100]	✂[£10 to £50]	19.38%
CL954	GEA Customer Site Installation	✂[£10 to £50]	✂[£10 to £50]	✂[£10 to £50]	16.00%
CL955	GEA FTTC Repairs	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	2.35%
CL998	Fibre Rollout Funding	✂[-£10 to £0]	✂[-£100 to -£50]	✂[-£50 to -£10]	-17.60%
CL9999	Funded Fibre Rollout Spend	✂[£10 to £50]	✂[£150 to £200]	✂[£10 to £50]	34.29%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.12%
CP502	Openreach sales product management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.87%
Total		**✂[£50 to £100]**	**✂[£300 to £350]**	**✂[£100 to £150]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.5.10. GEA FTTC Connections External (SL961)

'GEA FTTC Connections External' refers to costs associated with connecting customers to GEA via FTTC access technology to external service providers (other than BT consumer).

The service has a total cost of ✂[£10-50 million], with a similar component attribution than SL951. Again, costs are coming from eight components, with GEA FTTC Provisions (CL958) and Funded Fibre Rollout Spend (CL999) accounting for 51% and 63% respectively. A negative value is being attributed from CL998 Fibre Rollout Funding (see Figure 69).

Figure 69. Costs Attributed to Service GEA FTTC Connections External (SL961)

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL160	Routing Records	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	3.36%
CL197	FTTC Development	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	6.15%
CL574	OR Service Centre Provision NGA	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	6.40%
CL958	GEA FTTC Provisions	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	50.97%
CL998	Fibre Rollout Funding	✂[-£10 to £0]	✂[-£100 to -£50]	✂[-£50 to -£10]	-33.80%
CL9999	Funded Fibre Rollout Spend	✂[£10 to £50]	✂[£100 to £150]	✂[£10 to £50]	65.84%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.13%
CP502	Openreach sales product management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.96%
Total		**✂[£10 to £50]**	**✂[£10 to £50]**	**✂[£10 to £50]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

2.5.11. GEA FTTP Rentals External (SL962)

'GEA FTTP Rentals External' (SL962) refers to costs associated with the provision of rentals of GEA via FTTP access technology to external service providers (other than BT consumer).

The service has costs attributed from nine different components. The top two components, 'GEA Distribution Fibre' (CL951) and GEA Customer Site Installation (CL954) make up approximately 62% of the total costs for SL962. The structure of the components attributing to SL962 is similar to that of SL952 (see Figure 70).

Figure 70. Costs Attributed to Service GEA FTTP Rentals External (SL962)[65]

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL198	FTTP Development	✂[£10 to £50]	✂[£100 to £150]	✂[£50 to £100]	7.76%
CL579	OR Service Centre Assurance NGA	✂[£10 to £50]	✂[-£10 to £0]	✂[£10 to £50]	3.69%
CL950	GEA Access Fibre Spine	✂[£10 to £50]	✂[£200 to £250]	✂[£50 to £100]	6.23%
CL951	GEA Distribution Fibre	✂[£150 to £200]	✂[£500 to £1000]	✂[£250 to £300]	31.44%
CL952	GEA Electronics	✂[£50 to £100]	✂[£100 to £150]	✂[£50 to £100]	10.98%
CL954	GEA Customer Site Installation	✂[£150 to £200]	✂[£500 to £1000]	✂[£200 to £250]	30.55%
CL956	GEA FTTP Repairs	✂[£10 to £50]	£0	✂[£10 to £50]	2.74%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	0.82%
CP502	Openreach sales product management	✂[£10 to £50]	✂[-£50 to -£10]	✂[£10 to £50]	5.79%
Total		**✂[£500 to £1000]**	**✂[£1500 to £2000]**	**✂[£500 to £1000]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[65] Some costs are zero due to rounding

2.5.12. GEA FTTP Connections External (SL963)

'GEA FTTP Connections Costs External' (SL963) refers to costs associated with connecting customers to GEA via FTTP access technology to external service providers (other than BT consumer).

The service has costs attributed from six different components. The largest attribution comes from component 'GEA FTTP Provisions' (CL957), which accounts for 72% of the total cost for SL963 (see Figure 71).

Figure 71. Costs Attributed to Service GEA FTTP Connections Costs External (SL963)[66]

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL160	Routing Records	✂[£10 to £50]	£0	✂[£10 to £50]	4.74%
CL198	FTTP Development	✂[£10 to £50]	✂[£50 to £100]	✂[£10 to £50]	11.03%
CL574	OR Service Centre Provision NGA	✂[£10 to £50]	✂[£0 to £10]	✂[£10 to £50]	9.04%
CL957	GEA FTTP Provisions	✂[£200 to £250]	✂[£0 to £10]	✂[£200 to £250]	72.41%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	£0	✂[£0 to £10]	0.35%
CP502	Openreach sales product management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	2.43%
Total		**✂[£300 to £350]**	**✂[£50 to £100]**	**✂[£300 to £350]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

[66] Some costs are zero due to rounding

2.5.13. GEA Other External (SL964)

'GEA Other External' (SL964) refers to sundry costs associated from the provision of FEA from Openreach to external service providers (other than BT consumer).

The service has costs attributed from four different components. The top two components, OR Service Centre Provision NGA (CL574) and OR Service Centre Assurance NGA (CL579) make up approximately 91% of the total costs for SL564 (see Figure 72).

Figure 72. Costs Attributed to Service GEA Other Costs Internal (SL574)

Component Code	Component Description	CCA (£M)	MCE (£M)	FAC (£M)	FAC (%)
CL574	OR Service Centre Provision NGA	✂[£0 to £10]	✂[£0 to £10]	✂[£0 to £10]	57.29%
CL579	OR Service Centre Assurance NGA	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	33.23%
CO801	Ofcom Administration Fee Openreach	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	1.17%
CP502	Openreach Sales Product Management	✂[£0 to £10]	✂[-£10 to £0]	✂[£0 to £10]	8.31%
Total		**✂[£0 to £10]**	**✂[-£10 to £0]**	**✂[£0 to £10]**	**100.00%**

Source: BT RFS 2015/16, Cartesian

3. Assessment against Regulatory Accounting Principles

3.1 Introduction

In this section of the report we assess the cost attribution methodologies for GEA services against Ofcom's Regulatory Accounting Principles (RAP). Specifically, we assess whether the methodologies conform to the criteria of transparency, objectivity, causality and neutrality of bias. In addition, we assess whether the cost categories created for GEA services are relevant, logical and comprehensive. Finally, we look at how the different cost components are attributed between NGA and non-NGA services.

Our main findings from this assessment are as follows:

- The attribution of fibre costs to FTTC and FTTP services fails to properly account for the rate at which NGA services consume fibre;
- BDUK funding and the costs of deployment in BDUK areas have no attribution to FTTP services, although a small number of FTTP services do exist in these areas;
- A number of NGA Network Components include both provisioning and maintenance costs which may reduce transparency and limit the flexibility for onward attribution to services; and,
- Capital costs incurred during NGA provisioning (including labour and modems) are attributed to rental services; and,
- There are some errors in the definitions of Plant Groups and Components in the AMD, although this does not impact the cost attribution.

3.2 Assessment of Cost Attributions from PGs to Network Components

3.2.1. Introduction

There are a total of 22 PGs attributing costs to GEA services via a relevant network component. Of those, 18 PGs allocated 100% of their costs to a single Network Component.

In general, all Plant Groups appear to be relevant to GEA services.

In terms of transparency, we identified some errors in the way some PGs are defined in BT AMD. All of the issues in the AMD were clarified by BT during the course of the assessment and BT has agreed to update the AMD to provide definitions in the areas identified in this report. They do not impact the cost attribution.

Again, on the criteria of transparency, we identified a number of PGs that include the costs of both provisioning and maintenance activities:

- PG192A: FTTC Copper Tie Cables
- PG592C: GEA Electronics
- PG953C: GEA DSLAM Cabinets
- PG954C: GEA Customer Site Installations

Splitting out these costs into separate PGs would improve transparency and provide greater flexibility for the attribution of costs to services.

We describe each of these issues in more detail below.

3.2.1. GEA Development Cost (PG197A and PG198A)

Causality

The definition in the AMD of both GEA Development Cost PGs (PG197A and PG198A) includes BT Wholesale costs. These costs relate to the use of NGA as an input to fibre-based WBC services. BT agrees that the attribution of BT wholesale costs into PG197A and PG198A is an error, however the magnitude is not material. BT plans to correct this error in the 2016/2017 RFS.

3.2.2. GEA Distribution Fibre (PG950C, PG950M, PG951C and PG951M)

Transparency

The definition of the PGs related to GEA Distribution Fibre is not clear in the AMD. There are indirect costs related to fibre replacement which are not described in detail. The definition is unclear regarding the scope of these indirect costs and why they have been attributed to these PGs.

3.2.3. PG951M: GEA Distribution Fibre Maintenance

Transparency

This PG has an incorrect definition in the AMD. The definition appears to have been copied from another PG.

3.2.4. PG952C: GEA Electronics

Transparency

This PG definition in the AMD is not clear in terms of what equipment the engineering costs relate to. The AMD mentions head-end and DSLAM equipment. During the assessment, BT confirmed that DSLAM equipment is not included in this definition and there are other GEA electronics (in addition to the head-end) that drive engineering costs included in this PG. However, there is still no full clarity on the exact equipment (e.g. modem) included.

It is not clear in the AMD where the Customer Premises Equipment (CPE) costs are attributed. It is unclear from the AMD whether these costs are attributed to either PG952 or PG954C (GEA Customer Site Installations).

In addition, the AMD defines PG952 to also include costs related to circuit provision for Megastream Services (CPDM) and Asymmetric Digital Subscriber line (ADSL) (CPDSL). These costs are not related to GEA services and it therefore appears they should not be included in this PG definition. However, during the course of this review, BT clarified that there are some CPDM and ADSL/CPDLS costs which are related to NGA services. Nevertheless, BT was not able to clarify what these costs refer to.

3.2.5. PG956M: GEA FTTP Maintenance

Transparency

This PG has an incorrect definition in the AMD. The definition refers to DSLAMs, however the PG is specific to FTTP services. During the assessment, BT validated that DSLAM costs are not included in this PG.

3.2.6. PG957P: GEA FTTP Provision

Transparency

This PG has an incorrect definition in the AMD. The definition refers to DSLAMs, however the PG is specific to FTTP services. During the assessment, BT validated that DSLAM costs are not included in this PG.

3.2.7. PG954C: GEA Equipment

Transparency

This PG does not have a clear definition in the AMD. The AMD does not specify which network equipment is included in the PG.

3.2.8. PG800A: Ofcom Administration Fee

Transparency

This PG is not defined in the AMD.

3.2.9. PG999A: Funded Fibre Rollout Spend

Transparency

The approach used for this Plant Group does not provide clarity on how the BDUK Fund is being spent. Costs are attributed to this PG directly from the general ledger. The scope of this assessment included only costs attributed from PGs onwards and not how costs were attributed from the general ledger to the PGs. More investigation in this area would be required in order to assess exactly what costs are attributed to the BDUK fund.

3.2.10. PGs that combine Provision and Maintenance Costs

Transparency

There are four Plant Groups which include both provision (i.e. capitalized costs of installation works) and maintenance costs (i.e. capitalised costs of repairing specific assets):

- PG192A: FTTC Copper Tie Cables
- PG592C: GEA Electronics
- PG953C: GEA DSLAM Cabinets
- PG954C: GEA Customer Site Installations

The approach used for this Plant Groups is inconsistent to the one applied to other Plant Groups, which have their cost activities divided between provision and maintenance, such as:

- PG950C: GEA Access Fibre Spine
- PG950M: GEA Access Fibre Spine Maintenance
- PG951C: GEA Distribution Fibre
- PG951M: GEA Distribution Fibre Maintenance

Splitting each of the four PGs into separate PGs for provision and maintenance costs would increase transparency. It would also provide greater flexibility in the onward attribution of costs between connection and rental services (see Section 3.3.7).

3.3 Assessment of Cost Attributions from Network Components to Services

In this section, we present our assessment of the Network Component cost attribution methodologies against the RAP criteria of causality, transparency, objectivity and neutrality of bias.

We identified some areas of concern regarding causality and objectivity. We describe more details about our findings in the following sections.

3.3.1. CL950: Distribution Fibre

Objectivity

The current attribution methodology uses the number of existing connections as the usage driver for all relevant services, including FTTP and FTTC. This methodology does not account for the difference in fibre consumption between FTTP and FTTC.

For FTTC, the number of existing connections to fibre cabinets seems to be a more appropriate usage factor. (One fibre cabinet can serve approximately 300 end users.) For FTTP, end user connections could be used, however an adjustment may be required to account for fibre aggregation in the GPON network. (GPON employs a tree topology where a common distribution fibre from the exchange is split into multiple branches to serve individual end users.) Alternatively, the number of optical splitters in the GPON network could be used as a driver.

3.3.2. CL951: Access Fibre

Objectivity

As for CL950 above, the attribution methodology for CL951 uses the number of existing connections as the usage driver for all relevant services, including FTTP and FTTC. This methodology does not account for the difference in fibre consumption between FTTP and FTTC.

3.3.3. CL954: GEA customer site installation

Objectivity

The attribution methodology uses the number of new connections as the usage driver (and a usage factor of 1) for all relevant services on both FTTP and FTTC access technologies. However, this methodology does not consider the different complexity of customer site installation between FTTP and FTTC.

Most FTTC installations are now based on a “plug and play” modem which the service provider sends to its customer and do not require an engineer install. On the other hand, FTTP installations are more complex and require a field engineer to install the ONT and modem equipment at the customer premises.

Consequently, the usage factor should take into account the different cost proportions between FTTC and FTTP customer site installations.

In addition, the usage factor does not appear to take into account the fact that some CPs may use their own field technicians or third parties for FTTC installations that only require internal work. If material, this would further skew the cost allocation towards FTTP.

3.3.4. CL998: Fibre Funding Rollout

Causality

CL998 attributes all of its costs (funds) to FTTC services, however there are also a small number of FTTP connections in BDUK areas.

Given that the share of FTTP connections in BDUK areas is relatively small, the current impact in the RFS is unlikely to be material. However, the share of FTTP connections in BDUK areas may grow in the future which would lead to a larger inaccuracy.

Objectivity

CL998 attributes its costs between FTTC connection and rental services based on the number of new and existing connections. We are unsure whether this simple attribution mechanism is appropriate for BDUK funding. Specifically, there may be restrictions in the BDUK funding criteria that limit the activities to which the funds can be applied.

3.3.5. CL999: Funded Fibre Rollout Spent

Causality

As for CL998 above, this Network Component does not attribute any costs to FTTP services.

Objectivity

As for CL998 above, this Network Component CL998 attributes its costs to both FTTC connection and rental services based on the number of new and existing connections. As with CL998, this may or may not be an issue depending on BDUK funding criteria.

3.3.6. CW900 Openreach Copper

Transparency

This Network Component is not defined in the AMD. Moreover, the name is misleading since the Component is related to revenue receivables.

3.3.7. Attribution of Costs between Connection and Rental Services

For Information

BT recovers the costs for NGA services through one-off connection fees and ongoing rental fees

BT has taken a commercial decision on how to recover costs between connection and rental fees which has informed its approach to cost attribution for Connection and Rental services, e.g. SL950 GEA FTTC Rentals Costs Internal. (A full list is provided in Figure 62).

BT attributes operational expenditure associated with new connections to Connection services, and recovers these costs through a one-off connection charge. Capital expenditure associated with new connections is attributed to Rental services and is recovered through the ongoing service rental fees. This cost includes capitalised labour and equipment costs for DSLAMs, ONTs and modems. Ongoing operational costs are also attributed to the Rental services.

The approach to allocating costs between Connection and Rental services for CGA products was not assessed in the 2015 study.

3.4 Review of Attribution Costs within WLA Market

In this section, we look at the cost attribution between GEA services and other services.

Most of the GEA Plant Groups and Network Components were created specifically for GEA services (18 out of 22 PGs). In addition, these PGs allocate the entirety of their costs into specific components which are closely linked to the Plant Group definition.

In terms of Network Component to GEA services attribution, we have assessed the attribution methodology and usage factor in section 4.2.

There are four components which attribute costs to non-GEA services (CL160: Routing and Records, CO801: Ofcom License, CP502: OR Sales and Product Management and CW900: Openreach Copper).

CL160 (Routing and Records) attributes around 40% of its costs to GEA services. The Network Component also attributes costs to services such as analogue/ISDN and LLU. Since the component costs refers to circuit provisioning, its cost attribution driver is the number of new connections, which seems to be logical. The usage factor for most of the service CL160 attributes costs is 1.

CO801 (Ofcom License) and CP502 (OR Sales and Product Development) attribute 14% and 15% respectively of their costs to GEA services. The cost attribution driver is revenue and the usage factor is 1.

CW900 (Openreach Copper) attributes around 70% of its costs to GEA services. The other 30% are attributed to non-GEA services within the WLA market. The cost attribution driver for this component is revenue and the usage factor is 1.

The cost attribution driver and usage factor for the components attributing costs into both GEA and non-GEA services seems to be logical and they did not raise any concerns.

We also looked at all Plant Groups and components which attribute costs to non-GEA services. Our aim was to assess whether there was any additional activity which should be attributing costs to GEA services. We did not find any additional Plant Group or Network component which would be relevant to NGA services.

Consequently, we find that that the cost proportion between GEA and non-GEA services appears reasonable.

Appendix A – Glossary of Terms

Allocation	Allocation is a 100% direct attribution of costs to a single cost category
Access	Access refers to the network segment between a local exchange and the customer premises
Access Distribution	Fibre access network segment between an optical distribution node and the customer premises
Access Spine	Fibre access network segment between a local exchange and an optical distribution node
AICC	Asset in Course of Construction, which refers to assets that are not completed and are in the process of being built
AMD	Accounting Methodology Document
Apportionment	Apportionment is used when costs need to be split among different cost categories based on a cost driver
ASIG	Published governance papers by BT
Attribution	Attribution is act of associating costs, revenues, assets and liabilities from one cost category to another.
Backhaul	Backhaul refers to the network segment between the core and access networks
BDUK	A fund which is part of the UK Government investment initiative to provide better broadband services across the country
BT	British Telecommunications plc
CCA	Current Cost Accounting
Cost Category	A grouping of similar costs into unique cost pool using an identical cost driver
Cost Driver	The factor or event which causes a cost to be incurred. BT also refers to it as 'Base'. It has the same meaning as Method or underlying method.
Cost Group	A Cartesian-defined term within the project to refer to a set of BT cost categories for similar types of costs e.g. duct, fibre or property
Cost of Capital	The opportunity cost associated with an asset investment. Cartesian has used an indicative 10% WACC as a reference in the study to calculate the cost of capital based on the MCE.

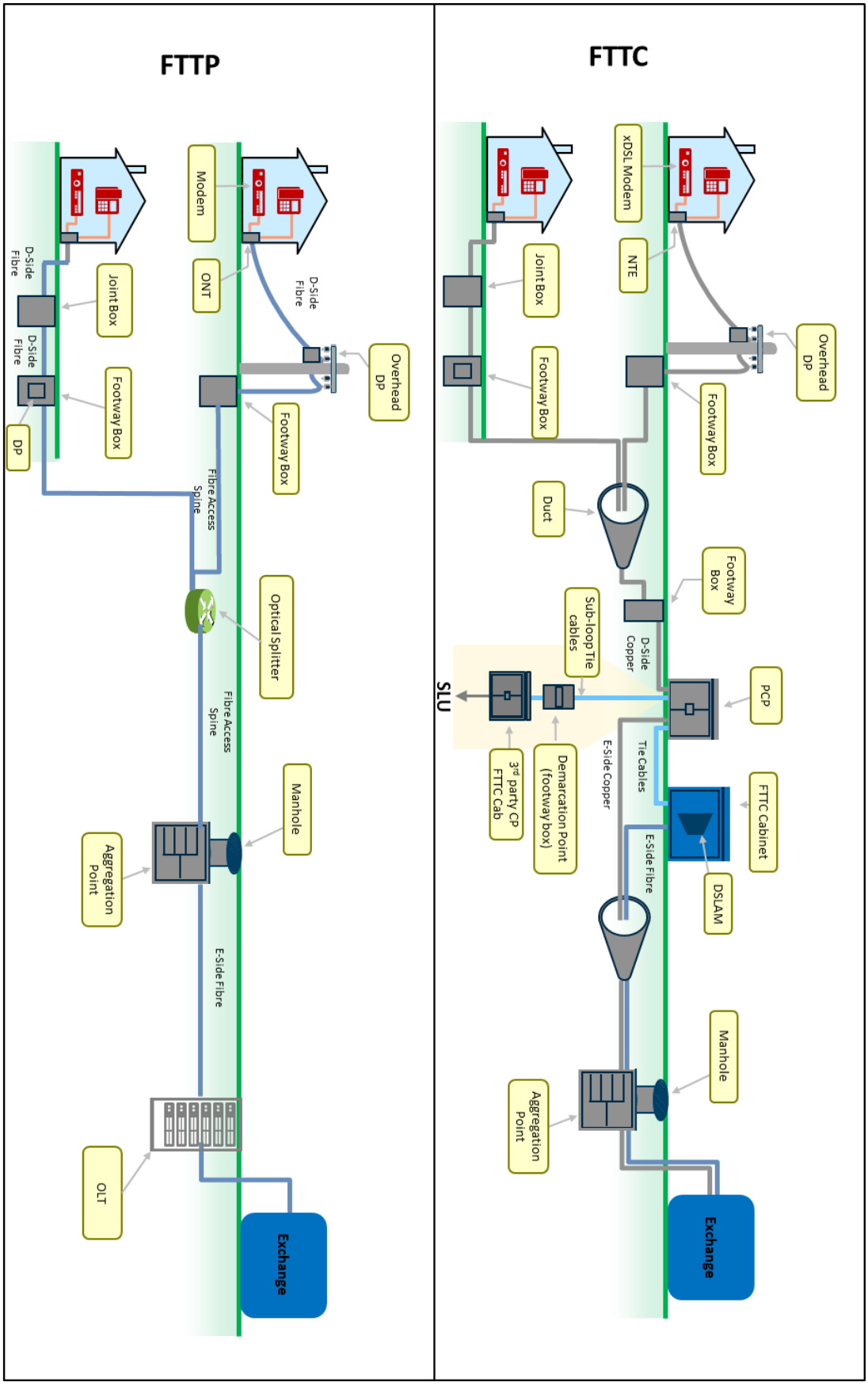
CoW	Class of Work are essentially three or four digit codes that indicate the type of engineering work being conducted and the equipment the engineering tasks relate to. For example, CoW 'ACPA', relates to Capital Work relating to racks, power and ventilation. When a CoW is being used for attribution of capitalised engineering costs, the finance teams use an engineering time booking system to determine the 'number of hours' spent on a CoW and apply a standard charge rate to determine the total cost of the activity. This cost then allows BT to determine an attribution base.
CP	Communications Provider
Cumulo Rates	A tax on commercial property. In BT's case these relate to taxes paid to local governments for BT's network assets in the UK.
DSLAM	Digital Subscriber Line Access Multiplexer is a network device, often located in telephone exchanges, that connects multiple customer digital subscriber line (DSL) interfaces to a high-speed digital communications channel using multiplexing techniques.
D-side	A network segment in BT's copper network between a local exchange and a primary concentration point
E-side	A network segment in BT's copper network between a primary concentration point and a distribution point
F8	F8 is a system code for group of similar cost items at the General Ledger. Normally, defined as a F8/OUC combination.
FAC	Fully Allocated Cost. Within the scope of the study, Cartesian uses an indicative WACC of 10% to calculate FAC as the sum of capital and current account costs.
FTTC	Fibre to the Cabinet
FTTP	Fibre to the Premises
FTTx	A generic term for various access fibre delivery architectures such as FTTC and FTTP
GEA	Generic Ethernet Access
ISDN	Integrated Services Digital Network. There are two variants: ISDN2 with two data channels per physical line and ISDN30 with 30 data channels per physical line.
LLU	Local Loop Unbundling is a regulatory remedy which enables CPs to access BT's copper lines
Market	Market is a collection of similar market services (by connectivity type), e.g. LLU and WLR are grouped in the Fixed Access market.
Market Service	A market service consists of a set of one or more network services.

MCE	Mean Capital Employed
Method	Method or underlying method is the same as cost driver: the factor or event which causes a cost to be incurred
MUX	Multiplexer; a device that selects one of several analogue or digital input signals and forwards the selected input into a single line
Network Component	Cost category capturing costs representing discrete parts of BT's Network (e.g. MDF Equipment, Access Fibre Spine and ISDN30 Connections). Groups of these components are allocated to Services that feed into Markets and Products
Network Service	A network service consists of a fixed set of one or more network components e.g. MPF Rental network service belonging to the LLU market service.
NGA	Next Generation Access. Typically associated with FTTX technologies.
Non Pay	Non Pay is a current cost type that excludes salaries, asset valuation and depreciation.
ONT	Optical Network Terminal; used to terminate the fibre optic line, demultiplex the signal into its component parts (voice telephone, television, and Internet access), and provide power to customer telephones
OR	Openreach
OUC	Organisational Unit Code. A code that represents a unit within BT's organisation.
Pay	Pay cost is a cost type related to salaries and contracting fees of BT human resources due to business operations. This cost can be capitalised over a period, in particular for engineering associated pay cost
PG	Plant Group. Cost category capturing costs related to activities, equipment and infrastructure for the purposes of running and selling network services (e.g. provision and maintenance activities, MSAN equipment, Copper and fibre cables, etc.)
Provision	A cost recorded for future use against a liability
RAP	Regulatory Accounting Principles
RFS	Regulatory Financial Statements
SMP	Significant Market Power

TED	TED (Tool to Extract Data) is a SAP BPC programme that allows Ofcom to interrogate and analyse the 'Flat File' that BT provides to Ofcom in private as part of its Regulatory Financial Statements The Flat File includes a number of mapping files for BT's cost attribution system along with the database itself which contains all RFS transactions greater than £5
WACC	Weighted Average Cost of Capital
Wholesale Residual	An unregulated market capturing all the costs incurred on assets and activities in BT's network due to BT's business operations
WLR	Wholesale Line Rental is a BT market service within the Fixed Access market

Appendix B – Access Network Architecture

Figure 73. Network Architecture for FTTC and FTTP Access Networks



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