

Neutral citation [2016] CAT 22

IN THE COMPETITION
APPEAL TRIBUNAL

Case Number: 1245/3/3/16

4 November 2016

Before:

HERIOT CURRIE QC
(Chairman)
PROFESSOR GAVIN REID
BRIAN LANDERS

Sitting as a Tribunal in England and Wales

BETWEEN:

BRITISH TELECOMMUNICATIONS PLC

Appellant

- v -

OFFICE OF COMMUNICATIONS

Respondent

- and -

GAMMA TELECOM HOLDINGS LIMITED
SKY UK LIMITED
TALKTALK TELECOM GROUP PLC
VODAFONE LIMITED

Interveners

Heard at Victoria House on 18-20 and 23-25 May 2016

JUDGMENT

APPEARANCES

Mr Robert Palmer and Ms Fiona Banks (instructed by BT Legal) appeared on behalf of the Appellant.

Mr Josh Holmes and Mr Tristan Jones (instructed by Office of Communications) appeared on behalf of the Respondent.

Ms Sarah Love and Mr Tim Johnston (instructed by Charles Russell Speechlys) appeared on behalf of Gamma Telecom Holdings Limited.

Mr Alan Bates (instructed by Towerhouse LLP) appeared on behalf of the Sky UK Limited, TalkTalk Telecom Group PLC and Vodafone Limited.

Note: Excisions in this Judgment marked “[...][§<]” relate to commercially confidential information: Schedule 4, paragraph 1 to the Enterprise Act 2002.

CONTENTS

Figures in the judgment	6
A. Summary	7
B. The Legal Framework	9
(1) <i>The Common Regulatory Framework</i>	9
(a) The FD	10
(b) The AuthD	11
(c) The USD	11
(d) The AID	12
(2) <i>The Communications Act 2003</i>	13
(3) <i>General Condition 18</i>	15
(4) <i>Standard of review</i>	16
C. Factual Background	18
(1) <i>Introduction</i>	18
(2) <i>Background</i>	18
(3) <i>Routing of non-ported calls</i>	20
(4) <i>Routing of ported calls</i>	21
(5) <i>The alternative to onward porting: direct routing</i>	24
(6) <i>The distinction between “switch conveyance” and “inter-switch conveyance”</i>	26
(7) <i>BT’s charges for APCCs</i>	27
(a) Calculation of charges	27
(b) Contractual arrangements relating to APCC charges	30
(8) <i>History of regulation of relevant charges</i>	31
(9) <i>The Porting Charges Guidance and the Disputes</i>	32
(10) <i>The Disputes</i>	33
(11) <i>The Final Determination</i>	34
D. THE STRUCTURE OF THE JUDGMENT	35
E. GAMMA’S TIME-BAR ARGUMENT	35
(1) <i>BT’s Notice of Appeal</i>	35
(2) <i>Gamma’s Statement of Intervention</i>	36
(3) <i>BT’s Skeleton Argument</i>	37
(4) <i>Gamma’s Skeleton Argument</i>	38
(5) <i>Gamma’s oral submissions</i>	39
(6) <i>BT’s Supplemental Closing Submissions</i>	39
(7) <i>Gamma’s Supplemental Submissions</i>	40
(8) <i>The Tribunal’s decision on the time-bar issue</i>	41

F.	WITNESSES AND EVIDENCE	47
G.	GROUND 1	50
	(1) <i>Outline of the issues under Ground 1</i>	50
	(2) <i>BT's submissions on the scope of GC 18.5(a)</i>	51
	(3) <i>Ofcom's submissions on the scope of GC 18.5(a)</i>	52
	(4) <i>The Tribunal's decision on the scope of GC 18.5(a)</i>	55
	(5) <i>The parties' case on the contestability of ISC</i>	56
	(6) <i>The evidence relating to the contestability of ISC</i>	59
	(a) Mr Morden (BT)	59
	(b) Mr Perry (Ofcom)	65
	(c) Mr Rosbotham (Vodafone)	68
	(d) Mr Moore (Sky)	76
	(e) Ms Kennedy (TalkTalk)	80
	(f) Mr Farmer (Gamma)	82
	(7) <i>The Tribunal's decision regarding the contestability of ISC</i>	82
	(8) <i>Conclusion: The Tribunal's decision on Ground 1</i>	85
H.	GROUND 2(a)	86
	(1) <i>BT's submissions</i>	86
	(2) <i>Ofcom's justification for the Final Determination</i>	91
	(3) <i>The Tribunal's decision on Ground 2(a)</i>	95
I.	GROUND 2(b)	96
	(1) <i>BT's submissions</i>	96
	(2) <i>Ofcom's submissions</i>	98
	(3) <i>Gamma's submissions</i>	99
	(4) <i>CP Group Submissions</i>	101
	(5) <i>The evidence relating to Ground 2(b)</i>	101
	(a) Mr Morden (BT)	101
	(b) Mr Young (BT)	102
	(c) Mr Perry (Ofcom)	102
	(d) Mr Morden's second witness statement	103
	(e) Summary of the evidence of Morden and Perry relevant to Ground 2(b)	104
	(f) Mr Farmer (Gamma)	105
	(6) <i>The Tribunal's decision on Ground 2(b)</i>	106
J.	GROUND 3	109
	(1) <i>The pleadings</i>	109
	(a) BT's Notice of Appeal	109

	(b) Ofcom’s Defence	113
	(c) Gamma’s Statement of Intervention	116
	(d) CP Group Statement of Intervention	117
	(e) BT’s Reply	117
(2)	<i>Summary of the main issues</i>	<i>121</i>
(3)	<i>The evidence and the parties’ closing submissions</i>	<i>122</i>
	(a) The Skeleton Arguments	122
	(b) BT’s expert evidence (Dr Maldoom)	122
	(c) Ofcom’s expert evidence (Mr Godfrey)	138
	(d) The factual evidence relevant to Ground 3	149
	(e) BT’s closing submissions	150
	(f) Ofcom’s closing submissions	151
	(g) CP Group’s closing submissions	156
	(h) BT’s closing submission in reply	157
(4)	<i>The Tribunal’s decision on Ground 3</i>	<i>158</i>
	(a) The legal approach to an appeal on the merits	159
	(b) Outline of the Tribunal’s views as to which are the key issues	161
	(c) Effective competition - Dr Maldoom’s evidence that effects on retail competition are likely to be limited - the need for quantitative analysis	162
	(d) Potential distortions in the wholesale market	169
	(e) Incentives to move to direct routing	172
	(f) The relevance of the previous adoption of LRIC+ by the regulators	175
	(g) Inconsistency between sections 4 and 6 of the Guidance	176
	(h) Inconsistency with Ofcom’s treatment of DCCs and direct routing	176
	(i) Allocative efficiency	176
	(j) The analogy with two-sided markets	177
	(k) One-off migration charges set at LRIC	177
	(l) Whether it is appropriate for BT to earn a margin from lost customers	177
	(m) Overall conclusion on Ground 3	178
K.	CONCLUSION	178
L.	POSTSCRIPT	178

Figures in the judgment

Figure 1: Forecast call volumes vs actual volumes 2010-2015 (billions of minutes) .	19
Figure 2: Routing of non-ported calls	21
Figure 3: Routing of ported calls	23
Figure 4: BT's call groups	28
Figure 5: Volumes of traffic by call group	29

A. Summary

1. This appeal by British Telecommunications PLC (“BT”¹) is against a determination made by the Office of Communications (“Ofcom”) on 11 November 2015 of two disputes concerning BT’s charges for “ported” calls (“the Final Determination”).² The disputes were between BT and Gamma Telecom Holdings Limited (“Gamma”), and BT and Vodafone Limited (“Vodafone”), and were referred to Ofcom on 2 and 30 July 2015 respectively. On 12 February 2016 the Tribunal gave permission to Gamma, Vodafone, Sky UK Limited (“Sky”) and TalkTalk Telecom Group PLC (“TalkTalk”) to intervene in the proceedings. Ofcom took an active role in defending its Final Determination and was supported by the four interveners, each of which is a communications provider (“CP”). Vodafone, Sky and TalkTalk were jointly represented in the proceedings and are referred to collectively as the “CP Group”. Gamma was separately represented.
2. In substance the appeal concerns the level of charge which BT may levy for calls to “ported” numbers. Under arrangements in place to provide “number portability”, a subscriber may keep their telephone number when changing to a new CP. The appeal does not concern charges for the initial transfer of the telephone number from one CP to another (“set-up costs”). Instead, it concerns charges for the conveyance of “ported calls” after the transfer has taken place. Non-ported calls are conveyed from the originating CP (“OCP”) directly to the recipient CP (“RCP”). However, the situation is different for ported calls. The number portability arrangements in the UK involve the “onward routing” of ported calls. The OCP routes the call to the CP that originally held the number, being called the donor CP (“DCP”); the call is then identified as a call to a ported number and onward routed to the RCP. The RCP must pay the DCP for the cost

¹ The abbreviations used in this Judgment are set out in Annex 1, which also identifies the paragraph in the Judgment where each abbreviation is first used.

² Ofcom, ‘Disputes between BT and each of Gamma and Vodafone in relation to BT’s average porting conveyance charges’, 11 November 2015.

of the onward routing. The appeal concerns BT's average porting conveyance charges ("APCCs") made to RCPs under these onward routing arrangements.

3. The regulatory framework for securing number portability in the UK finds its foundation in General Condition ("GC") 18.5(a), which requires that any charges for the provision of number portability made by a CP be "cost oriented". In Guidance published in September 2014 ("the Guidance")³ Ofcom stated that for the purposes of GC 18.5(a) the costs of the provision of number portability should (with practical effect from 1 January 2015) be assessed by reference to the Long Run Incremental Cost ("LRIC") of the services provided, rather than the LRIC+ cost measurement which had been required prior to the Guidance coming into effect.
4. In the Final Determination Ofcom declared that BT had overcharged each of Gamma and Vodafone for the provision of number portability services, in that BT had failed to calculate all elements of its APCCs on the basis of the LRIC; it had instead calculated certain elements of its charges on the basis of LRIC+. The difference between LRIC and LRIC+ is that the latter includes an amount attributable to "common costs", *i.e.* costs which are incurred by the provision of a number of services, but are not unique to the provision of any single service. Ofcom therefore directed BT to make a repayment to Gamma and Vodafone in respect of the period from 1 January 2015 to the date of the Final Determination.
5. BT appeals the Final Determination before the Tribunal under three grounds, the second ground being split into two components, these can be briefly summarised as follows:
 - (1) **Ground 1:** BT contends that the services for which it continued to charge LRIC+ were for "inter-switch conveyance",⁴ which is not necessary to the provision of number portability and therefore fell outside the scope of GC 18.5(a). Alternatively, even if inter-switch

³ Ofcom, 'Porting charges under General Condition 18', 29 September 2014.

⁴ The concepts of "switch conveyance" and "inter-switch conveyance" are explained in Section C(6) at page 27 below.

conveyance fell within the scope of GC 18.5(a), BT contends that the charges did not infringe the cost orientation condition.

- (2) **Ground 2(a):** BT contends that Ofcom had no lawful basis to purport to use its regulatory powers to amend the effect of GC 18.5(a) to exclude BT's ability to recover common costs.
- (3) **Ground 2(b):** General Condition 18.5(a) provides an exception allowing BT to agree another basis for its charges. BT contends that it had entered such agreements with both Gamma and Vodafone, with the effect that the cost orientation standard did not apply.
- (4) **Ground 3:** BT contends Ofcom, if it had the power to change the relevant cost standard from LRIC+ to LRIC, was wrong to decide to do so. BT argued that the LRIC+ standard was the clearly more appropriate cost standard.

6. In addition to BT's arguments, Gamma argued that BT's grounds of appeal 2(a) and 3 were time-barred.
7. For the reasons set out in this judgment, we dismiss all three grounds of BT's appeal. We also dismiss Gamma's time-bar argument.

B. The Legal Framework

8. In this part we outline the legal framework that applies to communications insofar as it is relevant to this judgment.

(1) The Common Regulatory Framework

9. Communications law has been harmonised at the European level by a suite of directives that are referred to collectively as the Common Regulatory Framework (the "CRF"). Of relevance to this judgment are the Framework Directive (2002/21/EC) (the "FD") and the "Specific Directives" including the Authorisation Directive (2002/20/EC) (the "AuthD"), the Universal Service Directive (2002/22/EC) (the "USD") and the Access and Interconnection Directive (2002/19/EC) (the "AID").

(a) The FD

10. Article 4 FD requires Member States to ensure that effective mechanisms exist to enable persons affected by decisions of national regulatory authorities (“NRAs”) to appeal. The member states must also “*ensure that the merits of the case are duly taken into account and that there is an effective appeal mechanism.*” In the UK the relevant NRA is Ofcom and appeals are to this Tribunal.
11. Article 7 FD provides that, in carrying out their tasks under the FD and Specific Directives, NRAs “*shall take the utmost account*” of the objectives set out in Art 8 FD (“the Article 8 Objectives”).
12. Article 8(2)(b) FD provides that NRAs shall promote competition in the provision of electronic communications networks, electronic communications services and associated facilities and services by *inter alia* ensuring that there is no distortion or restriction of competition in the electronic communications sector.
13. Pursuant to Article 8(5) FD, NRAs must apply objective, transparent, non-discriminatory and proportionate regulatory principles by, *inter alia*:

“(a) promoting regulatory predictability by ensuring a consistent regulatory approach over appropriate review periods;

(b) ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing electronic communications networks and services;

(c) safeguarding competition to the benefit of consumers and promoting, where appropriate, infrastructure-based competition;

(d) promoting efficient investment and innovation in new and enhanced infrastructures, including by ensuring that any access obligation takes appropriate account of the risk incurred by the investing undertakings and by permitting various cooperative arrangements between investors and parties seeking access to diversify the risk of investment, whilst ensuring that competition in the market and the principle of non-discrimination are preserved;

(e) taking due account of the variety of conditions relating to competition and consumers that exist in the various geographic areas within a Member State;

(f) imposing ex-ante regulatory obligations only where there is no effective and sustainable competition and relaxing or lifting such obligations as soon as that condition is fulfilled.”

14. Article 20 FD provides that in the event of a relevant dispute arising in connection with existing obligations between undertakings, the NRA shall, at the request of either party, issue a binding decision to resolve the dispute.

(b) The AuthD

15. Article 3 AuthD provides a general authorisation for the provision of electronic communications networks or services.
16. Article 6 AuthD provides that the general authorisation may be subject only to the conditions listed in the Annex. That includes, at paragraph 3 of part C, number portability requirements in conformity with the USD.

(c) The USD

17. Recital 40 USD provides as relevant:

“Number portability is a key facilitator of consumer choice and effective competition in a competitive telecommunications environment such that end-users who so request should be able to retain their number(s) on the public telephone network independently of the organisation providing service. [...]”

18. Recital 42 USD provides:

“When ensuring that pricing for interconnection related to the provision of number portability is cost-oriented, national regulatory authorities may also take account of prices available in comparable markets.”⁵

19. Article 30 USD states, in material part:

“Facilitating change of provider

1. Member States shall ensure that all subscribers with numbers from the national telephone numbering plan who so request can retain their

⁵ “Interconnection” is defined in Article 2 AID: “(b) “interconnection” means the physical and logical linking of public communications networks used by the same or a different undertaking in order to allow the users of one undertaking to communicate with users of the same or another undertaking, or to access services provided by another undertaking. Services may be provided by the parties involved or other parties who have access to the network. Interconnection is a specific type of access implemented between public network operators.”

number(s) independently of the undertaking providing the service in accordance with the provisions of Part C of Annex I.

2. National regulatory authorities shall ensure that pricing between operators and/or service providers related to the provision of number portability is cost-oriented, and that direct charges to subscribers, if any, do not act as a disincentive for subscribers against changing service provider.

3. National regulatory authorities shall not impose retail tariffs for the porting of numbers in a manner that would distort competition, such as by setting specific or common retail tariffs. [...]"

(d) The AID

20. Article 8(2) AID provides that, where an operator has been designated as having significant market power ("SMP") on a specific market following a market analysis, NRAs must impose the obligations contained in Articles 9-13 as appropriate. Price control and cost accounting obligations are set out at Article 13 AID. Article 8(3) AID provides that such obligations may only be imposed following an SMP designation but is subject to certain exceptions, including in particular in relation to obligations imposed pursuant to Article 30 USD. To that end, Article 8(3) AID provides as relevant:

"Without prejudice to [...] the provisions of [...] Article[...] 30 of Directive 2002/22/EC (Universal Service Directive) [...] national regulatory authorities shall not impose the obligations set out in Articles 9 to 13 on operators that have not been designated in accordance with paragraph 2."

21. Article 8(4) AID provides:

"Obligations imposed in accordance with this Article shall be based on the nature of the problem identified, proportionate and justified in the light of the [Article 8 Objectives]. Such obligations shall only be imposed following consultation in accordance with Articles 6 and 7 of [the FD]."

22. Article 13 AID provides as relevant:

"1. A national regulatory authority may, in accordance with the provisions of Article 8, impose obligations relating to cost recovery and price controls, including obligations for cost orientation of prices and obligations concerning cost accounting systems, for the provision of specific types of interconnection and/or access, in situations where a

market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessively high level, or may apply a price squeeze, to the detriment of end-users. [...]

2. National regulatory authorities shall ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximise consumer benefits. [...]

3. Where an operator has an obligation regarding the cost orientation of its prices, the burden of proof that charges are derived from costs including a reasonable rate of return on investment shall lie with the operator concerned. For the purpose of calculating the cost of efficient provision of services, national regulatory authorities may use cost accounting methods independent of those used by the undertaking. National regulatory authorities may require an operator to provide full justification for its prices, and may, where appropriate, require prices to be adjusted.”

(2) *The Communications Act 2003*

23. Sections 3 and 4 of the Communications Act 2003 (“2003 Act”) set out Ofcom’s relevant duties. Among other things, these provisions give effect to the Article 8 obligations in domestic law.
24. By virtue of section 3(1) of the 2003 Act, Ofcom’s principal duty, in carrying out its functions is to further the interests of:
 - (1) citizens in relation to communications matters; and
 - (2) consumers in relevant markets, where appropriate by promoting competition.
25. By virtue of section 3(3) of the 2003 Act, Ofcom must, in performing those duties, have regard in all cases to:
 - (1) the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed; and
 - (2) any other principles appearing to Ofcom to represent the best regulatory practice.

26. By virtue of section 3(4) of the 2003 Act, Ofcom must also have regard in performing those duties to various matters as appear to them to be relevant in the circumstances, including *inter alia*:

“(b) the desirability of promoting competition in relevant markets;

[...]

“(d) the desirability of encouraging investment and innovation in relevant markets;”

27. Section 4 of the 2003 Act requires Ofcom to act in accordance with various “Community requirements” which give effect, amongst other things, to the requirements of Article 8 FD and are to be read accordingly. They include the requirements:

(1) to promote competition (section 4(3) of the 2003 Act);

(2) to encourage the provision of network access and service interoperability for the purpose of securing (section 4(7) and (8)):

“(a) efficiency and sustainable competition;

(aa) efficient investment and innovation; and

(b) the maximum benefit for the persons who are customers of communications providers and of persons who make associated facilities available.”

28. Section 6(1) of the 2003 Act requires Ofcom to keep the carrying out of its functions under review with a view to securing that regulation by Ofcom does not involve:

“(a) the imposition of burdens which are unnecessary; or

(b) the maintenance of burdens which have become unnecessary.”

29. Section 45 of the 2003 Act empowers Ofcom to impose general conditions, which may include (among other things) provisions authorised by section 58. Of particular relevance, section 58 provides:

“(1) General conditions may include conditions which — [...] (e) require an allocation of particular telephone numbers to be transferred from

one communications provider to another in the circumstances provided for in the conditions; [...]

(2) General conditions may also — [...] (f) regulate the procedures to be followed, the system to be applied and the charges to be imposed for the purposes of or in connection with, the transfer of an allocation from one person to another.”

30. Ofcom’s obligations relating to dispute resolution are set out in sections 185 to 190 of the 2003 Act. Section 192 provides that persons affected by a dispute determination have a right to appeal to the Tribunal. Section 195(2) provides that the Tribunal shall decide the appeal on the merits and by reference to the grounds of appeal set out in the Notice of Appeal.

(3) General Condition 18

31. The General Conditions set by Ofcom include GC18, which provides for number portability. The definitions, at GC18.11, include:

“(h) “Number Portability” means a facility whereby Subscribers who so request can retain their Telephone Number on a Public Communications Network, independently of the person providing the service at the Network Termination Point of a Subscriber provided that such retention of a Telephone Number is in accordance with the National Telephone Numbering Plan;

[...]

(k) “Portability” means any facility which may be provided by a Communications Provider to another Communications Provider enabling any Subscriber who requests Number Portability to continue to be provided with any Public Electronic Communications Service by reference to the same Telephone Number irrespective of the identity of the person providing such a service [...]”

32. The requirement to provide number portability to consumers is at GC18.1:

“The Communications Provider shall provide Number Portability within the shortest possible time, including subsequent activation, on reasonable terms and conditions, including charges, to any of its Subscribers who so request.”

33. The requirement to provide portability to other CPs is at GC18.5:

“The Communications Provider shall, pursuant to a request from another Communications Provider, provide Portability as soon as is reasonably practicable in relation to that request on reasonable terms.

Any charges for the provision of such portability shall be made in accordance with the following principles:

(a) subject always to the requirement of reasonableness, charges shall be cost oriented and based on the incremental costs of providing Portability unless:

(i) the Donor Provider and the Recipient Provider have agreed another basis for the charges, or

(ii) the Office of Communications has directed that another basis for charges should be used,

(b) the Donor Provider shall make no charge in relation to System Set-Up Costs or Additional Conveyance Costs; [...]

(d) charges levied by the Donor Provider shall be based on the reasonable costs incurred by it in providing Portability with respect to each Telephone Number; [...]"

34. Additional Conveyance Costs, which are referred to at GC18.5(b), are also defined at GC18.11:

“(a) “Additional Conveyance Costs” mean any costs incurred by the Donor Provider associated with resources used in:

(i) effecting the switch-processing required to set up each ported call; and

(ii) providing the switch and transmission capacity for any part of the duration of each ported call,

additional to the costs of conveyance of non-ported calls from the Donor Provider’s network to the Recipient Provider’s network; [...]"

(4) Standard of review

35. These proceedings are an “*appeal on the merits*” under section 195 of the 2003 Act, the standard of review to be applied has been considered on a number of previous occasions. The most comprehensive summary of the applicable principles is in *BSkyB v Ofcom* [2012] CAT 20, which – unlike this case – concerned an appeal from a decision under section 316 of the 2003 Act. The Tribunal set out the following principles (at [84]):

“[...] we consider that the following principles should inform our approach to disputed questions upon which Ofcom has exercised a judgment of the kind under discussion:

(a) Since the Tribunal is exercising a jurisdiction “on the merits”, its assessment is not limited to the classic heads of judicial review, and in particular it is not restricted to an investigation of whether Ofcom’s determination of the particular issue was what is known as Wednesbury unreasonable or irrational or outside the range of reasonable responses.

(b) Rather the Tribunal is called upon to consider whether, in the light of the grounds of appeal and the evidence before it, the determination was wrong. For this purpose it is not sufficient for the Tribunal simply to conclude that it would have reached a different decision had it been the designated decision-maker.

(c) In considering whether the regulator’s decision on the specific issue is wrong, the Tribunal should consider the decision carefully, and attach due weight to it, and to the reasons underlying it. This follows not least from the fact that this is an appeal from an administrative decision not a de novo rehearing of the matter, and from the fact that Parliament has chosen to place responsibility for making the decision on Ofcom.

(d) When considering how much weight to place upon those matters, the specific language of section 316 to which we have referred, and the duration and intensity of the investigation carried out by Ofcom as a specialist regulator, are clearly important factors, along with the nature of the particular issue and decision, the fullness and clarity of the reasoning and the evidence given on appeal. Whether or not it is helpful to encapsulate the appropriate approach in the proposition that Ofcom enjoys a margin of appreciation on issues which entail the exercise of its judgment, the fact is that the Tribunal should apply appropriate restraint and should not interfere with Ofcom’s exercise of a judgment unless satisfied that it was wrong.”

36. This approach was endorsed by the Court of Appeal in *BT v Ofcom* [2014] EWCA Civ 133 at [88]. It was further endorsed, in the context of a section 192 appeal against a dispute determination, in *BT v Ofcom* [2014] CAT 14. The Tribunal stated at [67]:

“[...] We consider that, mutatis mutandis, those principles should similarly guide our approach to the challenges to the Determination on the basis of the requirements in [section 4 of the 2003 Act] and Art 8 of the Framework Directive. In particular, since, as has repeatedly been emphasised, the Tribunal is not a second-tier regulator, the fact that the Tribunal might have preferred to give different weight to various factors in the exercise of a regulatory judgment would not in itself provide a sufficient basis to set aside the determination made by Ofcom.”

37. We have taken the approach indicated in the above paragraphs in this appeal.

C. Factual Background

(1) Introduction

38. The technical background to porting is non-contentious but is relatively complex. We thank Ofcom and BT for preparing diagrams explaining the routing of ported and non-porting calls, which we have adapted for the purposes of this judgment.

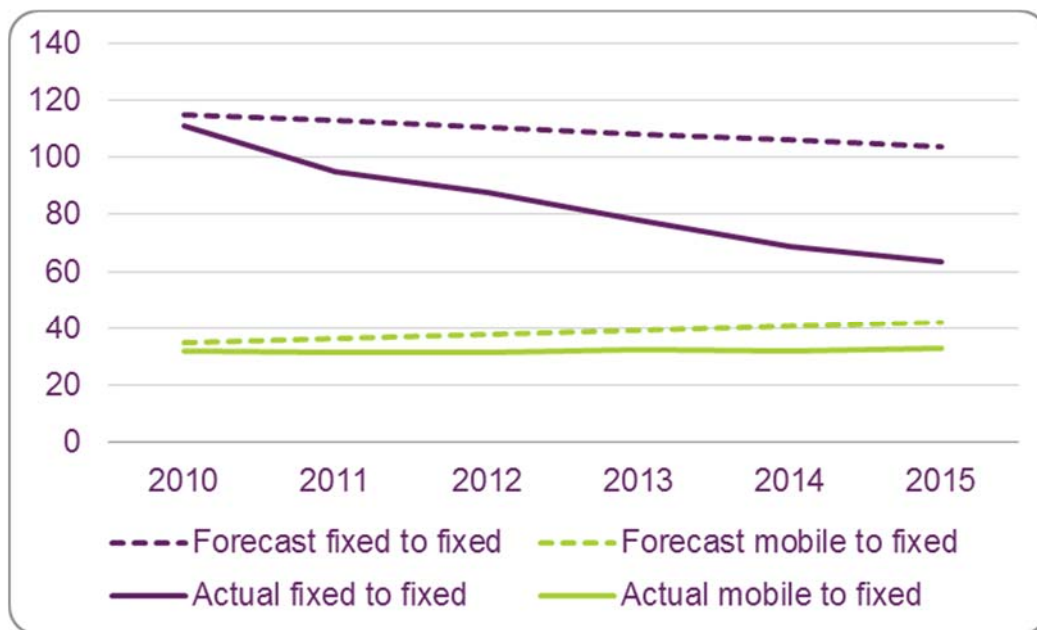
(2) Background

39. Networks for fixed voice telephony are comprised of switching nodes (exchanges) and transmission links between those nodes. In BT's network, switching and routing of calls takes place at two layers: Digital Local Exchanges ("DLEs") and Tandems. For reasons of resilience each DLE is connected to at least two "parent" Tandems, but many have more than two parent Tandems, a few have up to seven. BT's DLEs and Tandem exchanges are housed in buildings around the UK. BT has over 600 DLEs and over 100 Tandems. Geographic numbers assigned to BT are allocated to a specific DLE, usually in a block of 10,000. Tandems do not have any telephone lines of their own but connect DLEs across the UK via high capacity transmission links. The links transmit in both directions and can carry many telephone calls simultaneously.
40. BT's network is relatively old; it uses time division transmission (multiplexing) technology, which in the industry is referred to as a "TDM" network. Modern networks use a packet-switching Internet Protocol ("IP") technology, which is also often referred to as Next Generation Network ("NGN") technology. Most fixed CPs have introduced NGN technology for their customers. NGN technology offers certain advantages for both networks and users. Data can be routed in a more dynamic manner over NGN systems. As a result, when calls are routed directly between two NGN systems, users can benefit from higher call quality as well as from certain products which cannot be offered on TDM networks. Networks also benefit, for the physical infrastructure required for NGN switching is less specialised, less bulky and less expensive. NGN switches consume less electricity and require less cooling than do TDM switches, thereby reducing costs. In general, it is also more straightforward and

less costly to make changes to an NGN network: for many changes can be made at a distance via a computer console, whereas in many instances a TDM network requires physical intervention by electro-mechanical engineering.

41. BT has long planned to switch to NGN technology. In the late 1990s or early 2000s, BT announced its intention to move to NGN technology. The proposed project was called “twenty-first century network” (or “21CN”). BT cancelled its 21CN project in 2010. Nevertheless, Mr Morden accepted that the market expectation is that BT will move to an NGN network and he considered that such a move is inevitable at some point.⁶
42. The overall market for fixed line telephony is in decline. Fixed to fixed traffic has declined significantly since 2010. This decline was sharper than predicted by Ofcom. Mobile to fixed traffic has increased modestly since 2010, but this increase was lower than predicted.

Figure 1: Forecast call volumes vs actual volumes 2010-2015 (billions of minutes)



Sources: Forecasts from Figure 3 of Ofcom’s 2010 Statement on routing calls to ported telephone numbers; actuals from Ofcom Telecoms Data Tables.

⁶ Mr Morden, Day 2/ p109.

(3) Routing of non-ported calls

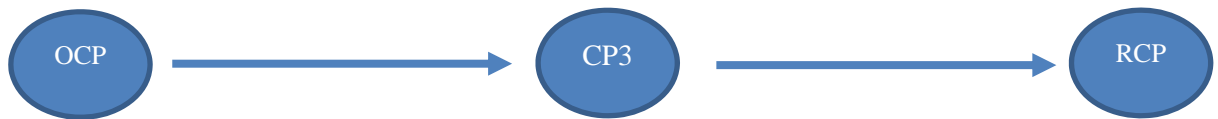
43. An OCP pays for the transmission of a call to an RCP and it also determines the route along which the call is transmitted. In order to minimise routing costs an OCP will typically prefer to take the call as far as possible on its own network before handing it over to the RCP's network. This practice is referred to as "far end handover" of calls. This means, in the case where the OCP routes the call to a BT customer, the OCP will seek to "handover" the call either at the relevant DLE at which the number is hosted or as close to the relevant BT DLE as possible (e.g. at one of the parent Tandems of the relevant DLE, if possible).
44. If necessary, or more commercially attractive, an OCP will purchase "transit" from another network (either that of the RCP or a third party CP). Some OCPs purchase transit from BT in this fashion. In such a situation the OCP would potentially route the call over one or more of BT's Tandem switches. Transit across BT's Tandems is referred to as Inter-Tandem Conveyance ("ITC"). An OCP would not route a non-ported call to the RCP over a BT DLE switch. Such a switch only serves BT's customers and the OCP would only route calls there if they were to BT customers. However, if the OCP wished to route the call to a BT customer it might purchase transit from BT to the DLE, this is referred to as Local to Tandem Conveyance ("LTC").
45. It is technically feasible for a CP to interconnect its network to BT's network at every one of BT's DLE and Tandem exchanges. In principle, CPs decide how much transmission to self-supply (by expanding their own network) or to purchase from other parties (including BT). Larger CPs tend to have very extensive interconnection with BT's network, smaller CPs less so. For example, Vodafone is interconnected at all but one of BT's DLEs (Lerwick, located in the Shetland Islands). Sky is extensively interconnected at BT's Tandem layer but is not interconnected with BT's DLE layer. Given the extensive interconnection, the majority of calls arrive direct at the DLE rather than at a Tandem switch.
46. Four routes which a non-ported call might take from OCP to RCP are set out diagrammatically in Figure 2 below.

Figure 2: Routing of non-ported calls

Route 1: OCP routes the call directly to RCP (via direct interconnection)



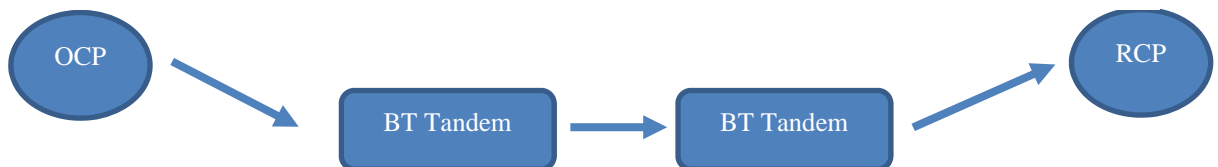
Route 2: OCP routes the call to RCP but via CP3 (in this scenario not BT)



Route 3: OCP routes the call to RCP via a single BT Tandem



Route 4: OCP routes the call to RCP via two BT Tandem switches



(4) Routing of ported calls

47. In the UK, arrangements are in place to allow “onward routing” of ported calls using an “RCP pays” rule. The OCP routes the ported call to the DCP and pays the costs of conveying the call, as it would a non-ported call. The DCP identifies the call as a ported call and will then onward route the call to the RCP. Whilst this second half of the call ‘originates’ from the DCP, the route is in fact determined by the RCP and the costs of this portion of the journey are paid for by the RCP.

48. In more detail, when a customer who was served by BT changes networks but wishes to retain the same number, the details of the new network operator are entered in the internal database of the DLE which hosts the number range containing that number. This is the only place where this number is retained, meaning that the OCP does not know that the customer is no longer served by BT. Hence calls to the ported number from another OCP are first sent to BT in the same manner as are calls to the same number block that have not been ported. The cost of this portion of the call is borne by the OCP and is the same as for a non-ported call.
49. If the OCP has routed the ported call to a BT DLE, the DLE will establish that the customer is no longer on BT's network. The DLE will then retrieve a "porting prefix" that will identify the equivalent local exchange on the RCP's network which now hosts the customer's number. If the RCP is collecting the call at the DLE, this port will connect to the RCP transmission link at the DLE.⁷ Alternatively, the RCP can purchase conveyance from BT, in this case the port will connect to a BT Tandem and from there to the RCP transmission link at whichever Tandem the RCP chooses.
50. If the OCP has routed the call to a Tandem switch in BT's network rather than directly to the DLE, the call will be delivered to a "parent" Tandem switch to the DLE. Under current arrangements the Tandem sends a signal to the DLE (referred to as a "drop-back") enquiring whether it hosts the number.⁸ If the RCP is collecting the call at the parent Tandem to which the call was conveyed, it will be connected to the RCP at the Tandem. Alternatively, the call will be conveyed on to a Tandem chosen by the RCP. The costs of the drop-back are borne entirely by BT in accordance with GC18.5(b). The costs of using BT's network after the "pre-fix look up" are borne by the RCP.
51. Where a call to the ported number originates from a BT customer, the call progresses in the same way. The call is routed to a parent Tandem, the DLE

⁷ In order to collect a call at the DLE layer, the RCP must use BT's 'DLE Handover Product'.

⁸ Previously, the Tandem would send the ported call to the host DLE which would recognise the number was ported and send it back to the Tandem (a practice known as "tromboning"). Sometimes, for technical reasons tromboning still occasionally occurs today, but this does not give rise to any additional charges to CPs.

signals the new destination number prefix and the call is onward routed to the Tandem chosen by the RCP.

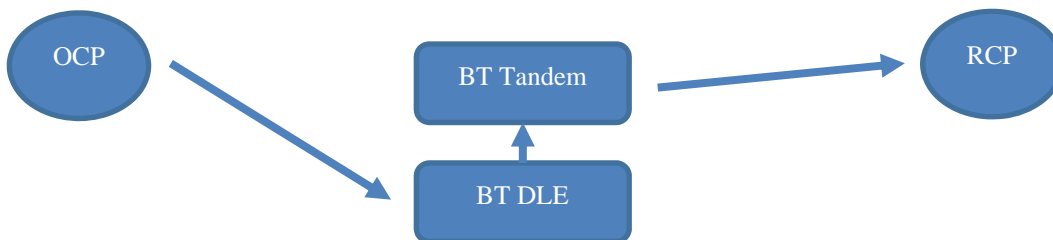
- 52. When a BT customer “ports” his or her number to another CP, and then later “ports” the number to another (third) CP, the porting prefix is updated so that any call to that number will be onward routed to the new CP. The call does not get onward routed multiple times. When a BT customer “ports” his or her number to another CP, and then later “ports” back to BT, the number reverts to being a non-ported number.
- 53. Five routes which a ported call might take from OCP to RCP are set out diagrammatically in Figure 3 below.

Figure 3: Routing of ported calls

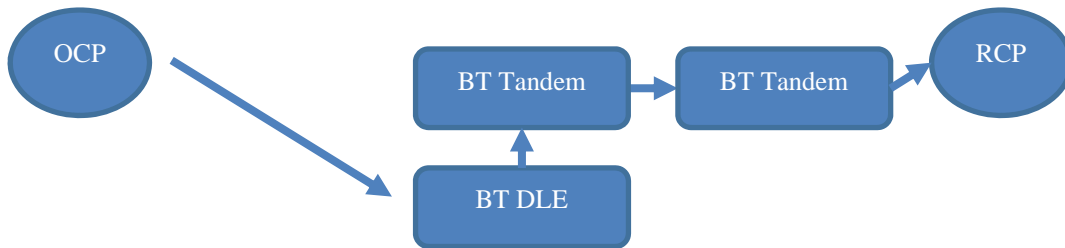
Route A: OCP routes the call to the BT DLE; RCP can pick up from the DLE (i.e. it uses BT’s DLE Handover product).



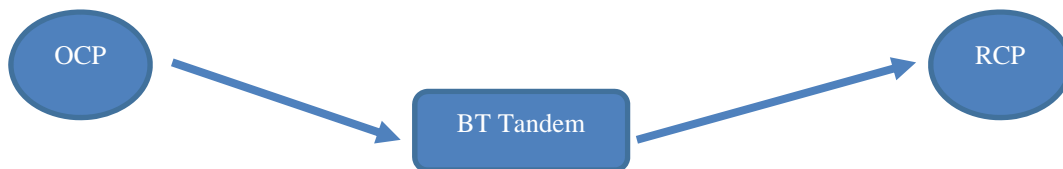
Route B: OCP routes the call to the BT DLE; RCP can pick up from one of the parent Tandems of that BT DLE.



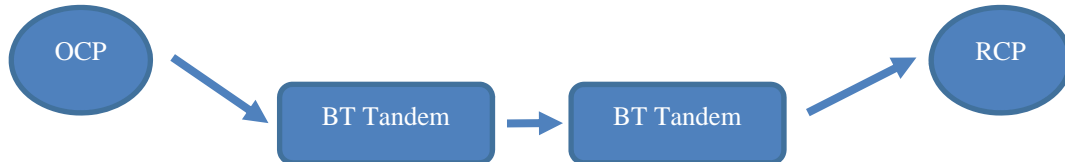
Route C: OCP routes the call to the BT DLE; RCP picks up from another (non-parent) Tandem.



Route D: OCP routes the call to a parent Tandem; RCP picks up from that Tandem



Route E: OCP routes the call to a parent Tandem; RCP picks up from another Tandem (either another parent Tandem of the relevant DLE or another Tandem altogether)



54. At this stage it is appropriate to note that ported routes A, B and C (of Figure 3) are quite unlike non-ported routes 1 to 4 (of Figure 2 at page 21) since they involve a ‘detour’ via BT’s DLE layer. Ported routes D and E resemble non-ported routes 3 and 4 in some respects. This is discussed further below.

(5) *The alternative to onward porting: direct routing*

55. In an onward routing system, the OCP does not distinguish between ported and non-ported calls but routes all calls based solely on the number dialled by the caller. Having arrived at the exchange in the “number range holders” network, the Donor CP adds additional numbers to the dialled digits and forwards the call to the RCP. This connection via the DCP is maintained throughout the call.

56. Onward routing has disadvantages:
- (1) **Additional transmission costs.** The call necessarily includes added call setup processing and at least an extra switch in the Donor network compared to a non-ported call.
 - (2) **Call quality.** A non-ported call between two NGNs can benefit from higher call quality and various features not available using TDM technology. However, an onward routed call using BT's TDM network cannot support these enhanced features.
 - (3) **Reliability.** TDM networks may not provide the same level of security and resilience for porting as for basic telephony services.
 - (4) **Dependency.** The ported customer is irrevocably linked to the original number range holder and forever dependent upon its technical and financial viability.
57. An alternative to onward routing is "direct routing". Under this scheme, the dialled digits are not used directly for routing but for identifying the called party. The identity is then used to obtain the route to the destination. Under this approach a look-up is required for all calls, meaning ported and non-ported customers are treated identically. The technology available for direct routing has evolved over the years. Early versions used in North America required the CP to query a central database in order to receive details about the call destination. More modern systems of direct routing would not necessarily require a central database. Most North American and Western European countries have adopted direct routing for ported calls. The UK has not yet done so, in part, we were told, because it was an early adopter of TDM technology.
58. In November 2007, Ofcom adopted its concluding statement on 'Telephone number portability for consumers switching suppliers' ("2007 Statement"). In the 2007 Statement, Ofcom decided to implement direct routing for all calls using a common database. This was to be implemented by all CPs by December 2008. Ofcom considered this to be feasible because TDM networks were anticipated to be replaced by NGNs, which, amongst other things, are designed

to query a database of individual numbers to determine how best to route calls. That decision was set aside on appeal by Vodafone to this Tribunal and remitted back to Ofcom for reconsideration (see *Vodafone Ltd v Ofcom* [2008] CAT 22, judgment of 18 September 2008). The CAT held that the cost-benefit analysis – which estimated whether there was likely to be a net benefit to implementing direct routing – underpinning Ofcom’s decision was flawed. Amongst others, BT intervened in support of Vodafone in that appeal.

59. Ofcom published its revised conclusions in its 2010 statement on ‘Routing calls to ported telephone numbers’ (“2010 Statement”). In the 2010 Statement, Ofcom revised its cost-benefit analysis and concluded that the Net Present Value (“NPV”) on a ten-year horizon of moving to direct routing for all calls to fixed networks would be -£128m over 7 years and -£138m over 10 years and therefore rescinded the direct routing regulation set out in the 2007 Statement. A significant factor underlying the negative result of the new cost-benefit analysis was that, in the intervening period, it had become clear that the replacement of TDM networks was going to occur over a far longer period than had originally been anticipated.

(6) *The distinction between “switch conveyance” and “inter-switch conveyance”*

60. In these proceedings BT drew a distinction between what it termed “switch conveyance” and what it termed “inter-switch conveyance” (or “ISC”). Switch conveyance is the conveyance which is unavoidably required to be supplied by BT on technical grounds. If an OCP delivers a call to the DLE, it is technically feasible for an RCP to collect the call from that same DLE (using the DLE handover product), but the call must (unavoidably) be conveyed across that switch (see Route A in Figure 3 above). The conveyance across the switch is the element of “switch conveyance”. Similarly, if an OCP delivers a call to a parent Tandem, it is technically feasible for an RCP to collect the call from the same parent Tandem, but switch conveyance across that Tandem must unavoidably be purchased from BT (see Route D in Figure 3 above).
61. As an alternative to collecting the call from the switch to which the call is delivered, it is also possible to collect the call elsewhere in BT’s network (see

Routes B, C and E in Figure 3 above). These elements of conveyance after the initial switch conveyance comprise ISC.

(7) BT's charges for APCCs

(a) Calculation of charges

62. As noted in section C(4) at page 21 above, ported calls can arrive at an RCP via various routes. BT separates the potential routing scenarios for ported calls through its network into ten “call groups”. For each call group, different network components are consumed so that different costs are incurred. RCPs may have calls in one or more of the groups depending upon the extent of their interconnection with BT. BT has determined the ten different call groups based on where the call enters BT’s network from the OCP, where it is handed over to the RCP and the network components used. These are summarised in the table below.

Figure 4: BT's call groups

Group	Call received at	Call handed over at	Network components used	Route (Figure 3)
1	BT Tandem exchange	The same BT Tandem exchange, parent of Donor DLE	Tandem exchange	Route D
2	BT Tandem exchange	BT Tandem exchange short distance away, non-parent of Donor DLE	Tandem exchange plus ITC-Short	Route E
3	BT Tandem exchange	BT Tandem exchange medium distance away, non-parent of Donor DLE	Tandem exchange plus ITC-Medium	Route E
4	BT Tandem exchange	BT Tandem exchange long distance away, non-parent of Donor DLE	Tandem exchange plus ITC- Long	Route E
5	BT Donor DLE	BT Donor DLE	DLE	Route A
6	BT Donor DLE	BT Tandem exchange, parent of Donor DLE	DLE plus LTC	Route B
7	BT Donor DLE	BT Tandem exchange short distance away, non-parent of Donor DLE	DLE plus LTC plus ITC-Short	Route C
8	BT Donor DLE	BT Tandem exchange medium distance away, non-parent of Donor DLE	DLE plus LTC plus ITC-Medium	Route C
9	BT Donor DLE	BT Tandem exchange long distance away, non-parent of Donor DLE	DLE plus LTC plus ITC-Long	Route C
10	BT Tandem exchange	Another BT Tandem exchange, also parent of Donor DLE	Tandem exchange plus ITC-Short	Route E

63. BT calculates the total costs to be recovered from a particular RCP by multiplying the minutes of ported traffic falling within each call group by the rate per minute of the components that are used by the call group. The cost so

calculated is then shared over all minutes of ported traffic routed to the RCP (including BT on-net originated minutes) because BT is unable to distinguish between on-net and off-net originated ported traffic at the point of billing.⁹ This charge is the APCC and it is paid by the RCP for both on-net and off-net ported calls.

64. The table below sets out the comparative volume of traffic along the five alternative routes shown in Figure 3 above:

Figure 5: Volumes of traffic by call group¹⁰

Route (Group(s))	Handover location	ISC purchased?	Traffic volume (%) [CONFIDENTIAL TO BT]	Traffic volume (Rank)
A (Group 5)	DLE	No	[15.6%]	3 rd
B (Group 6)	DLE	Yes	[42.4%]	1 st (route with highest volume)
C (Groups 7, 8, 9)	DLE	Yes	[2.3%]	5 th
D (Group 1)	Tandem	No	[28.2%]	2 nd
E (Groups 2, 3, 4, 10)	Tandem	Yes	[11.4%] (the vast majority of which [85.4%] falls within Group 10, <i>i.e.</i> conveyance between two parent Tandems)	4 th

⁹ An “on-net” originated ported call would occur where a BT customer calls a number that was originally allocated to BT, but has since been ported to another CP’s (the RCP’s) network.

¹⁰ Calculations based on data supplied to Ofcom by BT relating to November 2014, set out in Exhibit SP-1.

65. Figure 5 reveals that handover occurs more often than not at the DLE layer. It also reveals that RCPs tend to avoid paying for “short”, “medium” or “long” conveyance to other (non-parent) Tandems.

(b) Contractual arrangements relating to APCC charges

66. BT’s “Network Charge Control Standard Interconnect Agreement” (“SIA”) is BT’s reference offer for telephony interconnection services. Where a CP interconnects its network to BT’s network, the SIA sets out the standard contractual obligations of each party, allowing calls to pass between the different networks.

67. The SIA covers various forms of interconnection services, including call termination and call origination services provided by BT and other CPs, transit services provided by BT and porting services. It covers both regulated and unregulated services.

68. The terms of the SIA are agreed between BT on the one hand and the other CPs (via a contract forum) on the other, so that each CP is subject to the same overall standard terms. BT enters into a separate SIA with each CP wishing to interconnect its network with BT’s network. Charges relating to the services provided under the SIA are, in general, notified to CPs in pricing notifications (for example, Network Charge Change Notices, (“NCCNs”)) and published in the Carrier Price List (“CPL”), though different charges for services may be agreed on a bespoke basis between BT and a particular CP (subject to meeting relevant regulatory obligations).

69. When CPs sign up to the SIA, they also sign up to take specific services, which are set out in a number of different schedules in Annex C to the SIA. Annex C Schedule 4 sets out specific terms and conditions relating to the provision of geographic number portability.

70. In terms of arrangements for charges for portability, Annex C Schedule 4 paragraph 5.2 provides that the Parties shall pay the charges for conveyance at the rates for geographic number portability specified from time to time in the CPL.

(8) *History of regulation of relevant charges*

71. The current ten group charging structure described at paragraphs 62 to 63 above is the culmination of several years of gradual evolution which intertwined with regulatory developments as the market became gradually more competitive.
72. When geographic porting was first introduced BT considered that the incurred costs were insignificant and chose not to recover those costs. However, by 2002 the position had changed and OfTel granted BT's request to allow it to recover its costs.¹¹ At this point it was explicitly assumed that all onward routing would be at a single Tandem and would not involve any conveyance to other Tandems (*i.e.* in what is now classed as Group 1 in Figure 4 above / Route D in Figure 3 above). It was also the case that at this time all interconnection services were regulated, OfTel having found that BT held SMP.¹² Over time competing networks grew steadily. By 2005, competing CPs had connected to every BT Tandem. 48% of BT's Tandems had connections to 8 or more alternative CPs and 92% had connections to 3 or more alternative CPs. Ofcom concluded that BT had no SMP in the market for ITC.
73. In November 2008 BT adopted a new methodology which calculated APCCs for each RCP taking into account calls handed over elsewhere in the Tandem layer (since calls could only be handed over at the Tandem layer at this time). A later refinement¹³ allowed BT to take into account porting between two parent Tandems of a single DLE (*i.e.* what is now classed as Group 10 in Figure 4 above).
74. Handover of ported calls¹⁴ at the DLE layer developed following a dispute between Opal and BT which was referred to Ofcom in July 2009.¹⁵ Ofcom issued its Determination on 26 March 2010 requiring BT to offer DLE

¹¹ OfTel, Determination of fixed portability costs and charges and statutory consultation on proposed modifications to BT's Licence to give effect to charge controls for portability, 31 May 2002.

¹² *Ibid.*

¹³ In June 2011.

¹⁴ It was already possible for CPs to deliver calls direct to BT's DLE, but until the development of DLE Handover it was not possible to collect such calls from BT's DLEs.

¹⁵ Opal was subsequently acquired by TalkTalk.

Handover to Opal.¹⁶ Thereafter BT developed the comprehensive set of ten groups to take into account the diversity of handover possibilities (see Figure 4 above). A year or so before DLE Handover became available, in 2009, Ofcom had concluded that BT no longer had SMP in the LTC market.¹⁷

(9) *The Porting Charges Guidance and the Disputes*

75. Ofcom’s 2013 Narrowband Market Review (“NBMR”) led to changes in the cost standard and method of calculation for setting controls on the termination of calls to fixed geographic numbers. That review highlighted a degree of uncertainty regarding the manner in which GC 18 would be interpreted. Ofcom stated:

“We recognise that further guidance on the interpretation of GC18 has been requested by a number of stakeholders and that this would provide greater certainty for CPs. Therefore, following the completion of the Narrowband Market Review we will commence a project to consider how GC18 should be applied in setting porting conveyance charges.”¹⁸

76. Accordingly, on 24 March 2014, Ofcom issued a consultation paper, in which it set out its view that LRIC was the appropriate interpretation of the cost orientation obligation under GC18.5. On 29 September 2014, Ofcom published its final Guidance. The Guidance stated:

“2.49. Our aim is to provide greater clarity as to compliance with the requirements of GC18 going forward; avoid unnecessary disputes, so far as is possible; and facilitate the resolution of disputes, should CPs fail to agree commercial terms after the publication of this guidance.

2.50. We would expect to apply this guidance when resolving a dispute concerning porting charges, taking into account the specific circumstances of the case.”

77. Section 3 of the Guidance sets out the legal framework. §3.11 notes section 4 of the 2003 Act, which gives effect to the Article 8 obligations. Ofcom stated that the following requirements appeared particularly relevant:

¹⁶ Ofcom, Statement, Determination to resolve Dispute between Opal Telecom and BT about BT’s Average Porting Conveyance Charge, 26 March 2010, paragraph 1.30.

¹⁷ Ofcom, Review of the fixed narrowband services wholesale market, Statement on the markets, market power determinations and remedies including further consultation, 15 September 2009.

¹⁸ Ofcom, Review of fixed narrowband services markets, 26 September 2013, paragraph 8.140.

“- promoting competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;

- taking account of the desirability of Ofcom in carrying out its functions in a manner which, so far as practicable, does not favour one form of or means of providing electronic communications networks, services or associated facilities over another; and

- encouraging, to such extent as Ofcom considers appropriate for certain prescribed purposes, the provision of network access and service interoperability, namely securing efficient and sustainable competition and the maximum benefit for customers of communications providers.”

78. Ofcom set out its consideration of the choice of cost standard at section 4 of the Guidance. Ofcom explained that it assessed the benefits of LRIC and LRIC+ against the so-called “six principles of pricing and cost recovery”. It identified three principles to be of particular relevance:

- (1) “**Cost causation:** costs should be recovered from those whose actions cause the costs to be incurred at the margin”;
- (2) “**Cost minimisation:** those that can affect the size of the costs should have an incentive to minimise them”; and
- (3) “**Effective competition:** the mechanism for cost recovery should not weaken effective competition. The charging structure should not distort competition.”

79. Ofcom considered that, although there were countervailing considerations, all three of the above principles pointed towards a LRIC standard. Accordingly, the Guidance went on to conclude at §8.59.1 that all porting charges should be calculated using a LRIC standard.

(10) The Disputes

80. Following the publication of the Guidance, on 30 December 2014, BT published NCCN 1263 to update its APCCs and a briefing note explaining that it had

updated APCCs to take account of Ofcom's Guidance with an effective date of 1 January 2015 in respect of decreases in rates.¹⁹

81. On 6 January 2015 Gamma wrote to BT querying the reduction of APCCs. It stated its belief that there were errors in the calculation of the LRIC rates. Further correspondence followed. On 2 July 2015, Gamma referred a dispute to Ofcom arguing that the APCC set by BT was not compliant with GC18.
82. Vodafone first wrote to BT on 13 January 2015 asking how the APCC rates had been adjusted in the light of the Guidance. Further correspondence followed and, on 30 July 2015, Vodafone referred a similar dispute to Ofcom.
83. Ofcom accepted Gamma's dispute referral on 23 July 2015 and added Vodafone as a party to the Disputes on 10 August 2015.

(11) The Final Determination

84. In the course of considering the disputes, Ofcom received submissions from BT, Gamma, Vodafone, TalkTalk, and Virgin Media. Ofcom set out the scope of the disputes on 11 August 2015. To the extent that it is relevant to this appeal, the scope was as follows:

“To determine whether the APCCs that BT has charged Gamma and Vodafone [...] were set in accordance with GC18.5(a).

If BT's APCCs were not set in accordance with GC18.5(a), to determine what the APCCs should have been [...] and what payments (if any) BT should make to Gamma and/or Vodafone as a result.”

85. Ofcom issued its Final Determination on 11 November 2015.²⁰ Ofcom decided that ISC falls within the scope of GC 18 and that it is therefore subject to the Guidance and to a LRIC standard. Ofcom did not accept that the parties had agreed any other basis for the charge within GC 18.5(a)(i). Ofcom therefore decided that all elements of the APCC should be set at LRIC, and it ordered BT to make repayments to Gamma and Vodafone accordingly.

¹⁹ Some increases in rates were also implemented with effect from 1 March 2015 on account of the use of revised traffic data.

²⁰ See paragraph 4 above.

D. THE STRUCTURE OF THE JUDGMENT

86. This Judgment deals with the following points in the following order:
- (1) Section E deals with Gamma’s argument that BT’s grounds of appeal 2(a) and 3 were brought out of time.
 - (2) Section F describes the evidence of the various witnesses and experts who gave evidence before us.
 - (3) Section G deals with Ground 1 of BT’s appeal.
 - (4) Section H deals with Ground 2(a) of BT’s appeal.
 - (5) Section I deals with Ground 2(b) of BT’s appeal.
 - (6) Section J deals with Ground 3 of BT’s appeal.
 - (7) Section K summarises our conclusions.

E. GAMMA’S TIME-BAR ARGUMENT

87. Gamma submitted that Grounds 2(a) and 3 were time-barred in terms of the three-month time limit prescribed under CPR r 54.5.

(1) BT’s Notice of Appeal

88. In paragraph 34 of its Notice of Appeal, BT argued that:

“BT could not appeal on the merits against Ofcom’s move from LRIC+ to LRIC for the purposes of GC18.5(a), notwithstanding the terms of Article 4 FD, because it was contained in “Guidance”: it therefore entailed no “decision” within the meaning of section 192(1) of the 2003 Act. No appeal could be brought to question the merits of the Guidance, therefore, unless and until either Ofcom had determined a dispute between CPs under sections 188 and 190 of the 2003 Act, or Ofcom purported to issue an enforcement notice in respect of an alleged breach of the condition under sections 96A and 96C of the 2003 Act. Ofcom’s deliberate use of “Guidance” has therefore created the invidious position that the merits of what is tantamount to a new condition can only be tested by BT once it has already been accused of acting in breach of it.”

(2) *Gamma's Statement of Intervention*

89. Gamma argued in its Statement of Intervention that both Grounds of Appeal 2(a) and 3 challenge the substance of the Guidance, which was published in September 2014 following an extensive consultation earlier in 2014. BT was an active participant in that consultation process and had the opportunity to make full submissions to Ofcom concerning the proper method of calculating APCCs. Ofcom determined that question against BT but BT did not challenge the Guidance immediately after its publication.

90. Although, initially, Gamma argued that the Guidance was a decision that could be appealed under section 192, its final position was that, in order to be permitted to challenge the Guidance, as it had done in Grounds 2(a) and 3, it was obliged to bring a judicial review within the time limits stipulated by CPR r 54.5. Gamma submitted under reference to *T-Mobile (UK) Limited v Office of Communications* [2008] EWCA Civ 1373 (“*T-Mobile*”) that judicial review was an available remedy, even where the challenge was one on the merits, as the High Court judicial review procedure can be adapted to accommodate a review on the merits.

91. Gamma argued:

“The reason for those comparatively short windows of time is well-established in administrative law. As Baroness Hale explained in A v Essex County Council [2010] UKHL UKSC 33 at paragraph 116: “there is a significant public interest in public law claims against public bodies being brought expeditiously”, in particular because the public authority’s decision “may affect large numbers of people or [provide the basis] upon which other decisions have depended and action been taken.”

92. Gamma further submitted:

“As Mr Farmer explains, the need for legal certainty is crucial for participants in the telecommunications sector. That is particularly the case for the smaller companies and prospective market participants, such as those in Gamma’s wholesale customer base. Margins are very small for such operators and they need to be able to rely on Ofcom’s guidance when making investment decisions, rather than facing the prospect that it might be challenged and overturned at some indeterminate point in the future; BT’s suggestion that it must breach

the Guidance and face enforcement before it is entitled to challenge Ofcom's decision is highly unattractive. BT was an active participant in the Consultation and a key addressee of the Guidance. It should not have had to choose between (i) complying indefinitely with a regulatory pronouncement it believes to be unlawful and (ii) putting itself in a position of deliberate breach of the regulator's conclusions, pending enforcement action."

93. Ofcom did not adopt Gamma's time-bar argument or present any submissions that Grounds 2(a) and 3 were time-barred. We would have found it helpful to have received submissions on this point from Ofcom.

(3) *BT's Skeleton Argument*

94. In its Skeleton Argument, BT argued that:
- (1) BT cannot be deprived of a statutory right of appeal. Least of all can it forfeit such a right because Ofcom chooses to publish "Guidance" as to how it will determine a future dispute as to the interpretation of a condition, rather than (as it could have done) amend the condition itself to include express words as to its (new) meaning.
 - (2) While judicial review is a flexible remedy, and can be adapted if necessary to provide a merits review to avoid a breach of Article 4 FD (see *T-Mobile*), it is also a remedy of last resort: *R v Hammersmith and Fulham LBC, ex p Burkett* [2002] UKHL 23, at paragraph 42 per Lord Slynn. Judicial review will be refused if there is the alternative of a statutory right of appeal (*R v Falmouth and Truro Port Health Authority, ex p. South West Water Ltd* [2001] QB 445, CA, 473, per Simon Brown LJ), and/or if it is premature.
 - (3) BT was entitled to await a decision by Ofcom which was capable of appeal under section 192 to an expert Tribunal, and is entitled to have its appeal determined on the merits. The fact that Ofcom chose to announce its future approach to such disputes by way of "Guidance" does not deprive BT of any of those rights conferred by Parliament. In particular, it cannot deprive BT of its right of appeal to a specialist Tribunal.

- (4) The availability of a right of appeal against the present determination (*i.e.* precisely the kind of determination that the Guidance was intended to inform) means that the United Kingdom’s arrangements for an appeal are not in breach of Article 4 FD. There is therefore no basis upon which the High Court should or would have exercised any exceptional jurisdiction to avert any such breach, as discussed by Jacob LJ in *T-Mobile*.

(4) *Gamma’s Skeleton Argument*

95. In response Gamma argued in its Skeleton Argument that the fact that BT has a statutory right of appeal against the Determination does not entitle it to bring an out of time challenge against the Guidance. The decision to adopt the principles in the Guidance as to the basis for calculating APCCs could and should have been challenged earlier; by contrast the application of those principles by Ofcom to the disputes can be challenged and is now being challenged by way of an appeal against the Determination.
96. Gamma submitted that the case of *Burkett* was not analogous to the present appeal and did not assist BT. It concerned a provisional grant of planning permission. By contrast, the Guidance was neither tentative nor provisional. The Guidance explained that Ofcom would take it as its starting point if it was asked to resolve a complaint or dispute about whether porting charges are reasonable, cost oriented and based on the incremental costs of providing portability. The Guidance was intended to have legal effect *R (Nash) v Barnet LBC* [2013] EWCA Civ 1004 (“*Nash*”) at paragraph 65. In the Guidance, Ofcom decided how BT (and others) should comply with GC 18. That the Guidance had legal effect is also borne out by the fact that BT changed its APCCs in response.
97. BT was not entitled to await a decision of Ofcom that was amenable to appeal under s. 192 of the 2003 Act. The High Court would not have rejected an application by BT for judicial review of the Guidance.

(5) Gamma's oral submissions

98. In her oral submissions before the Tribunal, Counsel for Gamma emphasised the link between regulatory certainty and competition. The need for certainty was particularly acute for small operators.
99. The Consultation document made it clear that the issue was BT's charges and that Ofcom was going to determine, how, on a forward looking basis, GC18 should be interpreted in relation to the setting of porting charges. In the Consultation, Ofcom was putting forward a very specific proposal. The Guidance was going to decide the starting point for each dispute. The Guidance itself was the decision on the principle, on what was required to meet GC18. The key addressee was BT. The Guidance was mandatory in the sense that a CP had to comply with it to be in compliance with GC18.
100. In the Final Determination, that the Guidance was the starting point, was taken as read. There was no re-evaluation of whether the cost standard should be LRIC or LRIC+. The substantive reasoning in the Guidance on the LRIC/LRIC+ debate has not been re-taken.
101. During the hearing, we invited parties to make written submissions on the issue whether the Guidance constitutes a decision of Ofcom within the meaning of Article 4. Both BT and Gamma and took up the invitation. Ofcom merely repeated that its Guidance constituted a statement of policy.

(6) BT's Supplemental Closing Submissions

102. BT made written Supplemental Closing Submissions on the time-bar point, which we summarise briefly as follows.
103. First, the status of the Guidance was explained by Mr Godfrey of Ofcom as, subject to the particular circumstances of any case, the starting point in assessing whether porting charges are reasonable, cost oriented and based on the incremental costs of providing portability as required by GC18. Ofcom expressly declined to amend GC18 or issue a formal Direction. Had Ofcom amended GC18 or issued a formal Direction that would have triggered a right

of appeal under section 192 of the 2003 Act. By choosing to issue guidance, Ofcom was explicitly deciding that any further disagreement on the level of APCC charges should be dealt with by way of dispute, to which the principles in the Guidance would be applied as a starting point.

104. Second, BT was entitled as a matter of right to ask the Tribunal to determine whether Ofcom was wrong to determine that the APCCs in question should be set solely by reference to a pure LRIC standard.
105. Third, the statutory provisions for an appeal on the merits implement Article 4 FD.
106. Fourth, the fact that the publication of the Guidance was in principle capable of being the subject of an application for judicial review does not alter the position. The orthodox position is that judicial review must not concern itself with the merits of a decision but is limited to a review on legal grounds - *BT plc v Telefonica 02 UK Ltd* [2014] UKSC 42, at paragraph 13.
107. Fifth, it is only exceptionally, where it is necessary in order for domestic law to comply with EU law, that the High Court will exercise its jurisdiction on an application for judicial review to review the merits of a decision (*T-Mobile*). Had BT applied for judicial review of the Guidance, the High Court would not have been obliged to hear the application on the merits because on any subsequent determination BT would have had a statutory right of appeal on the merits.

(7) Gamma's Supplemental Submissions

108. Gamma's Supplemental Submissions on Time-Bar made the following points:
 - (1) The Guidance was published following a full consultation by Ofcom.
 - (2) It was unequivocal and final: no further step was required or anticipated to bring the change from LRIC+ to LRIC into effect.
 - (3) It was specific and prescriptive: in requiring APCCs to be calculated on the basis of LRIC, Ofcom in effect set an exact maximum level. (Indeed,

in the subsequent Determination, Ofcom calculated specific figures for the levels of APCCs that BT should have charged Gamma and Vodafone.)

- (4) It was mandatory, in the sense that it imposed a requirement on CPs to calculate their APCCs on the basis of LRIC to comply with GC18.
- (5) It was intended to have legal effect and, indeed, had such effect - as demonstrated by BT's subsequent changes in APCCs.

(8) *The Tribunal's decision on the time-bar issue*

109. We start by considering whether judicial review could have accommodated an appeal on the merits stipulated by Article 4 FD.

110. Article 4 provides:

"1. Member States shall ensure that effective mechanisms exist at national level under which any user or undertaking providing electronic communications networks and/or services who is affected by a decision of a national regulatory body has the right of appeal against the decision to an appeal body that is independent of the parties involved. This body, which may be a court, shall have the appropriate expertise available to it to enable it to carry out its functions. Member States shall ensure that the merits of the case are duly taken into account and that there is an effective appeal mechanism [...]"

111. In *T-Mobile* the CAT decided that it did not have jurisdiction under the 2003 Act to hear an appeal against a decision by Ofcom to proceed by way of auction for the award of certain wireless telegraphy licences. One of the issues that the Court of Appeal had to consider was whether judicial review could meet the requirement of Article 4 of the Framework Directive that the merits of the case be duly taken into account. The Court of Appeal held that the judicial review standard of review could and did mould itself to any requirement imposed by other rules of law and could provide a hearing on the merits of the decision under challenge.

112. On the basis of *T-Mobile* we consider that BT was not precluded by the nature and extent of the remedies available under judicial review from bringing before the High Court a judicial review of the Guidance.

113. The next question that arises is whether the publication of the Guidance constituted a decision that was susceptible to judicial review or whether the High Court would in the circumstances have entertained such an application.
114. In *Burkett* the planning committee of the Council had passed a resolution dated 15 September 1999 authorising one of its officers to grant outline planning permission for a development subject to two conditions precedent. Subsequently on 24 February 2000 the Government Office for London decided not to call in the planning application. On 12 May 2000 an officer of the Council acting under the earlier authorisation granted outline planning permission.
115. The issue in *Burkett*, in so far as relevant to this case, was whether, in respect of a challenge to a grant of planning permission, time ran from the date of the grant of permission rather than the preceding resolution. Whether that was the correct date depended on the proper construction of the words “*from the date when grounds for the application first arose*” within the meaning of CPR 54.5(1).
116. At paragraph 43 Lord Steyn, with whom the other members of the House of Lords agreed, said:

“At this stage it is necessary to return to the point that the rule of court applies across the board to judicial review applications. If a decision-maker indicates that, subject to hearing further representations, he is provisionally minded to make a decision adverse to a citizen, is it to be said that time runs against the citizen from the moment of the provisional expression of view? That would plainly not be sensible and would involve waste of time and money. Let me give a more concrete example. A licensing authority expresses a provisional view that a licence should be cancelled but indicates a willingness to hear further argument. The citizen contends that the proposed decision would be unlawful. Surely, a court might as a matter of discretion take the view that it would be premature to apply for judicial review as soon as the provisional decision is announced. And it would certainly be contrary to principle to require the citizen to take such premature legal action. In my view the time limit under the rules of court would not run from the date of such preliminary decisions in respect of a challenge of the actual decision. If that is so, one is entitled to ask: what is the qualitative difference in town planning? There is, after all, nothing to indicate that, in regard to RSC Ord 53, r 4(1), town planning is an island on its own.”

117. At paragraph 44, Lord Steyn expressly addressed the argument that the selection of the date of the original resolution would facilitate good administration. He noted that this approach contemplates time running against a citizen before his rights are affected. In paragraphs 45 to 50, he stated three countervailing policy considerations, which we briefly summarise below.
118. First, the context is a rule of court, which by operation of a time limit may deprive a citizen of a right to challenge an undoubted abuse of power. This weighs in favour of a clear and straightforward interpretation which will yield a readily ascertainable starting date.
119. Secondly, legal policy favours simplicity and certainty rather than complexity and uncertainty. The proposition that ‘a judicial review applicant must move against the substantive act or decision which is the real basis of his complaint’ (adopted by the court in the *Greenpeace* case²¹ and the Court of Appeal in *Burkett*) does not produce certainty.
120. Thirdly, the preparation of a judicial review application is a burdensome task. This consideration reinforces the view that it is unreasonable to require an applicant to apply for judicial review when the resolution may never take effect.
121. The House of Lords went on to hold that, while the court could entertain an application by a citizen for judicial review in respect of a resolution to grant planning permission, he was not required to apply for such relief or lose his right to judicial review of the actual grant of planning permission that affected his rights.
122. We consider that, just as the applicant in *Burkett* could have brought a judicial review of the original resolution, had BT wished to challenge the Guidance by way of judicial review, it could have done so and the High Court would have entertained the application. Ofcom clearly expected BT and other CPs, forthwith, to set its charges for APCCs in accordance with the Guidance. The Guidance put BT on notice that in the event of a dispute, the starting point would be that APCCs should be charged at LRIC. We do not consider that the High

²¹ *R v Secretary of State for Trade and Industry ex p Greenpeace Ltd* [1988] Env LR 415.

Court, in these circumstances, would have been correct to dismiss an application for judicial review as premature, unless perhaps a dispute was imminently to be referred to Ofcom by a CP dissatisfied with BT's charges for APCCs. We do not accept BT's argument that the High Court would not have exercised the 'exceptional jurisdiction' (as BT described it) discussed in *Burkett* on the ground that the application was premature, or that judicial review is a remedy of last resort or because Article 4 FD was satisfied by the availability of a statutory appeal under the 2003 Act. At the time the Guidance was issued there was in fact no statutory right of appeal, because at that time there was no dispute that could give rise to such an appeal. We do not consider that the High Court would have declined to hear an application for judicial review on the ground that there might at some point in the future have been a dispute that might result in a statutory appeal.

123. Accordingly, we do not accept BT's argument that the High Court would not have entertained an application for judicial review of the Guidance.
124. We now consider whether BT was *obliged* to bring a judicial review of the Guidance within the time limits prescribed by CPR r 54.5, failing which it would lose the right to challenge the Guidance on Grounds 2(a) or 3 in a subsequent dispute.
125. In *Nash*, the claimant brought a judicial review of the Council's cabinet's decision, taken on 6 December 2012, to award a contract to provide a new support and customer services organisation and a proposed decision, which would but for the proceedings, have been taken by the cabinet on 31 January 2013, to award a contract to provide development and regulatory services. One of the grounds of claim was that the Council had not complied with a statutory obligation of consultation. The decisions to initiate the procurement process had been taken in 2010 and 2011.
126. The Court of Appeal held at paragraph 54 that the question was when a decision was taken in respect of which a statutory duty to consult first arose. The decisions in 2010 and 2011 were intended to, and would be known to, both have legal effect and significant consequences in terms of prospective time and

expense incurred in pursuing the procurement process (paragraph 55). Time started to run when these decisions were taken.

127. The Court of Appeal in *Nash* considered the *Burkett* case. The claimant had argued, in reliance on *Burkett*, that even if the judicial review could have been brought in 2010/2011, there was no obligation on her to do so; *Burkett* permitted the claimant to raise the legal challenge at the time of the final decision to do the act in question.

128. In *Nash*, Davis LJ said, of *Burkett*, at paragraph 64:

“This decision of course is binding on this court. But it is binding for what it decides; and to my mind it is plainly distinguishable from the present case. In that case, there was a resolution to grant outline permission subject to, among other things, completion of a s.106 agreement: a context quite different from the present. As to his general approach, Lord Steyn gave a striking example, in paragraph 43 of his judgment, of a provisional decision (taken from the field of licensing).”

129. After quoting paragraph 43 of *Burkett*, Davis LJ went on to say at paragraph 65:

*“That simply is not the situation here. Here, the Council was not provisionally resolving to enter any outsourcing contract at all, let alone a provisional contract relating to the DRS project or to the NSCSO project. What, as the context and the terms of the relevant decisions in November 2010 and March 2011 show, the Council was doing was actually deciding to enter into a procurement process by way of competitive dialogue. That process then, and in accordance with the 2006 Regulations, proceeded in stages. Thus, in contrast with the initial resolution in *Burkett*, work here was lawfully and foreseeably done and money was expended precisely because of such decisions. The decisions thus had and were intended to have legal effect: not, of course, in terms of sanctioning a binding contract but in terms of authorising and causing the initiation of the procurement process, with attendant inevitable heavy expenditure and significant use of time and resources. Without such decisions, those things could not and would not have been done. Those decisions are thus, indeed, in my view properly to be regarded as substantive or, if you like, “final” (using Mr Giffin’s word) for that purpose. They are not to be regarded as contingent or provisional, even though there was no guarantee at all that any outsourcing contract or contracts might ultimately result. Mr Giffin did suggest that so to conclude would be tantamount to resurrecting “the real basis of complaint” approach put forward in the *Greenpeace* case but which was disapproved in *Burkett*. In my view, however, it does no such thing: rather, as I have sought to say earlier in this judgment, it*

identifies the actual decision by reference to which the grounds of challenge first arose.”

130. We take from *Nash* the principle that, in a decision making process that has two or more related stages, time starts to run from the date of the first decision that was intended to have, and did in fact have, legal effect. In *Nash* the Court of Appeal distinguished *Burkett* on the principal ground that the decision authorising the Council’s officer to grant outline planning permission did not itself have legal effect. The decision that had legal effect was not the decision granting conditional authorisation to the Council official but the grant of outline planning permission itself.
131. In the present case, the circumstances are rather different from those of either *Burkett* or *Nash*. When the Guidance was issued it did not constitute a decision that was part of a process of resolving a dispute. No dispute had been referred at that time.
132. In the Guidance, however, Ofcom set out its policy in relation to the cost standard for APCCs. It expected CPs, in particular BT, to act upon the Guidance by setting its APCCs from early 2015 on the basis of LRIC as opposed to LRIC+. Although Ofcom expected BT to give effect to the Guidance in setting its APCCs, and BT did in fact do so in relation to some APCCs, we do not consider that the Guidance itself had legal effect or was intended to have legal effect on BT. As BT submitted, had Ofcom wished the policy contained in the Guidance to have legal effect, it could have amended GC18 or issued a Direction. It is, further, clear that Ofcom did not intend the Guidance to have any binding effect on its resolution of any dispute that might arise in future, in relation to the level or basis of APCCs. Ofcom made it clear in the Guidance that it was the starting point in the resolution of a dispute but that each dispute would be decided on its merits and on the material presented by the parties to such dispute.
133. For these reasons we consider that while BT could have brought a judicial review of the Guidance, within three months of its publication, it was not obliged to do so. Time did not start to run in relation to Grounds 2(a) and 3 until

Ofcom issued its Final Determination, whereupon the time limits prescribed by the CAT's rules came into play.

134. In coming to this decision, we recognise the uncertainty for other CPs inherent in BT's deferral of its challenge to the Guidance. We consider, however, that this consideration is outweighed by the countervailing factors identified by Lord Steyn in *Burkett*, at paragraph 45 to 50. In particular, it would be unfortunate if every CP was obliged to challenge any part of the Guidance with which it did not agree, although it had not yet affected that CP's legal rights. Had Ofcom decided to amend GC 18, rather than to issue Guidance, then of course the situation would have been quite different. The amendment to GC 18 would have had immediate legal effect and it would have been inappropriate for BT to have waited for a dispute to emerge and have raised an appeal to this Tribunal only after Ofcom's determination of that dispute.

F. WITNESSES AND EVIDENCE

135. In total we heard evidence from seven witnesses of fact and two experts. As a preliminary observation, we found that every witness did their best to assist the Tribunal. Where we have preferred one witness's evidence over that of another, this is because we have found the underlying reasons for that witness's honestly held belief to be more persuasive.

136. The parties called the following witnesses and experts.

(1) BT called two witnesses of fact:

- (i) Mr John Morden. Mr Morden is a former employee of BT from September 1972 until July 2014 when he retired. His final role, which he started in 2008, was as General Manager, Voice and Interoperability in the Regulatory Affairs Division of BT Wholesale. Before that, from 2005 until 2008 Mr Morden was General Manager, Voice Portfolio, within BT Wholesale. Mr Morden retired in July 2014 and following his retirement he was engaged by BT to support the team responding to the disputes with Gamma and Vodafone. Mr Morden gave two witness

statements (“Morden 1” and “Morden 2”), and was cross-examined on Day 2 (19 May 2016). Mr Morden clearly had a very deep technical mastery of the matters relating to fixed line telecommunications, including porting conveyance. He gave evidence straightforwardly, in a helpful manner.

- (ii) Mr Kevin Young. Mr Young joined BT in 1976 and still works at BT. Since 2013 he has acted as a Revenue Assurance Manager within BT Wholesale. From 2009 until 2013 Mr Young worked in the BT Wholesale Product Management team and from 2000 until 2009 he was the Interconnect Policy & Contract Manager. Mr Young gave one witness statement (“Young 1”), and was cross-examined on Day 2 (19 May 2016). Mr Young was a straightforward and helpful witness.

(2) Ofcom called one witness of fact:

- (i) Mr Steve Perry. Mr Perry is a technical adviser in Ofcom’s Competition Group. Mr Perry gave one witness statement (“Perry 1”), and was cross-examined on Day 3 (20 May 2016). Like Mr Morden, Mr Perry clearly had a very thorough understanding of the technical matters relating to fixed-line telecommunications and porting. We found him straightforward and helpful.

(3) The CP Group called three witnesses of fact:

- (i) Mr Paul Rosbotham. Mr Rosbotham is the Senior Regulatory Manager at Vodafone and has held this role since 2013. Mr Rosbotham gave one witness statement (“Rosbotham 1”), and was cross-examined on Days 3 and 4 (20 and 23 May 2016). The cross-examination of Mr Rosbotham was lengthy, in part we feel because Mr Rosbotham tended towards an argumentative approach in his responses. Nevertheless, Mr Rosbotham’s evidence was largely relevant and of assistance to the Tribunal.

- (ii) Ms Ruth Kennedy. Ms Kennedy is Head of Voice and Interconnect at TalkTalk and joined TalkTalk in September 2011, having previously worked for seven years as UK Wholesale Manager at eircom UK. Ms Kennedy gave one witness statement (“Kennedy 1”), and was cross-examined on Day 4 (23 May 2016). Ms Kennedy made clear that her expertise was in the commercial side of the TalkTalk’s business, as opposed to its technical operations. Ms Kennedy was a helpful witness, although we consider that it was unfortunate that an assertion in her written evidence, that TalkTalk had never even considered offering a transit service to other CPs using the DLE Handover product, had to be corrected in examination-in-chief.
 - (iii) Mr Leonard Moore. Mr Moore is Head of Carrier Relations at Sky, which is a role he has held since 2008. Prior to that Mr Moore was Sky’s Head of Product Development, a role that he held since joining Sky in 2006. Before that he worked at a number of telecoms operators since 1982. Mr Moore gave one witness statement (“Moore 1”), and was cross-examined on Day 4 (23 May 2016). Mr Moore was a helpful witness, who presented his evidence robustly.
- (4) Gamma called one witness of fact:
- (i) Mr Peter Farmer. Mr Farmer is the Head of Regulatory Affairs at Gamma Telecom Holdings Limited. Mr Farmer gave one witness statement (“Farmer 1”), and was cross-examined on Day 4 (23 May 2016). Mr Farmer was a straightforward and helpful witness.

137. There were two expert witnesses who gave evidence on the relevant underlying economics.

- (1) BT called Dr Daniel Maldoom, a partner at DotEcon Ltd, an economic consultancy with particular focus on telecommunications and networked industries. Dr Maldoom provided two expert reports (“Maldoom 1” and

“Maldoom 2”), the latter in response to the evidence of Ofcom’s expert economist. Dr Maldoom was cross-examined on Day 5 (24 May 2016). Dr Maldoom’s evidence primarily focused on Grounds 2(a) and 3 of BT’s appeal. Dr Maldoom was a helpful witness, who readily made concessions when appropriate. However, as we note in Section J, much of his evidence was of a hypothetical nature.

- (2) Ofcom called Mr William Godfrey, a Director of Economic Analysis in Ofcom’s Competition Group. Mr Godfrey provided one expert report (“Godfrey 1”). Mr Godfrey was cross-examined on Days 5 and 6 (24 and 25 May 2016). Mr Godfrey’s evidence focused exclusively on Grounds 2(a) and 3 of BT’s appeal. We found Mr Godfrey to be a helpful witness. He supported his opinions, in certain cases, with empirical factual evidence.

G. GROUND 1

(1) Outline of the issues under Ground 1

138. Ground 1 was stated, in summary, in BT’s Notice of Appeal in the following terms:

“The services which BT continued to charge at LRIC+ rates were for “inter-switch conveyance”, which is not necessary to the provision of number portability. Ofcom erred in fact and/or in law in concluding otherwise. Those services therefore fell outside the scope of GC18.5(a), and so should not have been treated as subject to a cost orientation requirement at all.”

139. GC18(5)(a), in so far as material, provides that:

“subject always to the requirement of reasonableness, charges shall be cost oriented and based on the incremental costs of providing Portability”.

140. GC18.5(a) implements Article 30(2) USD, which requires that *“pricing [...] related to the provision of number portability is cost-oriented.”* The term *“provision of number portability”* is not defined, but refers back to the requirement in Article 30(1) USD that all subscribers who so request *“can retain*

their number(s) independently of the undertaking providing the service”: *i.e.* CPs must have the facility to enable it.

141. In its Defence, Ofcom submits first that contestability/necessity formed no part of the test of whether a charge falls within Article 30(2) USD or GC 18.5(a). Ofcom submits second that, in any event, ISC is not “*unnecessary*” (*i.e.* is not avoidable) in any practical sense.
142. We understood the parties to use the term “*contestable*” in the way explained by BT’s counsel as set out at paragraph 164 below.
143. It can be seen that for BT to succeed on Ground 1 it must make good two propositions:
 - (1) that “*necessity*” (“*contestability*”) forms a part of the legal test to establish whether a service (in this instance, ISC) forms part of the provision of portability; and
 - (2) that as a matter of fact the purchase of ISC from BT is “*unnecessary*” (*i.e.* avoidable or contestable).

(2) *BT’s submissions on the scope of GC 18.5(a)*

144. BT’s elaboration of Ground 1 in its Notice of Appeal can be briefly summarised as follows:²² GC18.5(a) is concerned with the treatment of the costs directly associated with enabling number portability to be provided. There is nothing in GC18.5(a) which refers to APCCs or which otherwise extends its scope to the pricing of services which are not necessary for number portability to be provided. The only necessary conveyance is switch conveyance. Over the long run, the extent to which other CPs purchase ISC from BT (or a third party provider) is a strategic choice of the RCP, determined by how it chooses to build out its network to interconnect with BT’s network. Purchase of Switch Conveyance “enables” portability, but beyond that there is a commercial choice as to how and where to collect the call, including whether or not to purchase ISC. Purchase of ISC from BT does not “enable” portability since alternatives

²² See also BT’s closing submissions at Day 6/p50.

exist for the RCP, such as building out its network or purchasing third party transit. ISC is an incident of the ported call, not of the provision of number portability. Ofcom was therefore wrong to conclude, as it did at §5.37 of its Final Determination, that porting conveyance was “*unavoidably linked*” to the provision of number portability.

145. BT notes that ISC was non-contestable at the time when GC18.5(a) was first introduced in 2003 and states that there therefore could have been no separate intention to regulate the price of ISC when it was introduced since the price of ISC was – at that time – already the subject of control under Articles 9-13 AID.
146. BT contends that it is irrelevant that Article 30(2) USD draws no distinction between contestable and non-contestable services with regard to establishing the scope of which services may properly be considered “*related*” to the provision of Portability. The USD is aimed at the rights of end-users, not the control of access and interconnection, which is subject to the control of the AID.
147. Accordingly, BT contends that ISC is not a necessary purchase for, or unavoidably linked with, the collection of ported traffic by RCPs. The fact that RCPs choose to consume such conveyance does not alter that position, and does not imply that ISC, when consumed in this way, must be treated as amounting to “*the provision of Portability*” within the meaning of GC18.5, as Ofcom assumed. Were it otherwise, BT contends that Ofcom would equally be bound to regulate the price of directly routed calls, and third party transit and mobile interconnection used for number portability under GC18.5(a) – none of which Ofcom does.

(3) *Ofcom’s submissions on the scope of GC 18.5(a)*

148. Ofcom submits that the appropriate starting point is the language of Article 30(2) USD which requires that “*pricing [...] related to the provision of number portability is cost-oriented.*” Ofcom submitted that, as a matter of ordinary language, “*related to*” is a wider concept than the concept of “*necessity*” contended for by BT. In Ofcom’s submission, it matters not whether particular elements of the service are strictly “*necessary*” (*i.e.* avoidable), or whether they are “*contestable*”. The point is that various services are in fact provided by the

DCP in order to convey the call to a ported number. Ported calls are routed in a particular way (from the location on the DCP's network at which the call is determined to be a ported number to the point of handover to the RCP) because the number has been ported.

149. Contrary to BT, Ofcom contends that it is plainly relevant that Article 30(2) USD draws no distinction between contestable and non-contestable services. Ofcom drew our attention to Case C-438/04 *Mobistar v IBSPT* (“*Mobistar*”). This case concerned whether one-off set-up costs associated with the porting of mobile numbers also fell within Article 30(2) USD, which at that time referred to “*interconnection related to the provision of number portability*”. The CJEU held that they did at paragraphs 25-28:

“25 Number portability is intended to remove the obstacles to consumers’ freedom of choice particularly between mobile telephone operators and thus to ensure development of effective competition on the telephone services market.

26 With a view to achieving those aims, the Community legislature provided, in Article 30(2) of the Universal Service Directive, that national regulatory authorities are to ensure that pricing for interconnection related to the provision of number portability is cost oriented and that direct charges to subscribers, if any, do not act as a disincentive for the use of these facilities.

27 The interpretation according to which the set-up costs are not covered by that provision would be contrary to the aim and purpose of the Universal Service Directive and might limit its effectiveness from the point of view of the provision of portability.

28 The set-up costs represent a large part of the costs which may be passed on directly or indirectly by the recipient operator to the subscriber who wishes to make use of the portability facility for his mobile number.”

150. Ofcom submits that the logic expressed at paragraphs 26-28 applies not just to set-up costs but to all costs related to the provision of number portability, regardless of whether the elements in question are contestable. An RCP must pass on its costs, whether directly or indirectly, to its subscribers and/or will take account of such costs when deciding whether to invest in attracting ported customers. Recital 42 of the USD²³ makes clear that the objective of number

²³ Set out at paragraph 17 above.

portability is to facilitate effective competition and consumer choice. Ofcom submitted in its Skeleton Argument that the purpose of the Article 30(2) USD was clear:

“Charges related to number portability are regulated because of the burden they impose on operators, which must be recovered somehow from their customers. This burden falls particularly heavily on later entrants, as they will need to win customers from the incumbent provider; and a higher proportion of their customers will therefore have ported numbers, creating an impediment to competition and reducing consumer choice. The incentive of the incumbent will be to set higher porting charges. [...]

In the UK system, the detour taken by a ported call via a DCP’s network gives rise to charges related to number portability that are not faced by a provider serving a customer with a non-ported number. The purpose of Article 30(2) USD is to keep such charges in check.”

151. BT responded by pointing out that the charges subject to the appeal in *Mobistar* were very different to the APCCs at issue in this appeal. In particular, the set up costs at issue under the Belgian regime in *Mobistar* are entirely unrecoverable under the UK regime, owing to GC 18.5(b). Ofcom’s reply is that the points of principle made by the CJEU are equally valid for all types of cost related to number portability. BT also contended that Recital 42 offered no guidance as to what elements of interconnection are related to the provision of number portability. Ofcom’s reply is that Article 30(2) USD is concerned with *all* interconnection related to the provision of portability, not with any particular *elements* of interconnection.
152. BT also contended that no obstacle to consumer choice, of the type identified at paragraph 25 of *Mobistar*, arose from the charging of ISC at the same rate as it is charged for non-ported calls. We regard this submission, however, as a question of fact as to whether or not the purchase of ISC was “avoidable”. We address this issue further below.
153. Ofcom also relied upon the ordinary language of GC 18.5 as supporting its broader understanding of the provision of portability. Ofcom rejects BT’s contention that ISC does not “enable” portability (see paragraph 141 above). The Defence explains Ofcom’s position as follows:

“in ordinary language, if a facility is provided for the purpose of porting, that facility (and every component within it) enables porting. It matters not that porting could also have been enabled by a different facility, perhaps without ISC. What matters is that it was in fact provided through the facility in question.”

154. Ofcom also rejects the suggestion that Oftel cannot have intended for GC 18.5 to cover ISC when it was first introduced in 2003. At that time BT did not actually charge for ISC for ported traffic, considering it an immaterial cost. The fact that different regulation applied to non-porting traffic makes no difference.
155. In reply to the argument that Ofcom’s interpretation of GC 18.5 would require regulation of directly routed ported calls Ofcom states that direct routing means that no charges related to ported call would arise under this system which would require to be regulated. Ofcom describes the suggestion that third party transit of ported calls would require regulation as a “*red-herring*” since no third party transit product exists.

(4) The Tribunal’s decision on the scope of GC 18.5(a)

156. We reject BT’s contention that contestability/necessity forms a part of the legal test of whether a charge falls within Article 30(2) USD or GC 18.5(a) for the following reasons:
- (1) We agree with Ofcom that the language of Article 30(2) USD and GC 18.5 clearly encompass all costs “*related to*” portability and not just those costs which are “*necessary*” or “*unavoidably linked*” to portability.
 - (2) We consider it highly relevant that Article 30(2) USD draws no distinction between contestable and non contestable costs. We find no support for the gloss to Article 30(2) USD which BT contends for. The language of the USD is clear. On the contrary, it is clear that the broad language of Article 30(2) is intended to be all-encompassing of costs in order to ensure consumer choice, as indicated by Recital 42.
 - (3) Whilst we recognise the difference in the regulatory context of the *Mobistar* case, the spirit of the judgment is clear: Article 30(2) is not to

be interpreted narrowly as this would be contrary to the Directive's objectives which include the encouragement of porting.

- (4) In our view the construction of GC 18.5(a) for which Ofcom contends does not give rise to any inconsistency with the treatment of directly routed ported calls or ported calls carried by third party transit providers as contended by BT. We agree with Ofcom that no porting charges arise under the direct routing method which fall to be regulated. We also consider that third party transit of ported calls (should such a service exist or come into being) is not sufficiently closely connected to the ported call to be classified as being "*related to*" the provision of number portability because it is not provided by the DCP.

157. One further argument which Ofcom raised concerned whether BT would have been under any obligation at all to provide other CPs with ISC, were it not to fall within the scope of Article 30(2). BT argued that it had a legal duty to provide such interconnection under GC 20 and would, in any event, have commercial incentives to do so in order to avoid having to invest further in its aging network.²⁴ Given our findings above, we do not consider it necessary to determine this point.

(5) The parties' case on the contestability of ISC

158. Although we have found that "necessity" / "contestability" forms no part of the legal test for determining the scope of Article 30(2), we nevertheless turn to consider whether BT has made out its case that ISC is in fact contestable. Before delving into the factual evidence on this point we first outline the parties' case on this issue.
159. It was uncontentious between the parties that it is technically feasible for CPs to avoid ISC entirely since a CP has the technical ability to connect to each and every of BT's DLEs and Tandems. The various routes by which a ported call can be collected by an RCP are set out above in Figure 3 at page 23 above. Routes A to C relate to calls routed by the OCP to BT's DLE layer. Route A

²⁴ Day 6/p64.

(collection at the relevant DLE via the DLE handover product) entirely avoids ISC. Routes D and E concern calls routed by the OCP to BT's Tandem layer. Route D (collection from the same parent Tandem to which the call is routed) similarly entirely avoids the purchase of ISC.

160. BT's Notice of Appeal states starkly that the purchase of ISC is a free choice of the CPs:

“[Since deregulation] CPs receiving ported calls no longer need to purchase inter-switch conveyance from BT in order to serve their customers who have ported from BT (with the advent of the DLE Handover product in 2010).”

BT goes on to explain that this choice must be understood in the light of the long run interests of CPs:

“Over the long run, the extent to which the RCP takes inter-switch conveyance (whether LTC or ITC) from the DCP or inter-switch transit from another CP (whether ITC or ITT) is a choice of the RCP, determined by how it builds out its network and locates its points of interconnection.”

161. In order totally to avoid ISC a CP would need to:

- (1) collect all ported calls from the DLE to avoid LTC;
- (2) collect all ported calls from all relevant Tandems to avoid ITC;
- (3) and/or use third party transit.

162. Ofcom and the interveners argued that each of the suggested options faces practical challenges meaning that the option to avoid ISC is limited. In outline, the reasons why these options are said to be unrealistic were as follows:

- (1) the DLE handover product for porting traffic provided by BT requires CPs to provide a separate route for ported traffic so that it is treated differently to non-ported traffic. This approach to DLE interconnection is likely to be less efficient than treating ported and non-ported traffic the same and having a single route for all traffic. It may also lead to implementation costs for the RCP to set up the segregated route;

- (2) whilst CPs could, in theory, avoid ISC on traffic handed to BT at the Tandems, an RCP has fewer options for ported traffic than for non-ported traffic. For non-ported traffic, ISC on BT's network can be avoided without interconnecting to all BT's Tandems (and indeed, for non-ported transit traffic, BT's network can be avoided entirely) whereas for porting traffic the only option is to build routes to more Tandem exchanges. These routes are not necessarily required for non-ported traffic. Further, RCPs do not have sufficient data to know which specific Tandems to build out to, so that they would need to build to all Tandems that are parents of the DLEs from which they have ported numbers in order to avoid ISC; and
- (3) presently, no third party transit services for ported traffic exist to allow traffic to be delivered from BT as the DCP to the RCP, and so this is not an alternative for RCPs to avoid ISC.

163. This evidence, and BT's reply to it, is set out in further detail below. Importantly, BT conceded that the choices facing other CPs to avoid ISC were not uniform and obvious. In opening BT's counsel stated:

“BT's submission is not and never has been that it will be commercially viable for every CP to interconnect everywhere. BT's submission is that it is a commercial choice as to where to interconnect made in the context of a competitive market for ISC, and on analysis, for the great majority of traffic for the major providers it will be commercially viable. Making a normal commercial choice the same way as for non-ported traffic.”²⁵

In closings BT's counsel went on to state that:

“whether it is commercially viable or not [to collect ported traffic] will vary from CP to CP, from switch to switch, [...] Of course that is true, and BT has never suggested otherwise.”²⁶

164. BT's counsel expressed very clearly the point critical to BT's argument, namely that a service such as ISC could be considered contestable even though in

²⁵ Day 1/pp59-60.

²⁶ Day 6/pp 50-51.

individual areas a particular CP may have no practical choice but to purchase ISC from BT:

“There may be areas or exchanges where the CP commercially wouldn’t choose anything other than to consume [BT’s ITC] product. But BT then doesn’t put up a price in those cases just because they are there, they are constrained. There’s a competitive constraint that applies nationally. And if it put up its prices in areas where CPs do have genuine realistic commercial choices to be made based on their own level of interconnection, it would be viable for them to take it or not take it as suits them. If you put up those prices, they will not take it. So that level of price is constrained even where the CPs say they have no practical alternative in terms of viability.”²⁷

165. Having outlined the parties’ case as to the contestability of ISC, we proceed to review the evidence relating to the collection of ported calls from the Tandem and DLE layers and the options for third party transit of ported calls. We also consider in this section CPs’ incentives to move toward direct routing. The history regarding Ofcom’s aborted attempt to move towards direct routing in the late 2000s is uncontroversial and set out above at section C(5) at page 24. The key matter in dispute was the effect of a switch from LRIC+ to LRIC on CPs’ incentives to migrate toward direct routing. BT contended that LRIC+ provides the correct incentives to facilitate this migration. Ofcom and the Interveners contended that pricing APCCs at LRIC would not disincentivise moves towards direct routing.

(6) The evidence relating to the contestability of ISC

(a) Mr Morden (BT)

166. Mr Morden’s evidence responded to suggestions in the evidence of Ofcom and the interveners regarding the alleged difficulty of collecting ported calls from BT’s Tandems and from its DLEs. Mr Morden also discussed the interveners’ incentives to migrate to direct routing.

Collecting calls from Tandems

167. Mr Morden agreed with Ofcom that the only way of being certain of avoiding all ITC would be to interconnect at every Tandem. However, in his view RCPs

²⁷ Day 1/pp62-63.

were quite easily able to collect the overwhelming proportion of calls delivered to Tandems from sites where they are already present. Mr Morden explained that 58% of BT's Tandems accounted for 93% of traffic. Some Tandems were clearly more worthwhile interconnecting with than others. Further, RCPs could construct a ranking of importance of BT's Tandems based on the location of its ported customers or the termination of calls on BT's network. Mr Morden prepared a graph indicating the volume of ported minutes received by the various Tandems.

Collecting calls from the DLE layer

168. Mr Morden disagreed with the evidence of Ofcom and the interveners that the DLE Handover product suffered from serious deficiencies rendering it impractical as a means of avoiding ISC charges for calls routed to BT's DLE layer. In his view the DLE Handover product was not unfit for purpose, although he agreed that enhancements might be made that might "*affect the take up of [the DLE Handover product] at marginal sites.*"²⁸

169. One particular criticism of the DLE Handover product is that its implementation requires segregated routes (*i.e.* a link cannot be used to convey traffic other than ported calls). Mr Morden confirmed in cross-examination that this 'segregation' issue did not affect BT's own network:

Q (Mr Holmes) When BT undertakes inter-switch conveyance of ported traffic it wouldn't split it from other types of traffic?

A (Mr Morden) When BT ... no, that's correct.

Q (Mr Holmes) It would carry it over a link or links which carry other types of traffic to and from the DLE?

A (Mr Morden) Yes.²⁹

170. The need for a segregated route means that at a given DLE, a CP has two options: either it adds a new interconnect circuit to create a new route or, where there is sufficient capacity on existing circuits, re-arranges a circuit to create a segregated route.

²⁸ Morden 2, §14.

²⁹ Day 2/ pp74-75.

171. The nub of Mr Morden's evidence was that the availability of the DLE Handover product, despite any shortcomings, was to constrain BT's pricing of LTC. Mr Morden did not contend that it would be commercially viable for all CPs to use the DLE Handover product to interconnect at all of BT's 600+ DLEs. However, Mr Morden was of the view that CPs were in a position to use information in their possession to rank DLEs in order of importance. CPs would be able to collect 50% of ported minutes by collecting minutes from 27% of DLEs and could collect 75% of ported minutes by connecting to 50% of BT's DLEs. CPs would be able to determine an efficient level of inter-connection with BT's DLE layer.
172. The DLE Handover product can be implemented by purchasing In Building Connections ("IBCs") and/or Interconnection Extension Circuits ("IECs"). In confidential table 7 at page 13 of Morden 2, Mr Morden went on to calculate the breakeven volume of minutes that would make the DLE Handover product commercially viable for each of the five interveners. While the precise figures are confidential, it was clear from his evidence that it would be "commercially viable" for each of the intervening CPs to collect substantially more than 50% of their ported minutes from DLEs by implementing the DLE Handover product. Excluding costs of funding, Mr Morden noted that an IBC would need to utilise just 6.9% of its capacity to break-even over a ten-year lifetime and just 14% of its capacity to break-even over a three-year lifetime. Mr Morden explained that the real incentive for using the DLE Handover product would be the cost savings from the minutes above breakeven where charges for ISC could be avoided.³⁰
173. Mr Morden did not seek to suggest that a CP would optimise its returns on investments by using DLE Handover. Cross-examination by Mr Holmes helpfully revealed the narrowness of the concept of "commercial viability" employed by Mr Morden. Essentially, Mr Morden was merely suggesting that an investment was "viable" if it was not loss-making:

³⁰ Day 2/ pp128-129.

- Q (Mr Holmes)** [...] your tables show that these dedicated links will be viable carrying a proportion of traffic that is well below capacity?
- A (Mr Morden)** Yes.
[...]
- Q (Mr Holmes)** And you are saying to me that the commercial case will be affected by how much traffic you can carry, how many minutes you can convey over your links. That's not in dispute, is it? The more minutes you can carry and either avoid charges or earn revenues on, the better from an economic perspective?
- A (Mr Morden)** But by viability it means that by using those circuits they save money.
[...]
So it is viable for them just to use that circuit for that purpose.
[...]
- Q (Mr Holmes)** Let's put it like that this: the commercial viability would be improved if they were [not] subject to a requirement which required them to segregate traffic in this way?
- A (Mr Morden)** Yes, if -- clearly, if they have spare capacity, it costs them nothing to use that for this purpose.³¹

174. In cross-examination Mr Morden explained how the availability of the DLE Handover product acted to constrain BT's pricing of ISC:

Mr Morden: [...] All BT buildings have fibre access. So it is possible to connect to every exchange, whether BT provides ISC or not.
So we then come on to the commercial incentives on that, and obviously as BT would increase the price of ISC, it becomes more commercially viable to go to more exchanges until ultimately they go to all of them at some price.
But you have to also consider the costs on BT. If they did go to every local exchange, this would require BT to invest in its legacy network, in switch capacity, in ports, to provide these extra connections. It has no incentive to do that. In fact, that is the last thing it wants to do at the moment, is to spend more money on its old network. And I think it has shown that by its willingness to negotiate on price rather than have people go to all of the exchanges.

³¹ Day 2/ pp77-78.

So there is somewhere in there an equilibrium price that BT and the CPs would reach that would satisfy both of them. This is the same situation for other traffic types, and BT has not withdrawn ISC even though it could do so.³²

175. The original calculations set out in Mr Morden's Table 7 contained no provision for financing costs. Shortly before the hearing, in response to criticisms in Ofcom's Skeleton Argument, Mr Morden provided revised figures intended to take into account such costs. In cross-examination by Ms Love, Mr Morden admitted that the cost of finance figure of 1.5% that he had employed (based on the yield of 25-year Vodafone bond) might not reflect the actual costs of financing borne by CPs. He also agreed that if costs were higher than the 1.5% he had used, the 'break-even' rate would be lower (*i.e.* using DLE Handover would be 'commercially viable' at fewer locations).³³

Third party transit

176. Mr Morden accepted that currently no CPs offer transit of ported traffic, but his evidence was that there was nothing to stop such a service emerging. Whilst Morden 2 was somewhat ambiguous on this point,³⁴ Mr Morden confirmed in cross-examination that any third party transit provider would need to use the DLE Handover product if it wished to collect ported calls from BT's DLE Layer.³⁵ When questioned as to why third party transit had not emerged in the years between the DLE Handover product becoming available and the introduction of Ofcom's Guidance which became the focus of this dispute, Mr Morden opined that this was because of uncertainty over the level of APCCs that would be recoverable by BT. APCCs at LRIC would remove the business case for providing third party transit.³⁶

Direct routing

³² Day 2/ pp35-36.

³³ Day 2/ p126.

³⁴ Morden 2, § 54.

³⁵ Day 2/ pp67-68.

³⁶ Day 2/ pp67-70.

177. Mr Morden stated that pricing APCCs at LRIC provided inadequate incentives to move to direct routing. CPs with IP networks would not route via BT if the correct incentives were in place for direct routing. The absence of adequate incentives means that BT must maintain an unnecessary legacy network the burden of which is disproportionately borne by BT's existing customers.
178. Mr Morden recognised that a "*valid reason*" to prefer direct routing to indirect routing was that call quality could be improved by avoiding the need to translate between IP and TDM networks but he disagreed that this reason provided a strong driver for implementation. In his view, the commercial benefit of direct routing is reduced APCCs and only if this benefit exceeds the cost of implementing direct routing will a move to direct routing (generally on a reciprocal basis) come about. Logically it follows that the lower the APCC charge the fewer the situations in which a move to direct routing would be cost effective and the greater capacity must be retained by DCPs to provide onward routing.
179. In examination-in-chief Mr Morden explained that BT wanted other CPs to take up direct routing:

Q (Mr Palmer) [It was suggested by Ofcom in opening submissions] that the APCC operates as a tax on ported customers and that BT was, in effect, a net beneficiary of that tax on smaller, challenger CPs [...] is that a fair characterization, as a tax, in your view?

A (Mr Morden) I think BT's position has been quite clear; that we would prefer to have direct routing. Where the OCP sends a call to its ultimate destination and doesn't go via BT, because we are in the process of shrinking our TDM network and we want to take that traffic off [...]. [BT would prefer that] the routing went directly to the end user and didn't require us to maintain these ageing assets in BT. [...]

Q (Mr Palmer) So what effect does the continued presence of ported calls on the network have for BT?

A (Mr Morden) It does mean that we can't shrink our network as rapidly as we would like, and that we would then have to carry that over on to any new network. So we would have to dimension the new network for these additional costs, for these additional calls,

and pay for any development required to facilitate onward routing.

It is not features used anywhere else in the world or on new networks. It is something that we don't wish to have any more.³⁷

180. In cross-examination Mr Morden accepted that quality was a good reason to move to direct routing but he disagreed with the evidence of the CPs that they had strong incentives to do so independent of the level of APCCs. He expressed scepticism in view of the fact that CPs had been negotiating since 2008 to implement direct routing and very little had happened on the ground.³⁸

Other matters

181. As touched on in the quotation from the transcript at paragraph 174 above, the context of the voice market being in decline and the shift by BT to a modern NGN network also have relevance to the decision of CPs as to whether to interconnect with BT's network at either the Tandem or DLE layer.
182. In cross-examination by Mr Bates, Mr Morden agreed that BT's current intention was to decommission DLEs by around 2025 on the basis of a rolling process the details of which are yet to be decided upon.³⁹ The questioning went on to consider the adequacy or otherwise of compensation arrangements that would be made if BT decommissioned a DLE for which a CP had invested in DLE Handover. Essentially, BT will provide for rearrangements without charge, but will not pay compensation for thrown away costs, Mr Morden doubted CPs would incur any significant costs that would require compensation.

(b) Mr Perry (Ofcom)

Collecting calls from Tandems

183. In his witness statement, Mr Perry addressed RCPs' ability to avoid ITC by interconnecting more extensively to BT's Tandems. Mr Perry noted that BT's DLEs are all connected to two or more "parent" Tandems and explained that for

³⁷ Day 2/ pp42-43.

³⁸ Day 2/ pp97-99.

³⁹ Day 2/ p106.

non-ported traffic a CP does not need to connect to every BT Tandem in BT's network to avoid ITC. Instead, CPs can connect to a subset of Tandems that are, in turn, connected to every DLE. This means two CPs (CP A and CP B) could make different efficient choices when interconnecting to BT's Tandems.

184. Where CP A wishes to convey a non-ported call to CP B it can do so either by directly interconnecting with CP B's network or using third party transit. However, where the number is a ported number, CP A will convey the call to Tandem 1, from there it is redirected to CP B (for which CP B will bear the cost). CP B must therefore pay for ITC between Tandem 1 and Tandem 2. CP B's only alternative to avoid paying for this ITC is to connect directly with Tandem 1 (even though this additional route is not needed for its non-ported traffic). Mr Perry went on to state:

“If CP B did decide to build out additional routes, this would mean specific routes being built for ported traffic, and decisions about network build being made specifically for ported traffic. In addition, the RCP does not know, from the information provided to it by BT, at which Tandems ported traffic is being handed over to BT. Whilst data provided by BT identifies the extent to which ITC is being used in general, my understanding is that it does not indicate volumes of ported traffic by specific Tandems. This means an RCP could not determine which Tandems it should interconnect with to collect ported traffic, or how big a route it should deploy. Returning to the example [...] CP B would know that it could avoid paying ITC on ported calls if it built out to an additional Tandem. However, it would be unaware that it was BT Tandem 1, specifically, that it needed to build to. This suggests that an RCP would need to connect to every Tandem (or at least every Tandem that is connected to any DLE from which the RCP has ported numbers) in order to be certain of avoiding ITC.” (Footnotes omitted.)

185. As noted in Figure 5 at page 29 above, the vast majority of ITC paid falls within Group 10, *i.e.* conveyance between two parent Tandems.

Collecting calls from the DLE layer

186. Mr Perry's evidence was that the design of the DLE Handover product impeded its use by CPs to collect ported traffic. In particular, the DLE Handover product requires segregated routes so that it cannot carry other traffic types, reducing its

efficiency.⁴⁰ The segregation requirement also means that a CP will incur implementation costs as it must either add new interconnect circuits to create new routes or rearrange existing routes. Mr Perry also considered that the restrictions on overflow could exacerbate potential inefficiencies.⁴¹

187. A good deal of the cross-examination of Mr Perry focused on the question of why the segregation requirement existed.⁴² The answer appears to be that segregation is needed to avoid a conflict between different parties who “own” different traffic and who try to send it over the same link at the same time thereby creating unmanaged traffic overflows. It would have been more helpful for this issue to have been covered in the written evidence of Mr Morden rather than extracted by way of cross-examination from Mr Perry, who had no involvement in the design of the DLE Handover product. The line of questioning was perhaps also overly defensive. Neither Ofcom nor the Interveners suggested that the DLE Handover was deliberately badly designed; their evidence and submission was merely that the product was not commercially acceptable as a viable alternative to paying for ISC.⁴³

CPs’ ability to discern where best to interconnect with BT’s network

188. A productive line of cross-examination concerned the level of information that CPs had concerning expected levels of ported calls. Mr Perry agreed that, in essence, CPs must conduct a cost-benefit analysis when deciding how deeply to interconnect with BT’s network. This decision must be informed by the available information. He agreed that a CP would know how many customers it had at a particular DLE and the number of calls that each customer has received. CPs also know the network average split of traffic delivered directly to the DLE rather than Tandem layer (but not the split on a DLE-by-DLE basis).⁴⁴ Mr Perry did not agree that it would be possible to create an accurate

⁴⁰ Day 3/ p30.

⁴¹ Mr Perry also stated that a restriction on the use of Virtual Interconnection Circuits would mean that certain CPs would need to route ported traffic differently to non ported traffic. See discussion of this point in Mr Rosbotham’s evidence at Section G(6)(c) at page 72 below.

⁴² Day 3/ pp22-28.

⁴³ See Ofcom’s opening submission Day 1 / p88: “*the effect of those restrictions is to raise rivals’ costs by requiring a specific transmission link [for] ported traffic*”. This is not a reference to the intention underlying the design of the restrictions.

⁴⁴ Day 3/ pp33-34.

ranking of the most attractive DLEs to connect with, because of the absence of information concerning the split of traffic on a DLE-by-DLE basis.⁴⁵

189. The same information would also be available and might be used to enable CPs to decide which Tandems to interconnect with. In the case of the Tandem layer, an additional source of information exists. In cross-examination Mr Perry agreed that, based on BT's charges for non-ported traffic between CP A and CP B, it would be possible for CP B to "*build up an understanding of how CPs interconnect*" to BT's Tandems. However, Mr Perry was unable to indicate how useful this additional information might be.⁴⁶

Third party transit

190. In his statement Mr Perry noted that there is no current provider that offers transit of ported traffic. TalkTalk is in fact the only CP which currently uses the DLE Handover product. Mr Perry stated that informational deficiencies identified above would prevent a viable business case being built. Mr Perry also contended that contractual restrictions in BT's SIA would prevent such a service being offered, although in cross-examination Mr Perry readily conceded that the SIA frequently was amended to accommodate developments in markets.⁴⁷

(c) Mr Rosbotham (Vodafone)

191. Rosbotham 1 concurred with Perry 1 and provided additional detail as to how CPs decide where to interconnect with BT's network. The statement also contained discussion of Vodafone's incentives to switch to direct routing. By way of background Mr Rosbotham explained that Vodafone currently operates a mixed estate of TDM switches and NGN switches and that Vodafone intends to migrate totally to an NGN network in the next five years. Vodafone is interconnected to all but one of BT's DLEs and to the majority of BT's Tandems.

⁴⁵ Day 3/ p36.

⁴⁶ Day 3/ pp41-42.

⁴⁷ Day 3/ p54.

Collecting calls from Tandems

192. Rosbotham 1 concurred with Perry 1 and provided additional detail as to how CPs decide where to interconnect with BT's network. In relation to Tandems, Mr Rosbotham explained that:

"... The RCP does not know where calls originate from, and does not receive information about, traffic delivered by different OCPs to each specific Tandem unit, which BT is now conveying via another Tandem to get to the RCP. The RCP, therefore, has no data on which to make a properly informed choice to connect to that node and amend its routing to use that connection.

In addition, the RCP cannot derive this information itself, because the signalling of the call tells it only the destination number (from which it can derive the Donor DLE, but nothing else) and the Calling Line Identity ("CLI"), which does not provide any information about the OCP or whether BT has routed the call via multiple Tandem nodes.

Therefore, the RCP has no way of knowing which Tandem nodes to connect to in order to avoid the BT conveyance service, so the only theoretical option is to connect to every BT Tandem node and set up routing on each node to use these connections on the off-chance that an OCP might be delivering sufficient ported traffic there to justify the connection. This is clearly not efficient. In effect, BT is telling the RCP that it is routing calls inefficiently, charging them for it, but not providing the information to allow the RCP to avoid this conveyance service."

193. Mr Rosbotham was cross-examined on this aspect of his evidence on Day 4, in particular on the ability of CPs to deduce where other CPs interconnect with BT. Mr Rosbotham agreed that Vodafone could use billing data for non-ported traffic to establish to which parent Tandems other CPs were connected. However, Mr Rosbotham denied that this data was sufficient to enable Vodafone to plan further interconnections with BT's networks:

Q (Mr Palmer) [...] you can use billing data provided by BT to ascertain which Tandems other CPs are connected to, can't you?

A (Mr Rosbotham) I can tell from the BT billing data where other CPs are sending their traffic which is destined for Vodafone number ranges. That doesn't provide any information about where that CP is sending their traffic destined for BT's number ranges [...] the routing decisions made by the originators may be

quite different for BT ranges versus other operator ranges.

[...]

Q (Mr Palmer) But you can build up from that information a forecast, can't you, in terms of expected call volumes for the remaining Tandem switches if you are not connected to one already?

A (Mr Rosbotham) Not for non-ported traffic, no we can't, I am afraid.

Q (Mr Palmer) Not any kind of ranking of importance or forecast at that level?

A (Mr Rosbotham) No, I do not believe so.

Q (Mr Palmer) Nothing at all?

A (Mr Rosbotham) No, because -- obviously if a CP isn't connected to a switch I think you can glean as much as they are not going to send any traffic to that switch. However, once they are connected to it that doesn't tell us whether or not they are sending BT number ranges to that switch.

[...]

Q (Mr Palmer) So looking at that it may not be a perfect prediction, but it's perfectly sufficient for you to plan, isn't it?

A (Mr Rosbotham) I do not believe it is, no. However, the traffic information, traffic that's generated from each Tandem switch ... that BT holds, would be the perfect information for us to plan.⁴⁸

194. By way of evidence of the lack of transparency regarding the information available, Mr Rosbotham explained that at present Vodafone is able to avoid paying for ITC in respect of only [CONFIDENTIAL TO VODAFONE:~63]% of ported minutes received. Whereas by re-routing ported traffic to its already existing interconnections with BT, Vodafone would be in a position to avoid ITC more than [CONFIDENTIAL TO VODAFONE: 95]% of ported call minutes received. It was unable to optimise its network because it did not have the relevant data held by BT.⁴⁹

195. Mr Rosbotham also indicated in his evidence that RCPs may be reluctant to alter routings or make use of new or additional routings due to contractual concerns that BT may charge for any amendments under the SIA. However, in his witness statement he noted that BT "*tended to forbear*" on these charges

⁴⁸ Day 4/ pp34-36.

⁴⁹ Day 4/ pp44-47.

and in cross-examination he conceded that he could not remember the last time that BT had imposed such a charge.⁵⁰

Collecting calls from the DLE layer

196. Mr Rosbotham concurred with Mr Perry's evidence regarding the difficulties imposed by the requirement for a segregated route. He also stated that difficulties arose from the preclusion of the use of Virtual Interconnection Circuits ("VICs"). Rosbotham 1 explained as follows:

"VICs were introduced by BT under the 21CN initiative between 2006-2008, when BT planned to replace its TDM network with IP technology (this migration was subsequently abandoned). In order to ease the migration, BT wanted CPs to connect to fewer of its nodes and therefore launched the VIC capability to help facilitate this.

Under VIC, calls are routed over connections to and from the Tandem layer. However, the CP purchases VICs to the relevant DLE and is charged as if calls had been connected there.

Therefore, calls are physically routed via the Tandem layer, but for charging purposes (both pence-per-minute conveyance and interconnect transmission capacity rental) are treated as being connected at the DLE.

Where historic physical DLE connections exist, if the capacity is subsequently augmented [it is possible to add] the capacity as VIC, which de facto converts the whole connection to being on a VIC basis [...].

On this basis I believe that a significant proportion of total DLE connectivity uses VICs."

197. The result of the restriction is that an RCP that uses VICs would need to have a separate route comprised of physical interconnection circuits for its ported traffic and that this could not overflow onto VICs. Mr Rosbotham went on to state that:

"Constraining DLE routing for ported traffic to dedicated physical routes means that, despite Vodafone having paid for 600+ connections to DLEs, Vodafone would need to deploy parallel routes for ported traffic and any capacity deployed would need to be justified solely on the basis of expected ported traffic from that DLE. Given that BT's network comprises over 600 DLEs and the smallest route available is

⁵⁰ Day 4/ p42.

60 parallel voice channels, this constraint on the DLE handover product renders the use of [the DLE Handover product] uneconomic; the volume of traffic on such a dedicated link would be unlikely to justify the cost.

[...] From Vodafone's perspective, the significant shortcomings of the DLE handover product precluded Vodafone from purchasing the product, rather than a lack of any desire to route ported calls directly from DLEs. In addition, our decision was certainly not influenced by '... speculation that [APCC] prices could be regulated down to an extremely low 'pure' LRIC cost' as suggested by [Mr] Morden."
(Emphasis in the original.)

198. Mr Rosbotham identified a number of costs that would arise for Vodafone as a user of VICs having to make use of the DLE Handover Product. These would consist of: first, transmission costs (costs from adjusting links to receive new streams of ported calls); second, the cost of additional ports on Vodafone's switches to interface to the DLE (where insufficient traffic is removed from the Tandem layer to allow ports to be re-deployed); and third, the 'head count' cost of employing engineers to manage the DLE routes. In cross-examination Mr Rosbotham agreed that these costs were not major, the greatest cost being the 'head count' cost which he estimated at between 5-10 persons.⁵¹
199. In cross-examination Mr Rosbotham accepted that Vodafone could assess whether or not to implement the DLE Handover product on a DLE-by-DLE basis and would decide whether or not to implement the DLE Handover product if the benefits were greater than the costs (break-even was achieved).⁵²
200. In examination-in-chief Mr Rosbotham explained his view that Vodafone does not have sufficiently granular information to enable it to know whether or not there would be a good enough business case to use the DLE Handover product. He explained that CPs lack knowledge of the volume of calls that would use the DLE Handover product were Vodafone to purchase it. He went on to state:

"First of all, the APCC only applies to calls which are originated on providers other than BT. Anything which is originated on BT doesn't come into the APCC calculation. Although BT provide us with a snapshot, once per year, of the total traffic that was originated on their network versus other CP's networks, that doesn't help us when making an assessment for a particular DLE. The reasons for that are in essence

⁵¹ Day 3/ pp106-109.

⁵² Day 3/ p104.

what is known in telecoms circles as “community of interest”; people are more likely to make calls to their neighbours than to the other end of the country.

So if I can take a couple of extreme cases, Bracknell in Berkshire is a new town and was cabled up as part of the construction of the new town. It will therefore have a disproportionately high volume of Virgin Media customers versus BT customers. Therefore, when you are looking at calls originated to Bracknell numbers, you will see a higher proportion of calls from Virgin Media and from other providers than you will BT when compared to the average.

Likewise, if I take the opposite example, if I was to take say Wick in Scotland, where there is not a huge amount of presence on the part of other providers, the amount of off net originating traffic to Wick numbers will be very close to 0 and the amount of BT originated traffic will be nearly 100 per cent.

Now, I can make broad-brush assumptions like that, but in order to have accurate data to actually plan routes, my finger in the air isn't really sufficient. So the second aspect then is that once we have derived the traffic that is coming from CPs other than BT, the DLE handover route would only be used for calls which are delivered to the DLE by the originating operator. Some traffic will be delivered to the Tandem unit. Once again, BT provides us with snapshot information on a nationwide basis specific to Vodafone. However, the connectivity to an individual DLE by originating operators will vary dramatically. If you have a DLE in London which is co-located with a Tandem unit, there will be lots of originating CPs connected to it, therefore the proportion of traffic which is delivered at the DLE level will be high.

The other extreme, Shetland, Lerwick has got no originating CPs connected to it, so [...] the split between Tandem and DLE on that particular DLE – will be 100 per cent Tandem. Unfortunately, we do not have that breakdown on an individual DLE basis of what that proportion is. BT does, but as a terminating operator, a recipient operator, we do not have that information.”⁵³

201. Mr Rosbotham went on to explain the importance of accurate forecasting for the DLE Handover:

“The situation we have at hand now is where we are being asked to provide dedicated routes purely for that ported traffic. An error in the forecast where it's the dedicated route, and it's therefore a very small route -- in Mr Morden's evidence he is suggesting something which is only 30 circuits in size, so it is the smallest route it is possible to buy,

⁵³ Day 3/ pp69-70.

inaccuracies in the forecast where it's a small route will make an awfully big difference [...]"⁵⁴

202. In cross-examination Mr Rosbotham confirmed that Vodafone had never requested from BT a DLE-by-DLE breakdown of the number of ported minutes. Mr Rosbotham indicated that he believed that BT would be disinclined to provide it to him. Upon Mr Rosbotham having made this remark, counsel for BT (with a flourish) promptly handed up a print-out of the relevant data to him.⁵⁵ Counsel for Ofcom pointed out that this evidence was being deployed for quite a different purpose from that for which it was originally provided (the data had been provided to Ofcom in advance of the trial within a worksheet provided on a CD-Rom following a request by Ofcom for data underlying one of the tables in BT's reply evidence; print-outs had not been contained in the Trial bundles and as the data had been marked as containing BT's confidential information the worksheet had not been shown to any of the interveners' witnesses or other individuals within the interveners' organisations). The materiality of this evidence is considered at paragraphs 225 to 226 below.

Direct Routing

203. Mr Rosbotham's evidence was that the primary driver towards a shift to direct routing was technological rather than financial and, in his view, even if APCCs were reduced to zero there would still be strong incentives to direct route.

204. Rosbotham 1 stated that the decision whether to direct route or onward route relates to whether the relevant CPs use TDM networks or NGNs (which use IP technology). The UK TDM networks cannot support direct routing.⁵⁶ Moreover, onward routing (which requires interworking between TDM and IP technology) is undesirable for CPs that operate NGNs:

"[I]nterworking is undesirable for the OCP and RCP because it can affect call quality [...] and because it increases the likelihood of a loss of signalling transparency, resulting in a loss of functionality or in the

⁵⁴ Day 3/ p72.

⁵⁵ Day 4/ p6.

⁵⁶ TDM technology can support direct routing, but only if sufficient processing capacity is available. The UK TDM networks lack such capacity and the technology is now obsolete so it is no longer possible to increase capacity. When the TDM networks were first configured in the 1990s it was not considered cost-effective to deploy increased capacity sufficient to support direct routing.

worst case, call failures. Therefore, operators with an IP network have a strong preference that calls operate on an end-to-end IP basis, which allows the IP signalling to be maintained, preserving functionality [...]. Direct routing allows such an end-to-end IP call path.

In addition, the interworking also imposes a material cost penalty. The OCP is forced to provide gateway facilities to hand the call over as TDM to BT and the RCP is forced to provide gateway facilities to receive the call as TDM from BT (provided the RCP operates an IP network). Neither is necessary if calls are direct routed. [...]"

205. Accordingly, in Mr Rosbotham's view, direct routing is only likely to be agreed between two CPs using NGNs on a reciprocal basis. Mr Rosbotham noted that Vodafone, Sky, TalkTalk and Gamma have engaged in negotiations to direct route ported traffic. Vodafone has secured agreements in principle with a number of other CPs to move to direct routing. Vodafone's implementation of direct routing is envisaged as occurring once it has fully migrated to NGN technology in around five years.
206. In cross-examination Mr Rosbotham stated that around 95% of Vodafone's outbound geographic traffic going to operators other than BT was routed directly (*i.e.* not via any intermediary), but he agreed that smaller operators were more likely to be less interconnected and therefore would be likely to route a smaller proportion of their traffic directly.⁵⁷ He also agreed that while two NGNs which were directly interconnected non-ported calls would benefit from enhanced call quality, only the fraction of calls which are ported calls would benefit from better call quality if direct routing were implemented.⁵⁸
207. In cross-examination it was suggested to Mr Rosbotham that the costs of gateways are "sunk", that gateways would be required in any event whilst BT continues to operate a TDM network, and that a CP would not be able to avoid those costs by switching to direct routing (*i.e.* interworking does not impose a cost penalty to CPs).⁵⁹ Moreover, in the context of declining call volumes it would be unlikely that more gateways would need to be deployed. This line of questioning was lengthy, owing to Mr Rosbotham's somewhat argumentative responses. We consider that Mr Rosbotham effectively conceded that the cost

⁵⁷ Day 3/ p89.

⁵⁸ Day 3/ p93.

⁵⁹ Day 3/ pp95-100

of gateways was an issue specific to Vodafone in the context of its move to NGN technology, rather than a major factor affecting CPs' incentives generally and that, even for Vodafone, to a large extent the cost of gateways had already been incurred. Finally, Mr Rosbotham agreed that lower APCCs would reduce incentives to implement direct routing (since lower costs could be avoided) but he stressed vehemently that lower APCCs did not entirely remove incentives to switch to direct routing. In his view they were not the sole driver and possibly not even the majority driver.⁶⁰

Third party transit

208. Mr Rosbotham gave evidence on third party transit, but this did not go further than that provided by Mr Perry.

(d) Mr Moore (Sky)

209. Mr Moore's evidence concurred with that of Mr Perry and provided additional detail as to how Sky, which operates an NGN, deals with ported traffic. Mr Moore explained that Sky is interconnected to BT's Tandem layer only and so 100% of its ported and non-ported traffic to or from BT is routed through BT's Tandems. Mr Moore described Sky's network as being "*built from scratch*"⁶¹ and quite unlike other networks which had grown through acquisitions of pre-existing networks. Mr Moore explained Sky's decision-making in evidence-in-chief:

Q (Mr Bates)

Why do you not connect to at the DLEs?

A (Mr Moore)

We do not connect to the DLEs because at the time we were building our network it's against a backdrop of 21CN and potentially BT moving to an IP network, it is against a backdrop of knowing that DLEs are going to be decommissioned over time, it's against a backdrop of if we did connect to the DLE the only way of doing that is through the products that BT has presented [...] all of these different types of links. All are TDM, which we consider older technology, not something that we really want to invest in. So that's the reason that we didn't go to the DLE to start with. [...]⁶²

⁶⁰ Day 3/ pp84-85, 100-101.

⁶¹ Day 4/ p66.

⁶² Day 4/ 67.

210. In cross-examination Mr Moore stated that Sky had looked at connecting at BT's DLE layer on more than one occasion, including looking at connecting to a subset of DLEs. But on each occasion Sky had decided not to proceed.⁶³

Collecting calls from Tandems.

211. In examination-in-chief Mr Moore explained that Sky sought to optimise its network so as to reduce APCC payments. He stated that Sky was connected to 46 of BT's Tandems in total which gave Sky good coverage across the UK. Referring to category 10 calls⁶⁴ (*i.e.* APCCs for calls routed between two parent Tandems of a single DLE) Mr Moore stated that "*within that particular category we have no visibility of where the traffic is entering BT's network and where we are incurring a double Tandem charge to bring that traffic into Sky, the ported traffic.*"⁶⁵ He went on to state that when requested, BT had not provided adequate information to enable it to optimise its network and that when Sky had requested further information again, BT had only been willing to provide such information for a monthly fee.⁶⁶

Collecting calls from the DLE layer

212. Mr Moore stated that the fact that Sky was interconnected only at the Tandem layer affected its choice regarding the collection of ported calls from BT's DLEs. He stated that a prerequisite to using the DLE Handover product would be to connect to BT's DLEs.
213. In his witness statement, Mr Moore stated that "[...] *Sky could interconnect to some DLEs where the volume of ported traffic is sufficiently high to justify the investment*" but went on to say that Sky cannot do this because BT does not provide sufficiently granular information to it. Mr Moore also stated that Sky could not justify the investment in outdated TDM technology. In cross-

⁶³ Day 4/ pp71-72.

⁶⁴ See Figure 4 at page 29 above.

⁶⁵ Day 4/ pp67-68.

⁶⁶ Day 4/ pp68-69.

examination counsel for BT questioned Mr Moore on what Sky's approach would be if it possessed granular information:

Q (Mr Palmer) [...] As a matter of practical possibility, if you had that information on a per DLE basis, you could, as a matter of practicality, decide to interconnect with the DLE and consume a DLE handover product there. That would be open to you as a possibility?

A (Mr Moore) Yes, that's a possibility yes.

Q (Mr Palmer) And commercially, you would only do that in any circumstances if you were going to pass the break-even point for that DLE. But what you are saying, I think, to the Tribunal is even if you did that analysis, and even if you identified that the DLE handover product would work on that basic viability equation for you, still, Sky would not choose to exercise that option for other more strategic reasons.

Have I understood that correctly?

A (Mr Moore) Perhaps not. I think what you are talking about, and correct me if I'm wrong, I think you are looking at a DLE and whether or not a DLE makes sense. And what I have said is: Sky would never look at a DLE, they would just never do that. We would look at the country and say: does it make sense? Because it's going to be a multimillion pound investment when we say, 'Pull the starting trigger', does this makes sense?

But what we do not do and what we would not do is look at a DLE, even in London, if it's fully loaded, heavily loaded, it's not an edge case where there's no ported traffic, even the ones on the front end of the curve, we would not look at those in isolation and say, 'We think it makes good sense to go these four DLEs', we would not do it.

Q (Mr Palmer) You would look at the whole curve?

A (Mr Moore) We would look at the whole curve, the whole country, because of everything we need to do in the back to make that happen.

Q (Mr Palmer) Yes. You would be able to, if you choose, assess which of the whole curve would cost out for you, which would be viable for you?

A (Mr Moore) Yes, and we have done that not on the DLE handover product, but we have done that looking at rolling out to DLEs.

Q (Mr Palmer) So you have done it with regard to roll out to DLE generally, but not specifically with regard to ported traffic. But you could do so?

A (Mr Moore) Correct.⁶⁷

214. Mr Moore was robust in his evidence that Sky would not choose to implement DLE Handover by cherry picking individual heavily used DLEs:

A (Mr Moore) I wouldn't roll out the individual DLEs because I would never analyse nor go down the track of --

Q (Mr Palmer) You are saying it has to be all or nothing?

A (Mr Moore) Of course. You have got to look at the entirety. When you are a player the size of Sky and you have a number of customers that we have and the engineering effort that goes on within our organisation, like I say, to turn up the first route, to consume the first DLE handover product at the first exchange means that in our back office we have got to incur analysis, design, or mediation, on interconnect billing, on operational finance; we have got to put in place everything necessary to consume that product from BT and we would never do that amount of analysis to consume it to a [single] DLE.

Q (Mr Palmer) But the point, not a single DLE, no, but the point is Mr Moore that just because you decided to go to one DLE doesn't mean you would have to go to every DLE, does it?

A (Mr Moore) No, as I have said before, whenever we analysed rolling out to DLEs, even in that analysis it wouldn't make sense for us to go to every DLE, even in absence of looking at the DLE handover product, you are right. It must cost in, it must make sense before you do it.

Q (Mr Palmer) On an individual basis?

A (Mr Moore) Yes.

Q (Mr Palmer) What you are saying is that because of the way you have set up your network, even to go to one would incur a lot of backroom administrative costs to make that work?

A (Mr Moore) Substantial.

Q (Mr Palmer) So you would have to factor in those costs when assessing overall however many DLEs there were that would cost out for you, that would become viable?

A (Mr Moore) That's correct.⁶⁸

⁶⁷ Day 4/ pp72-73.

⁶⁸ Day 4 / pp74-75.

Direct routing

215. In concurrence with the evidence of Mr Rosbotham, in his witness statement Mr Moore stated that CPs which operate NGNs have strong incentives to move toward direct routing because it allows them to use their networks more efficiently and deliver improved call quality. Mr Moore also stated that there was a “commercial benefit” to CPs to moving to direct routing in the form of reduced APCCs. Sky has already invested a seven figure sum in working towards direct routing and has been involved in industry discussions to promote direct routing since 2008. More recently, since 2013 Sky has engaged in a project with TalkTalk, Vodafone and Virgin Media to move towards direct routing. The project has led to some initial testing, but the project is not yet in production and does not appear to be close to launch.
216. In cross-examination Mr Moore robustly agreed with Mr Rosbotham that for a number of reasons, principally technological and strategic, even if APCCs were reduced below LRIC an NGN operator such as Sky would have strong incentives to move to direct routing. A CP incurring the substantial costs of establishing an NGN would wish to reap the benefits in terms of improved call quality and call features.⁶⁹

(e) Ms Kennedy (TalkTalk)

217. Ms Kennedy’s evidence went primarily to the question of third party transit of ported calls and direct routing. TalkTalk is unique among CPs in that it is the only one to use BT’s DLE Handover product. Indeed, a dispute between TalkTalk (which was called Opal at the time) and BT led to the development of the DLE Handover product (see paragraph 74 above). Part of Ms Kennedy’s cross-examination related to the reasons for the “segregation” requirement in the DLE Handover product. As noted above we do not consider it necessary to rule on this point. Another portion of the cross-examination dealt with a table, handed up by counsel for the CP Group in cross-examination, purporting to

⁶⁹ Day 4/ p78.

show the nature of the DLE vs Tandem split of traffic across BT's network. This tabular evidence was undermined in cross-examination as it turned out not to relate to DLEs, but Tandems, and we therefore do not consider it further.

Transit

218. In her witness statement Ms Kennedy stated very baldly that she did not consider offering transit of ported calls to third parties would be commercially attractive and that “*TalkTalk never considered it as an option until BT raised it in these proceedings.*” However, in examination-in-chief Ms Kennedy corrected this statement and confirmed that TalkTalk had once looked at offering transit, but she stated that it had not been turned into a product because it was not technically or commercially viable.⁷⁰ She explained this as follows:

“Commercially it didn’t work for multiple reasons. We would have required investment into our legacy TDM network which our technology department weren’t willing to invest in. We didn’t have sufficient data to analyse our DLE routes at that time. We would have required investment in our billing systems, which again wasn’t viable at the time, and further to that, the deal what we were trying to construct didn’t have the revenue and the margin thresholds which we required internally to be able to productise such a product.”

219. In cross-examination, part of which was held *in camera*, Ms Kennedy agreed that the level of APCCs would affect whether or not it would be commercially viable to offer a transit product.

Direct routing

220. In her witness statement Ms Kennedy stated that TalkTalk has reached agreement with Sky and is looking to implement direct routing with Sky in the near future. Discussions have taken place with Virgin Media and Gamma. However, until there is industry wide co-operation and agreement, direct routing more generally is not an option for TalkTalk who will have to continue paying BT APCCs for large volumes of inbound calls for ported numbers.

⁷⁰ Day 4/ p51

(f) Mr Farmer (Gamma)

221. Mr Farmer's evidence was consistent with that of Mr Rosbotham, Ms Kennedy and Mr Moore. Of particular note were Mr Farmer's views regarding the financing of a roll-out of the DLE Handover product. He considered it appropriate to employ the weighted average cost of capital because he considered that it best reflects the opportunity cost to shareholders of deploying capital to a product rather than employing that capital elsewhere.⁷¹
222. In examination-in-chief Mr Farmer explained that Gamma had reached the stage where it was capable of testing direct routing with other CPs. He explained that progress on the testing of direct routing had been delayed because a major CP had recently suffered a major cyber-attack. CPs need to be very cautious with rolling-out direct routing because an error could easily crash the network. There is now definitely an agreement in principle as to how to proceed commercially as he put it: "*Negotiation would be an understatement of the progress we have made.*"⁷²
223. Mr Farmer was cross-examined by Counsel for BT. He accepted that no direct routing was yet in place but he indicated that he had shaken hands with his opposite numbers at two major CPs on the terms by which they will all do it.⁷³

(7) *The Tribunal's decision regarding the contestability of ISC*

224. Taking a view of the evidence in the round the Tribunal concludes that ISC is not contestable at the DLE layer or at the Tandem layer between parent Tandems of a single DLE. The Tribunal concludes that only ISC between non-parent Tandems is contestable. The Tribunal also concludes that reducing APCCs to LRIC from LRIC+ does not materially reduce CPs' incentives to switch to direct routing.
225. The Tribunal rejects BT's argument that the availability of the DLE Handover product acts to constrain BT's pricing of ISC. There was overwhelming evidence that CPs would be highly unwilling to invest in this product even

⁷¹ Day 4/ p102.

⁷² Day 4/ p87.

⁷³ Day 4/ p107.

selectively at the ‘thick end’ of the wedge at DLEs which received high volumes of ported calls. The product is unwieldy and inefficient owing to the requirement that it carry segregated traffic.⁷⁴ We also accept the evidence of the Interveners that BT provides insufficiently granular information such that CPs would have difficulty identifying DLEs at which it would be worthwhile implementing the DLE Handover product. For the reasons explained in the following paragraph, we conclude that even if sufficiently granular information were freely provided by BT, CPs would still not implement the DLE Handover product.

226. The use of the DLE Handover product would require CPs to make investments in connecting with BT’s existing TDM network. Such an investment would be against a backdrop where CPs (including BT) are seeking to migrate (or have already migrated) to IP technology. Given this context CPs are unsurprisingly very unwilling to invest in technology which is fast becoming obsolete. Mr Morden quite candidly stated that “*the last thing [BT] wants to do at the moment, is to spend more money on its old network.*”⁷⁵ We consider that other CPs, particularly NGNs, would be equally unwilling to invest in TDM technology. Mr Moore’s evidence on this point was compelling: Sky, a major CP, had considered and rejected the idea of rolling out connections to BT’s DLE layer to deliver **non-ported** traffic. Given this, the idea that Sky would roll out connections to collect ported traffic, which represents a tiny fraction of total traffic, is entirely implausible. The notion that BT’s awareness that more extensive use of the DLE Handover product would force BT to invest more in its legacy network and that this knowledge would restrain BT from raising ISC charges is rejected: BT does not face any credible threat that CPs will implement the DLE Handover product.

227. We consider that Mr Morden’s ‘breakeven’ analysis to be somewhat rose-tinted in a number of respects. In part, this is because it fails to take account of costs arising beyond mere rental payments to BT, such as headcount costs identified by Mr Rosbotham. More significantly, Mr Morden’s analysis fails to take any

⁷⁴ The Tribunal makes no finding as to the reason for the segregated routing – see paragraph 187 above.

⁷⁵ See the excerpt of the transcript of Day 2 set out at paragraph 174 above.

proper account of CPs' costs of capital. CPs have only limited funds and must choose how to employ them most efficiently. In that context, especially against a backdrop of uncertainty owing to BT's possible migration to IP technology, CPs will only invest in the DLE Handover product if it offers an optimal return on investment. An investment must be more than 'breakeven' for it to be taken up; it must be worthwhile when considering the alternatives available. Whilst Mr Morden had attempted to take some account of cost of finance by employing a 1.5% uplift in his calculations (based upon a 25-year Vodafone corporate bond), this figure is plainly unrealistically low. For CPs to invest in an outdated, unwieldy product returns would have to be very high, and very swift. For the same reason we consider that the launch of a third party transit service for ported traffic is also unlikely: expected returns are unlikely to justify the costs.

228. With regards to the contestability of ISC at the Tandem layer we distinguish between: (a) ISC between parent Tandems; and (b) ISC between non-parent Tandems.
229. The evidence of Ofcom and the Interveners focused exclusively on 'Category 10' charges – charges for ISC between parent Tandems. We accept the evidence of the Interveners that there is insufficiently granular information available to CPs to enable them to understand where other CPs route ported calls to the Tandem layer (the evidence of Mr Rosbotham was particularly pertinent in this regard). However, we do not regard this point alone as critical.
230. Even if more granular information *were* available to CPs so as to allow them to identify which Tandems received the highest volumes of ported traffic we consider it unlikely that CPs would invest in interconnecting more deeply in BT's Tandem layer purely to avoid paying for ISC between parent Tandems. This is essentially for the same reason as identified at paragraph 226 above, namely that CPs have limited funds and that they are unlikely to be able to optimise their returns by creating duplicative connections at BT's Tandem layer purely to collect ported calls. BT's evidence fails to take proper account of CPs' costs of finance.

231. There was no evidence tendered to the effect that CPs were unable to avoid the ITC long/medium/short element of APCCs of ported calls routed between non-parent Tandems (categories 2 to 4 and 7 to 9 in Figure 4 at page 28 above). Indeed, it appears that these charges are largely avoided in practice: see Figure 5 at page 29 above.
232. We note that the fact that we consider that ISC is not contestable does not mean that BT is in practice capable of raising prices above the competitive level. In cross-examination, Mr Godfrey (for Ofcom) accepted that in the context of a competitive market, whether CPs will substitute for ISC depends on the price of ISC; and that, under GC18, LTC and ITC rates are capped and could not be set higher for a ported call than a non-ported call. Accordingly, BT's APCCs are constrained by the ITC and LTC rates which are in turn constrained by the competitive market for non-ported calls.⁷⁶ In our view it is GC18 which constrains BT's pricing of APCCs, not the availability of the DLE Handover product or the potential entry of a 'transit' provider.
233. Finally, we conclude that reducing APCCs to LRIC from LRIC+ will not materially affect CPs' incentives to switch to direct routing. CPs have good operational and call-quality based reasons for wishing to move towards direct routing. These reasons are sufficiently strong that a move to direct routing is unlikely to be deterred by a reduction in APCCs to LRIC. Whilst progress towards implementing direct routing has been slower than might have been hoped, steps are being taken and it appears it is only a matter of time before direct routing is implemented.

(8) Conclusion: The Tribunal's decision on Ground 1

234. We reject Ground 1:
- (1) Contestability/necessity does not form a part of the legal test of whether a charge falls within Article 30(2) USD or GC 18.5(a) (see section G(4) above).

⁷⁶ Day 5/ p107.

- (2) We find (for the reasons at section G(7)) that:
- (i) ISC at the DLE layer and ISC between parent Tandems is not contestable.
 - (ii) ISC is contestable only between non-parent Tandems.
 - (iii) Reducing APCCs to LRIC from LRIC+ does not materially reduce CPs' incentives to switch to direct routing.

H. GROUND 2(a)

(1) BT's submissions

235. Ground 2(a) was stated, in summary, in the Notice of Appeal in the following terms:

“Charges for inter-switch conveyance were in fact cost oriented, as Ofcom had at all times accepted up to the publication of the Guidance. Ofcom had no lawful basis to purport to use its regulatory powers to amend the effect of GC18.5(a) to have a more restrictive effect on BT’s freedom to provide those services by excluding the ability of BT to recover common costs. There is already effective competition in all retail markets for telephone services, and there is also effective competition for the supply of the services used for inter-switch conveyance. There is no evidence that consumers are deterred from making use of number portability services. There was no necessity for further regulatory intervention, and the effect of Ofcom’s decision was disproportionate and unlawful.”

236. Ground 2(a) was elaborated in the Notice of Appeal, BT’s Skeleton Argument and in Counsel’s oral submissions during the hearing. We summarise these submissions below.
237. BT’s appeal against the Determination carried with it, and was, in effect, an attack on the Guidance in so far as it indicated that all porting charges should be calculated using LRIC. In his submissions, Counsel for BT submitted that the Determination, in effect, incorporated the Guidance.
238. In the Notice of Appeal, BT argued that prior to the issue of the Guidance, BT’s charges were already cost oriented, as a result of competition, at LRIC+. The charges had always been set on the basis of their similarity to transit of non-

ported calls. Ofcom had no lawful basis for using its regulatory powers to purport to amend GC18.5(a) by issuing guidance that would have a more restrictive effect than before. There has been no finding of SMP. There was no evidence of any other type of problem that required further regulatory intervention. Ofcom has not shown that non-intervention with competitive market prices would undermine regulatory objectives and so cannot and should not regulate, as was made clear in the Supreme Court judgment in *British Telecommunications Plc v Telefonica O2 UK Ltd and Others* [2014] UKSC 42 (the “08 case”). To exclude common costs from being recovered was a further regulatory step, which is not mandated or required by Article 30(2) (USD). Even if it was permissible to interpret the cost orientation obligation so as to exclude the recovery of common costs as a matter of regulatory discretion, the onus was on Ofcom to justify overriding existing commercially negotiated agreements by reference to the purposes of Article 30(2) USD and the specific Article 8 objectives. In particular, Ofcom was required to find that there was no effective and sustainable competition in the relevant market (Article 8.5 FD). Ofcom’s approach was based upon its incorrect understanding that the Supreme Court judgment was wholly irrelevant. Lord Sumption’s analysis concerned the scheme of the CRF as a whole. The interpretation and application of the obligations in Article 30 USD must be consistent with that scheme.

239. In the Notice of Appeal, Ground 2(a) was presented as a distinct ground from 2(b). In BT’s Skeleton Argument, however, Ground 2 was not subdivided into sub-Grounds 2(a) and 2(b), but was expressed as a series of four linked propositions, as follows:

- (1) First, the charges for ISC are in fact cost oriented, through the effect of competition: the charges have always been set on the basis of their similarity to transit of non-ported calls.
- (2) Secondly, Ofcom had no lawful basis to purport to use its regulatory powers to amend the effect of GC18.5 (a) to have a more restrictive effect on BT’s freedom to provide services by excluding the ability of BT to recover common costs. In order to do so, it was incumbent upon Ofcom to identify a problem requiring further regulatory intervention,

before the contractual arrangements with CPs under the SIA could be disturbed.

- (3) Ofcom failed to identify any such regulatory problem, or any basis upon which to conclude that the former (LRIC+) interpretation of GC18.5(a) was undermining the regulatory objectives in Article 8 of the Framework Directive. It follows that it was not open to Ofcom simply to issue “Guidance” changing the effect of GC18.5 (a) to exclude the right to recover common costs, and on that basis to find on the dispute that BT’s charges were not cost oriented and that freely negotiated commercial agreements with other CPs reflecting LRIC+ pricing should be overturned. Ofcom’s approach reduces GC18.5(a) to a dead letter.
- (4) Moreover, Ofcom’s approach is inconsistent with its treatment of mobile operators, direct routing and its earlier stance.

240. In BT’s opening submission before the Tribunal, Counsel presented BT’s argument in this way:

“[T]here’s no basis upon which further regulatory intervention to change the cost standard could be justified, least of all through the issue of guidance rather than amending the condition. Charges were agreed, were based on the competitive market rate and were thus already cost oriented, as Ofcom had always accepted up till then. There is no basis to think that the resulting charges undermined the objectives of Article 8 or Article 30. We say the effect of Ofcom’s decision was therefore disproportionate and unlawful and contrary to the common regulatory framework because no such change was necessary to achieve the objectives that Ofcom was required to fulfil [...] Our submission is that Ofcom had no lawful basis to purport to use its regulatory powers to amend the effect of general Condition 18.5 to have a more restrictive effect on BT’s freedom to provide services by excluding its ability to recover common costs without first identifying a problem requiring further regulatory intervention before disturbing the contractual arrangements with CPs under the SIA.”⁷⁷

241. In his closing submissions, Counsel for BT submitted:

“... before Ofcom decides to restrict cost recovery from LRIC+ to a LRIC basis, it must identify a regulatory problem [...] a manner in which the Article 8 objectives are not being satisfactorily achieved,

⁷⁷ Day 1/ pp14-15, 67.

bearing in mind that it's common ground between BT and Ofcom that whether you choose LRIC+ or LRIC is equally consistent with the directive itself and with general Condition 18.5. [...] when they choose in the guidance, when they choose between LRIC+ and LRIC, they analysed various effects but none in terms of materiality to say that this is something which needs to be addressed. Effectively, they exercised a free discretion, as they perceived it to be, we could just choose.”⁷⁸

242. We understood from these submissions that it was BT's contention that the Guidance and the Final Determination were vitiated by an error of law, namely that Ofcom should have but failed to identify a regulatory problem inherent in BT's use of LRIC+ before it was entitled to intervene.

243. In his reply to Ofcom's closing submissions, however, Counsel for BT appeared to move towards the position that Ground 2(a) was, in essence, not a separate ground from Ground 3. He said:

“Ground 2(a) and 3 I am going to take together because (Counsel for Ofcom) says that one collapses into the other. To a certain extent he is right because what they share is a common complaint that what Ofcom has not done is identified the real problem, in other words identified the basic reason why it has to intervene at all with this type of control and, in particular, whether one casts it under Ground 2 or 3, hasn't identified the materiality of the concerns which it has expressed with relation to effects on retail competition and thus cannot discharge the burden of showing a substantive benefit, which is capable of justifying the move to LRIC.”⁷⁹

244. Counsel for BT referred, in his submissions relating to Ground 2(a) to paragraphs 34 and 35 of the judgment of the Court of Justice in *Mobistar*.

245. In paragraph 33 to 35, the Court held that:

“33. At the outset, it should be noted that Article 30(2) of the Universal Service Directive requires the national regulatory authorities to ensure that the operators set the prices on the basis of their costs and, furthermore, that the prices do not dissuade consumers.

34. Once it is established that prices are fixed on the basis of costs, that provision confers a certain discretion on the national authorities to assess the situation and define the method which appears to them to be the most suitable to make portability fully

⁷⁸ Day 6/ pp56 and 59.

⁷⁹ Day 6/ p128.

effective, in a manner which ensures that customers are not dissuaded from making use of that facility.

35 *Clearly the limits of that discretion have not been exceeded in the present case by the national regulatory authorities. A method consisting in defining a maximum price, such as that chosen by the Belgian authorities, may be considered compatible with Article 30(2) of the Universal Service Directive, provided that it is genuinely possible for new operators to contest the application of maximum prices by operators already present in the market by showing that those prices are too high in relation to their cost structure.”*

246. Counsel for BT submitted that the Court, in these paragraphs, recognised that there are limits to the discretion.

“The key point to draw from all of this [...] is that none of this means that the NRA can do what it likes. What it does must be necessary and proportionate to the given objective and result from inconsistency with the achievement of Article 8 objectives.”⁸⁰

247. Counsel for BT also relied on the judgment of the Supreme Court, delivered by Lord Sumption, in the 08 case. The case concerned Ofcom’s resolution of a dispute referred to it in relation to NCCNs that BT had issued, in terms of its powers under the Interconnection Agreement between it and four mobile network operators. The changes increased the termination charges to the mobile network operators for 08 numbers.

248. Ofcom reached the conclusion that the changes should not be permitted, by applying the principles that the new charges should (i) provide benefits to consumers (“the welfare test”) and (ii) not entail a material distortion of competition. Ofcom’s application of those principles was not challenged. Ofcom held that the welfare test was inconclusive, but held that BT was not entitled to make the changes because BT could not positively demonstrate that the proposed changes would be beneficial to consumers. The Supreme Court held that in these circumstances Ofcom was not entitled to interfere with commercial agreements between BT and the mobile network operators

⁸⁰ Day 1/ p58.

249. In paragraph 38 of his judgment, Lord Sumption said that “[Ofcom] *is bound to start from the parties’ contractual rights and may override them only if that is required by the Article 8 objectives.*”

250. In paragraph 49, Lord Sumption said:

“the whole scheme of the Directives is to leave the arrangements for interconnection to the parties unless there are grounds for regulatory intervention. The permissible grounds of regulatory intervention in the case of a CP without significant market power are that the interconnection terms have been framed or are operating in a manner which is inconsistent with end to end connectivity or conflicts with the Article 8 objectives.”

251. In paragraph 42 Lord Sumption observed:

“... the sole basis on which Ofcom rejected the new charges was that the welfare test having been inconclusive, it had not been demonstrated that BT’s new schedule of charges would produce consumer benefits. In my opinion this was wrong in principle for substantially the reasons given by the CAT. BT were contractually entitled to vary their charges unless the proposed variations were inconsistent with Article 8 objectives, including the objective of ensuring consumer benefit in accordance with Article 8.2(a).”

252. Counsel for BT submitted that these passages from the judgment of Lord Sumption “*went directly to the basis upon which Ofcom can interfere with a contractually set price. It can’t do what it likes. It may only interfere with contractual terms on a dispute in so far as is necessary to achieve the objectives of Article 8, or to comply with Article 30, and/or to the extent that they are inconsistent with Article 8 or Article 30.*” He went on to submit that according to the judgment of Lord Sumption “*Contractual arrangements come first.*”

(2) *Ofcom’s justification for the Final Determination*

253. In section 3 of the Guidance, dealing with the Legal Framework, Ofcom made reference to the *Mobistar* case in these terms:

“... the European Court of Justice held that, subject to the requirement of cost orientation, Article 30(2) USD confers a discretion on national regulatory authorities to define the methodology which appears to them to be the most suitable to make portability fully effective, in a manner that ensures that consumers are not dissuaded from making use of that facility.”

254. Ofcom recorded, in paragraph 3.8 of the Final Determination that Gamma had noted that:

“[...] ‘whilst Ofcom’s dispute resolution powers were recently considered in the [08 case] it did not believe that the conclusions in the Supreme Court Judgment are materially relevant to this case’ on the basis that ‘the Supreme Court Judgment related to a largely unregulated product ... whereas this case concerns a specific breach of GC 18 and Ofcom guidance pursuant to it’. [Gamma] nevertheless put forward arguments to the effect that the objectives in Article 8 of the Framework Directive would be met by Ofcom accepting the dispute and finding in Gamma’s favour.”

255. Ofcom noted, in paragraph 3.16.2, that BT’s submissions in response to Gamma included the argument that the Supreme Court judgment appeared to apply whether the dispute relates to a regulated or unregulated service.

256. In paragraphs 4.19 to 4.23 Ofcom recorded BT’s justification for its charges. This included the statement that: *“conveyance charges were ‘competitive’ and as a result contractual arrangements relating to those charges should prevail and that Ofcom should not interfere ‘unless there is clear evidence that the Article 8 objectives of the Framework Directive are negatively affected.’ BT noted that commercial rates for conveyance services had been agreed with both Gamma and Vodafone.”*

257. In paragraphs 4.19 to 4.27 Ofcom recorded BT, Gamma and Vodafone’s submissions as to the principles to be drawn from the Supreme Court judgment and their application to the present case.

258. In paragraphs 4.28 to 4.42 Ofcom explained why, in its provisional assessment of BT’s APCCs, it did not agree with BT’s analysis of the application of the Supreme Court judgment. It held that the market to which that case related, that for non-geographic numbers,

“was not subject to specific regulation by Ofcom and the judgment dealt with the approach that Ofcom should adopt to resolving disputes in such circumstances. [...] The Supreme Court does not address the approach Ofcom should adopt to disputes about compliance with regulatory obligations. BT’s reference to the Supreme Court’s comments about leaving interconnection to the parties unless there are grounds for regulatory intervention fails to recognise that Ofcom - in the light of the

requirements of the relevant Directives - has previously determined that there were grounds for regulatory intervention in this area, and accordingly imposed GC18 with which BT (and all other CPs) are obliged to comply.”

259. In the Defence, Ofcom accepted that one of the central concerns of the CRF was the promotion of competition. However, it was for that very reason that Article 30 USD required the regulation, without the need for a prior competition analysis, of charges related to porting. As was explained in *Mobistar*, number portability is itself important to competition.
260. Ofcom argued that the special treatment of charges related to porting was put beyond doubt by the express carve out in Article 8(3) AID, of Article 30 USD from the general prohibition on imposing price controls on operators without SMP. The applicability of Article 30 USD to regulate charges independently of any finding of SMP is expressly preserved by Article 8 AID. As a general rule Article 8 prohibits national regulatory authorities from imposing the various types of *ex ante* regulation set out in Articles 9 to 13 AID, including price regulation under Article 13, except in relation to operators designated with SMP under Article 8(2). The general rule is expressly stated to be “*without prejudice to the provisions of Article 30 USD.*” Reference was made to paragraph 68 of *Mobistar*. Article 30 is a mandatory provision. As was clear from *Mobistar*, it was within Ofcom’s discretion to decide upon an appropriate cost orientation standard. Where, as in this case, Condition GC18 leaves scope for further regulatory judgment, it was appropriate for Ofcom to issue guidance setting out how it intended to exercise that judgment.
261. In the event of a dispute between CPs regarding compliance with GC18.5, Ofcom is required to resolve the dispute with proper regard to CRF objectives. In Ofcom’s judgment prices based on LRIC, without any uplift to LRIC+, were cost oriented and better promoted the relevant objectives. Ofcom submitted that, unlike in the *08* case, BT did not, in the present case, have a contractual right to impose the relevant charges so far as they are compliant with Article 8 objectives. It was required, as a matter of contract, to set prices in accordance with GC 18.5, in terms of clauses 12.9 and 12.12 of the SIA.

262. Further, the *08* case also fell to be distinguished on the basis that it related to unregulated prices. The present case, by contrast, arose squarely within a regulatory context. It concerned BT's compliance with a regulatory condition, itself implementing Article 30(2) USD.
263. In its Skeleton Argument, Ofcom observed that Grounds 2(a) and 2(b) had undergone a transition in BT's Skeleton Argument, and that it was unclear to what extent Ground 2(b) was still pursued. Ofcom set out its position on BT's case as pleaded in the Notice of Appeal and then briefly addressed the four linked propositions.
264. In addition to the points made in the Defence, Ofcom submitted that whether Ofcom erred in the exercise of its discretion is the subject of Ground 3. For the purposes of Ground 2(a), the question was whether Ofcom had the power to intervene absent a finding of significant market power. It plainly did.
265. In response to the four linked propositions in BT's Skeleton Argument, Ofcom submitted that:
- (1) BT now appeared to concede that there was no single competitive price for ISC;
 - (2) in view of the provisions of Article 30(2) USD, which itself identified a ground for intervention in the case of number portability, Ofcom did not need to identify any additional threshold of justification which it was required to surmount;
 - (3) it was not correct that APCC charges have been set at LRIC+ rates since 2002; and
 - (4) as regards BT's contention that Ofcom's approach is inconsistent with its treatment of mobile operators and direct routing, Ofcom accepts that charges related to mobile interconnection costs were subject to Article 30 USD, but it found no significant costs to include in regulated charges. At present there is no material direct routing of ported calls. There was

no inconsistency with the position adopted by Ofcom in its 2013 NBMR.

266. In his submissions at the hearing, Counsel for Ofcom submitted that BT's discussion of the 08 case was an elaborate excursion ending with an uncontentious proposition. Ofcom accepted that each regulatory intervention must be justified and proportionate and compliant with the Article 8 duties. It was noteworthy that in his opening submissions Counsel for BT did not take the Tribunal to either the Guidance or the Final Determination.
267. The 08 case is not authority for any special threshold in a case where an existing regulatory obligation applies.

(3) The Tribunal's decision on Ground 2(a)

268. We understand BT's position to be that Ground 2(a) raises a question of law, namely whether Ofcom misdirected itself as to the approach that it should take to the dispute. That in turn raises the issue as to whether Ofcom misdirected itself in formulating the Guidance, which it applied in reaching its final determination.
269. BT's complaint is that, in formulating the Guidance, and applying it to the Dispute, Ofcom omitted an essential step in its reasoning. It failed to identify a regulatory problem inherent in the existing arrangements between BT and the other CPs for charging for ISC. Ofcom's obligation under Article 30(2) USD was not a sufficient basis in itself for the "intervention" implicit in the Guidance and the Final Determination.
270. For convenience we, again, quote Article 30(2) USD which provides that:

"National Regulatory Authorities shall ensure that pricing between operators and/or service providers related to the provision of number portability is cost oriented, and that direct charges to subscribers, if any, do not act as a disincentive for subscribers against changing service provider."

271. In *Mobistar*, the Court held, in paragraph 33, that Article 30 USD requires the national regulatory authorities to ensure that operators set the prices on the basis of their costs and furthermore that prices do not dissuade customers.

272. It is, accordingly, clear that, as interpreted by the Court in *Mobistar*, Article 30(2) USD imposes on Ofcom a legal duty to ensure that prices for ported calls are cost oriented and that prices do not dissuade customers. In terms of Article 30 USD, as interpreted by the Court of Justice in *Mobistar*, that legal duty is not subject to the qualification that, before acting, Ofcom must first have identified a regulatory problem additional to the requirement to ensure that prices are cost oriented and do not dissuade consumers.
273. The Tribunal does not accept that such a qualification to Ofcom’s duty under Art 30(2) USD can be derived from the judgment of the Supreme Court in the 08 case. The 08 case concerned an exercise of Ofcom’s dispute resolution function in a context where Ofcom was subject to no regulatory obligation, such as to ensure cost oriented prices.
274. Accordingly, in our opinion, Ofcom was not only entitled, but was obliged, to address the issue of whether BT’s APCC charges were cost oriented and did not dissuade customers. Whether it reached the right conclusion in addressing that issue, is the question raised by Ground 3. We do not consider that it is correct to characterise Ofcom’s approach as Ofcom doing what it likes, as Counsel for BT put it in his submissions.
275. For these reasons, we reject Ground 2(a).

I. GROUND 2(b)

(1) BT’s submissions

276. Ground 2(b) was stated, in summary, in the Notice of Appeal in the following terms:

“Further and in any event, GC18.5 (a) provided for an exception allowing BT to agree another basis for the charges, which BT had done, with the result that the cost orientation obligation did not apply. Ofcom erred in law in concluding otherwise.”

277. GC18(5)(a)(i), in so far as material, provides that:

“(a) subject always to the requirement of reasonableness, charges shall be cost oriented and based on the incremental costs of providing

Portability unless: (i) The Donor Provider and the Recipient Provider have agreed another basis for the charges;”.

278. BT’s elaboration of Ground 2(b) in the Notice of Appeal may briefly be summarised as follows: GC18.5(a)(i) acknowledges the primacy of freely commercially negotiated agreements with other CPs which is inherent in and intrinsic to the CRF, as explained by Lord Sumption. The supply of ISC is made under BT’s SIA with prices set under clause 12 within the context of a competitive market. There is, therefore, an agreement for its supply at the set price. The rate for the ISC component is a standard rate applying to both ported and non-ported traffic. Ofcom should have recognised that such agreements complied with Article 30 USD. Ofcom’s approach is inconsistent with its treatment of mobile transmission costs and direct routing. In the 2013 NBMR, Ofcom positively endorsed the role of commercial agreements as the basis of setting APCCs.
279. As we have noted in the preceding section dealing with Ground 2(a), BT, in its Skeleton Argument, presented its arguments under Ground 2 in the form of four linked propositions, and did not state Grounds 2(a) and 2(b) as separate grounds. The four linked propositions are set out above in paragraph 239. As Ofcom submitted, it was not clear from BT’s Skeleton Argument whether BT still advanced Ground 2(b).
280. We note that in paragraph 44 of its Skeleton Argument BT accepted that it was not surprising that there was no single competitive price for ISC. This seemed to us to be a departure from the proposition advanced in the Notice of Appeal that “[t]here is, therefore, an agreement for its supply at the set price. [...] The rate for inter-switch conveyance component is a standard rate applying to both ported and non-ported traffic: ...”.
281. In his opening submissions at the hearing Counsel for BT did not make any reference to Ground 2(b).
282. In his closing submissions Counsel for BT submitted:

“The headline on Ground 2 is, even if that distinction that we make is not sufficient to mean that the inter switch conveyance is not related to

the provision of number portability, there's still no basis upon which further regulatory intervention to change the applicable cost standard was justified. I emphasise the next sentence: charges for CPs had been agreed by BT and the CPs in question were based on the competitive market rate and were thus already cost orientated. There's no basis to think that the resulting charges undermine the objectives of Article 8 of the framework directive.”⁸¹

283. When asked to identify the factual basis for the proposition to which he gave emphasis, “*charges for CPs had been agreed by BT and the CPs in question were based on the competitive market rate and were thus already cost orientated*”, Counsel for BT relied on the evidence of Mr Morden, in his second witness statement, where he tabulates, in Tables 8 and 9, the “reverse engineered” prices for LTC and ITC within the APCCs, comparing them to the LTC and ITC rates which were applicable to other non-ported services. Counsel for BT acknowledged the point made against him, that none of those rates were ever specifically agreed by the CPs because, whenever they agreed to anything, it was part of a bundle of services, including switch conveyance at which the headline price was agreed. He submitted that that made no difference at all because these were all prices that were reached in the context of commercial negotiations, in which, inevitably, the focus was on the costs of different elements of each package and implied costs. Those were rates that were reached in the context of a competitive market. The CPs had effectively signed up to those rates. He accepted there had been no express agreement, with one, confidential, exception.

(2) *Ofcom's submissions*

284. In its Defence, Ofcom submitted that, in fact, BT had not reached any agreement with the CPs within the meaning of GC18.5(a)(i). As a matter of construction, the requirements of reasonableness and cost orientation in GC 18.5(a)(i) applied always, and could not be avoided by agreement. What might be avoided by agreement is that charges be based on the incremental cost of providing portability. Such a basis would need to be one, which, although not based on incremental costs, nevertheless ensured cost orientation.

⁸¹ Day 6/ p51.

285. In relation to BT's argument that parties to BT's SIA have agreed on the appropriate price for ISC, in fact CPs have merely agreed the prices, in respect of ported and non-ported traffic, for various services, some of which include ISC. BT had in fact differentiated the price of ISC, depending on the service in question.
286. The history of the disputes demonstrated that the prices charged by BT for ported calls had in fact been the subject of disagreement since before (in the case of Gamma) and shortly after (in the case of Vodafone) the publication of NCCN 1263. Any earlier agreement as to prices had plainly come to an end.
287. In the present case, there was no agreement between the parties regarding the basis of the prices to be paid after 1 January 2015. Following the introduction of NCCN 1263 both Gamma and Vodafone made clear to BT that they considered that all APCC pricing elements should be based on LRIC. BT did not engage in that issue with any clarity. It cannot be suggested that, in the course of that correspondence (or otherwise by continuing to acquire the relevant service) the parties had reached an agreement as to the appropriate basis of ISC costs.
288. In relation to the comparisons drawn by BT with the treatment of costs in other contracts, Ofcom rejected the contention that these were relevant comparisons, or that there was any inconsistency.
289. In addition to the points already made in the Defence, Ofcom observed in its Skeleton Argument that Clause 12 of the SIA expressly provided that the prices under it are subject to regulation under GC18.5.

(3) Gamma's submissions

290. Gamma's submissions in its Statement of Intervention in relation to Ground 2(b) may briefly be summarised as follows: Gamma has entered into a number of different agreements with BT, for a variety of products, some of which include an element of ISC. However, the parties have not agreed to allocate a particular price to the ISC element of those products, either for the purposes of any individual agreement, or for the purposes of the suite of agreements as a

whole. When the parties have negotiated these prices, which are largely bulk discount rates, the price of ISC has not been a separate, fixed or constant element of the negotiations. A number of those prices are tiered, by reference to the volume of usage by Gamma. As a result, Gamma disputes that “*there is an agreement for [ISC] supply at the set price.*” Gamma first began querying the proper value to be ascribed to APCCs in October 2013. Gamma and BT’s submissions to Ofcom’s 2014 consultation adopted directly opposed positions concerning whether the LRIC or LRIC+ rate should be adopted. Subsequently, from 6 January 2015, Gamma has been disputing with BT (first by correspondence and then by way of the formal dispute before Ofcom) the proper calculation of APCC rates. Indeed, there is an inconsistency at the heart of BT’s submission on this question. If BT is correct that the parties had agreed a price for ISC, and so no adjustment was required following the publication of the Guidance, the same logic must surely apply to the cost of Switch Conveyance (“SC”). Following the publication of the Guidance, BT reduced its charges for SC but not for ISC (on the grounds that it asserted ISC was contestable). If Ground 2(b) of the Appeal is correct, BT should not have reduced its charges for SC in January 2015; the agreements that had been entered into by parties incorporated elements of SC as well. In short, if BT succeeds under Ground 2(b), the Guidance that followed BT’s consultation will be emptied of any practical significance. In reducing its SC charges to LRIC levels, BT has proceeded on the opposite basis.

291. In its Skeleton Argument Gamma observed that it agreed that a notional price for ISC may be inferred, with some degree of accuracy by stripping out other cost elements from BT’s CPL. Gamma made three points:
- (a) there is no single price for ISC, which is applied to services provided to various companies in the markets;
 - (b) the price of ISC varies by product: Gamma and BT have not agreed a single price for ISC, which applies to BT’s product range;
 - (c) ISC is sold as part of a bundle of services provided by BT to Gama and no specific price has been negotiated or agreed in relation to ISC costs.

292. ISC has never been the subject of direct negotiation between the parties and Gamma has not agreed any single and specific sum with BT nor any single and specific method for calculating ISC charges.
293. The APCCs agreed between Gamma and BT were agreed before Ofcom clarified the proper interpretation of GC 18 in the Guidance.
294. Gamma has been disputing the proper basis for those charges since the referral of the dispute to Ofcom.

(4) CP Group Submissions

295. In its Statement of Intervention the CP Group gave notice that it challenged BT's argument that there had been an agreement within the meaning of GC 18.5(a)(i).
296. In its Skeleton Argument the CP Group referred to Mr Moore's evidence that there had been no agreement within the meaning of GC 18.5(a)(i). The CPs payment of rates for non-porting related ISC cannot be equated to an agreement that those rates should be, or form part of, the basis for calculating "*cost oriented APCCs*."

(5) The evidence relating to Ground 2(b)

(a) Mr Morden (BT)

297. In his first witness statement, Mr Morden gave evidence about BT's method of charging APCCs: BT did not separate the charges for conveyance across the switch from any ISC service it offered to the RCP because such a separation would have required billing system development without altering the amount charged. The price payable for the LTC element of APCCs was effectively capped by the amount CPs pay for their competitively priced geographical conveyance. The APCC is a charge for (bundled) separate services, comprising both the necessary switch conveyance and the avoidable ISC – the latter being indistinguishable from the competitively supplied conveyance used for all other purposes.

(b) Mr Young (BT)

298. Mr Young confirmed that BT was able to ‘reverse engineer’ the components used in the APCCs and determine that the rates for conveyance are broadly in line with the rates BT charges in its CPL for non-ported traffic streams.

(c) Mr Perry (Ofcom)

299. In section 4 of his Witness Statement, Mr Perry addressed two propositions advanced by BT in its Notice of Appeal. These were summarised by him as follows:

(1) its charges for the ISC elements of APCCs have always been set on the basis of their similarity to transit of non-ported calls (Ground 2(a); NoA paragraph 57); and

(2) the rate for the ISC component of the APCC is a standard rate applying to both ported and non-ported traffic and there is no sustainable basis on which to differentiate on price (and BT does not do so) (Ground 2(b); NoA paragraph 65).

300. In paragraph 117 of his witness statement, Mr Perry explained that in his tables he compared BT’s rates for LTC and ITC for non-ported traffic in place at the time of the Disputes (derived from the CPL) with the LTC and ITC rates used to calculate the APCCs for Vodafone and Gamma that were the subject of the Disputes. He said that the tables demonstrated that: (i) the LTC and ITC rates used to calculate Gamma and Vodafone’s APCCs that were the subject of the Disputes were not set on the basis of their similarity to transit of non-ported calls; (ii) at the time of the Disputes, BT was not offering a standard rate for LTC applicable to all ported and non-ported traffic. Mr Perry stated, further, that he had compared the rates for LTC and ITC for different types of non-ported traffic (call termination, CPS, Indirect Access (“IA”) and transit) that have applied since 1 November 2015 (derived from the CPL) and that his tables demonstrated that, whilst BT argued that the rate for LTC and ITC are standard component rates and it did not differentiate on price, BT has chosen to set different rates for LTC and ITC for different types of non-ported traffic.

301. Earlier in his Witness Statement, Mr Perry had explained that in addition to being used for ported traffic, LTC and ITC can be purchased from BT in conjunction with a number of different services (e.g. call termination, call origination, IA, CPS, transit.) BT did not publish LTC and ITC rates explicitly but it is possible to derive them from the published rates for services.
302. Mr Perry's table 3 demonstrated that different rates for LTC were used for Gamma and Vodafone's APCCs from the rate derived from non-ported call termination, IA and CPS. BT was not applying a standard rate and some degree of differentiation was applied to the pricing of LTC when used for ported and non-ported traffic respectively.
303. In relation to ITC, Table 3 demonstrated that the APCC charges to Gamma and Vodafone were close to the ITC charges for non-ported call termination, IA and CPS, but different from the charges for non-ported transit service. The rates used in the APCC calculation for LTC for Gamma and Vodafone were different from LTC charges for call termination, IA and CPS.
304. In Table 4, Mr Perry derived rates for LTC and ITC from BT's updated (as of 1 November 2015) charges for non-ported traffic. Table 4 demonstrated that BT is now setting different charges for LTC and ITC respectively when they are purchased in connection with different non-ported traffic services. This means that a number of different rates for LTC and ITC are now applicable.
305. Mr Perry also noted, in paragraph 129, that **[CONFIDENTIAL TO BT AND VODAFONE: BT and Vodafone reached a bespoke agreement in relation to the rate for LTC for ported traffic]**. He considered that this suggested that the LTC component of the APCC is not a standardised rate that applies across ported and non-ported traffic, but that BT can differentiate on price as between different purchasers of the service for ported traffic.
306. Counsel for BT did not cross-examine Mr Perry on this evidence.
- (d) Mr Morden's second witness statement**
307. Mr Morden responded to Mr Perry's evidence in section III of his Second witness statement.

308. In paragraph 68, Mr Morden accepted that the implied price of ISC has to be derived in the manner Mr Perry constructed in table 3 of his witness statement. In Tables 8 and 9 BT used the same method to extract the price for LTC and ITC for every price change of the services listed by Mr Perry since 2009. He compared these prices with the price used in the calculation for APCC, which has been 0.0792 for LTC and 0.1713 for ITC. The LTC rates were the same as or very close to the APCC rates until April 2013, after which they were higher. The ITC rates were the same as or very close to the APCC rates except in relation to transit, which were higher.

309. Counsel for Ofcom did not cross-examine Mr Morden on this evidence.

(e) Summary of the evidence of Morden and Perry relevant to Ground 2(b)

310. We consider that Mr Perry's Table 3 is consistent with Mr Morden's Tables 8 and 9 insofar as they state the figures for non-porting ITC and compare them with the rate used by BT in the APCC calculation for ITC. The latter are slightly less than the former.

311. Mr Morden's tables 8 and 9 demonstrate that from February 2014 the rates for non-porting LTC increased above the price used in the LTC calculation for APCC.

312. Mr Perry's table 3, which uses rates that applied at the time of the dispute, shows that the rate used for LTC for non-porting call termination, IA and CPS at 0.0903 (which is the same rate as found in Mr Morden's tables 8 and 9), is different from the rate used in the Gamma and Vodafone APCC calculations, which rates differed as between Gamma and Vodafone. The rate used for ITC transit for non-porting calls at 0.0207 (which is the same rate as found in Mr Morden's tables 8 and 9) differed from the rate used in the Gamma and Vodafone APCC calculation [CONFIDENTIAL TO BT: which rates differed as between Gamma and Vodafone].

313. Mr Perry's table 4 uses BT's updated charges in the CPL for non-porting traffic as of 1 November 2015. In that Table he derived rates for LTC and ITC for the various types of non-porting services that use these components, call

termination, IA and transit. Table 4 demonstrates that BT is setting different charges for LTC and ITC when they are purchased in conjunction with different non-ported services. Mr Morden's tables do not give any rates after 31 October 2015.

(f) Mr Farmer (Gamma)

314. Mr Farmer's evidence in his witness statement relevant to Ground 2(b) may briefly be summarised as follows: there is no one single price for ISC. Gamma has negotiated a number of different deals with BT for a variety of different products, which include an element of ISC (and also of switch conveyance). Gamma has not agreed the price of ISC alone on any of those occasions. The price of ISC (to the extent that it could be separated out) almost certainly varies across those various products. He gave several confidential examples to vouch for this proposition. The SIA does not itself set a price for ISC: it merely contains the contractual provisions pursuant to which the various agreements such as those referred to above have been entered into. Gamma has never entered into a specific agreement with BT, by virtue of paragraph 12 or 13 of the SIA (which contain the relevant price variation clauses), for ISC. BT is wrong to suggest that they have agreed a separate basis for calculating ISC costs with Gamma. The various agreements between BT and Gamma include elements of ISC but do not attribute a single fixed price to those services. In fact, far from having reached such an agreement, Gamma has actually been in dispute with BT as to how ISC costs in the APCC should be calculated since 2013.

315. Mr Famer was not cross-examined by Counsel for BT on this evidence.

(f) Mr Rosbotham (Vodafone)

316. In section C of his witness statement, Mr Rosbotham disputes Mr Young's evidence that BT was able to "reverse engineer" the components used in the APCCs and determine that the rates for conveyance are broadly in line with the rates BT charges in its CPL for non-ported traffic streams. He points out that the CPL is not an accurate representation of the actual commercial rates BT offers to CPs for non-ported traffic streams.

(g) Mr Moore (Sky)

317. Mr Moore in a brief passage in his witness statement denied that there had ever been an agreement within the meaning of GC18.5(a)(i)

(6) The Tribunal's decision on Ground 2(b)

318. We reject Ground 2(b).

319. The question is whether by entering into the SIA and agreeing the charges set under clause 12, namely the charges specified in the CPL, the CPs have “*agreed another basis for the charges*” within the meaning of GC18.5(a)(i) for the ISC component of the APCCs.

320. The first issue which arises under Ground 2(b) is the proper construction of GC18.5(a)(i), which provides that “*subject always to the requirement of reasonableness, charges shall be cost oriented and based on the incremental costs of providing portability unless the DCP and the RCP have agreed another basis for charges.*”

321. We agree with Ofcom’s construction of this provision. The words “*unless the DCP and the RCP have agreed another basis for the charges*” permit a basis of charges different from the incremental costs of providing portability provided that the resulting charges are reasonable and cost oriented. “*Another basis for the charges*” refers back to and is to be compared with “*based on the incremental cost of providing portability*”.

322. We, further, agree with Ofcom that the basis for its charges that BT stipulates is that of incremental costs, namely LRIC+, and is, therefore, not “*another basis for the charges.*”

323. These considerations are sufficient to dispose of Ground 2(b). However, with a view to dealing with all of the main points in BT’s submissions, we now consider whether the CPs had agreed a price for the ISC components of the APCCs; and whether that price was based on the competitive market rate.

324. The proposition advanced by Counsel for BT was, as noted above, that “*charges for CPs had been agreed by BT and the CPs in question, were based on the competitive market rate and were thus already cost orientated.*”
325. When asked by the Chairman to identify the evidential basis of that proposition, Counsel for BT referred to Mr Morden’s tables 8 and 9 where he tabulated the “reverse engineered” price of LTC and ITC comparing it to the LTC and ITC rates that were applicable to other services. He contended that this constituted an implied agreement on the part of the CPs to the “reverse engineered” price of ISC within the APCCs. Without developing his submission, Counsel, in effect, left it to the Tribunal to work out whether and on what terms there had been an implied agreement between BT and the CPs as to the charges for the ISC component of the APCCs.
326. Paragraph 5.2 of Schedule 4 of the SIA provides that the parties shall pay the charges at the rates for Geographic Number Portability specified from time to time in the CPL.
327. Clause 12 of the SIA provides that BT shall ensure that a charge for a BT service or facility specified in the CPL accords with the relevant Condition applying to that BT service or facility. Clause 12.12 provides that the provisions of this paragraph 12 are not intended to prejudice the rights, liabilities and obligations of the parties created by and under a condition.
328. Accordingly, any agreement between BT and a CP in terms of paragraph 5.2 of Schedule 4 is, in effect, qualified by the proviso that the charge specified in the CPL is compliant with GC 18. We, therefore, do not accept that GC18.5(a)(i) “*acknowledges the primacy of freely commercially negotiated agreements with other CPs ...*” as BT argued in the Notice of Appeal.
329. In any event, the CPs’ agreement to the charges for Geographic Number Portability in the CPL came to an end, at the latest, in the case of Gamma, on 2 July 2015, and, in the case of Vodafone, on 30 July 2015, when these CPs referred their disputes to Ofcom.

330. Indeed, any such agreement can be viewed as having come to an end when CPs first put in issue BT's calculation of APCCs. On 4 October 2013, following upon the reduction of its geographic termination rate to LRIC, Gamma wrote to BT requesting that from 1 January 2014 BT charge for APCCs on the basis of the components rated at LRIC. Vodafone wrote to BT at about the same time. Gamma and Vodafone, amongst others, participated in Ofcom's Consultation in 2014, explaining why they considered that the LRIC standard was appropriate.
331. An essential part of BT's argument on Ground 2(b) was that the charges for ISC implicit in the APCCs were the same as the charges for ISC implicit in the charges for non-ported calls, the latter being at an unregulated and freely negotiated competitive rate. That was the thrust of the evidence given by Mr Morden in his second witness statement relative to his tables 8 and 9. These tables show that until 31 October 2014 for LTC the charge for ISC for non-ported services was the same as or very close to the charge used for APCCs. They show that for ITC the price in the CPL for ISC for non-ported services except for transit was the same as or very close to the charge used for APCCs. As we have noted, that conclusion was uncontentious but requires to be viewed in the context of Mr Rosbotham's uncontradicted evidence that the charges in the CPL were open to commercial negotiation.
332. It was, however, a matter of agreement that these charges were "reverse engineered" because LTC and ITC, whether for ported or non-ported calls, were always supplied as part of a bundled product. In these circumstances, we do not consider that it can be said that CPs paying charges at the rates for Geographic Number Portability specified from time to time in the CPL had agreed a rate for ISC for non-ported calls.
333. Furthermore, we do not accept the proposition advanced by BT in the Notice of Appeal that "*There is, therefore, an agreement for its supply at the set price. The rate for inter-switch conveyance component is a standard rate applying to both ported and non-ported traffic.*" There was, in fact, no set price or standard rate.

334. For these reasons we reject Ground 2(b).

J. GROUND 3

335. Ground 3 is stated, in summary, in the Notice of Appeal in the following terms:

“Alternatively, even if it is in principle open to Ofcom to change the relevant cost standard from LRIC+ to LRIC (which it is not), Ofcom is wrong to decide to do so, as LRIC+ is the clearly more appropriate cost standard to apply to the inter-switch conveyance element of the APCC. On a proper analysis, the cost recovery principles relied upon by Ofcom (of cost causation, cost minimisation and effective competition) offer no material support for Ofcom’s conclusion that LRIC is to be preferred over the LRIC+ rate. Ofcom’s decision is harmful to the interests of competition, efficiency and innovation, and is further inconsistent with Ofcom’s treatment of the equivalent services used in mobile number portability and direct routing. It is further based on erroneous and inadequate reasoning. The change in cost standard is unnecessary and disproportionate.”

336. We briefly summarise the main points in the parties’ written and oral submissions as follows.

(1) The pleadings

(a) BT’s Notice of Appeal

The cost recovery principles

Cost causation

337. The cost causation principle is that *“costs should be recovered from those whose actions cause the cost to be incurred at the margin.”*

338. Ofcom erred in fact in concluding that the cost causation principle supported the LRIC standard. Its *“slight”* preference for LRIC on grounds of cost causation is marred by its inaccurate premise that only the DCP can provide onward routing to the RCP, whereas third parties can provide transit. That is incorrect as a matter of fact. Ofcom’s treatment of the cost causation principle was also simplistic to the point of being tautologous.

339. Ofcom appeared further to have relied upon an erroneous analogy to two-sided markets. Porting conveyance is not a two-sided market (or *“akin”* or analogous

to one), and the logic suggesting that LRIC is a more appropriate cost standard for a two-sided market has no application to porting charges.

Cost minimisation

340. The cost minimisation principle is that *“Those that can affect the size of costs should have an incentive to minimise them.”*
341. Ofcom’s conclusion that the cost minimisation principle favoured LRIC is incorrect. Properly understood, LRIC would not lead to any stronger incentives to minimise costs than LRIC+, and is likely to reduce such incentives. Moreover, Ofcom failed to give any consideration to: (i) the effect of a change to LRIC-based pricing on industry incentives to move to direct routing; and (ii) to the costs and benefits of so doing including the benefits of efficiency and innovation, and whether this might lead to benefits to consumers.
342. Direct routing is more efficient and is likely to lower the total cost of carrying calls. Onward routing inhibits innovation by requiring that calls be passed from the OCP’s NGN to BT’s TDM network thereby precluding enhanced call features.
343. Ofcom has not assessed the costs of direct routing. It should have, but has failed to, carry out a new cost benefit analysis because it considered that the maintenance of an RCP pays regime is unlikely to act as a material barrier to CPs implementing direct routing between themselves when it is efficient to do so. Reducing the costs of onward routing conveyance to LRIC would entrench the inefficiency of onward routing.

Effective competition

344. The effective competition principle is that *“the mechanism for cost recovery should not weaken effective competition. The charging structure should not distort competition.”*
345. Ofcom’s conclusions on the principle of effective competition were also wrong. Ofcom:

- (1) concentrated only on retail markets which are already subject to effective competition, and where any incremental gain would be very limited at best;
- (2) failed to address the effect on wholesale markets at all, or to consider the distortion of competition caused by moving from a LRIC+ to a LRIC cost standard in particular;
- (3) erroneously conflated one-off migration charges and ongoing charges for wholesale services related to use of network assets; and
- (4) correctly recognised that the regulatory treatment of termination rates is irrelevant, but then placed erroneous reliance on an equally irrelevant and inapt analogy with two-way markets.

Retail competition

346. In relation to retail competition, the question is whether reducing the level of porting charges might enhance retail competition. Ofcom acknowledged in its impact assessment that its proposals would have a *“limited impact on consumers”*, given that *“the total size of wholesale porting charges covered under GC18 is small in the context of retail revenues in both the fixed and mobile sectors.”*
347. Any increase in retail competitive intensity would be very limited. Voice services are now a minor contributor to consumers’ switching decisions, given that they are now bundled with Internet and media services. In any event, the retail market has long been deemed effectively competitive, limiting the potential for further incremental gains.

Wholesale markets

348. As regards, wholesale markets, Ofcom’s previous policy, of using a LRIC+ cost standard, was clearly based on the consistency of treatment between ported and non-ported traffic, thereby avoiding any distortion of the conveyance and transit markets caused by regulation of porting. Despite that, Ofcom failed to consider

the competition effects on wholesale markets of adopting LRIC, in particular wholesale transit and conveyance.

349. The reduction of charges for porting conveyance to below those of corresponding non-porting traffic would create incentives for inefficient, distorted behaviours, such as splitting out porting traffic to convey this to a greater degree over BT's network, to arbitrage lower prices. Splitting out of traffic could erode economies of scale by fragmenting traffic. CPs could have an incentive to port numbers from BT rather than issue new numbers. There could be a reduction in incentives for RCPs to interconnect deeper into BT's network.
350. Ofcom failed to assess these distortions of competition in either the Guidance or the Final Determination.

One-off migration charges and on-going charges

351. Ofcom is guilty of conflation of one-off migration charges and on-going charges. Ofcom observed in the Guidance that in other cases it has set charges, that have a direct impact on switching costs, by reference to a LRIC cost standard, in order to promote competition, and that LRIC for porting charges is similarly appropriate. However, this conclusion was based on a basic economic error of conflating one-off migration charges (to which each of its examples related) with charges such as APCCs, which are ongoing charges for wholesale services related to use of the network assets.

Termination and two-sided markets

352. As regards termination and two-sided markets, Ofcom correctly concluded that the fact that wholesale fixed call termination rates ("FTRs") has been based on pure LRIC rates rather than LRIC+ is irrelevant. Further, the preference for pure LRIC in the context of termination rates has been set by the European Commission in a formal Recommendation, to which Ofcom is bound to have "*utmost regard*".

353. Ofcom incorrectly purported to find some support for adopting LRIC rather than LRIC+ for porting charges by claiming that porting services are “*more akin to a two-way access service (such as call termination) than one-way access services (such as wholesale line rental).*”

Inconsistency in Ofcom’s approach

354. Ofcom’s approach was also inconsistent with its approach to mobile transmission and Donor Conveyance Charges (“DCCs”), and inconsistent with its approach to direct routing. Ofcom has not sought to regulate the cost of transmission of a call from the DCP switch to the mobile RCP.

(b) Ofcom’s Defence

355. BT does not challenge the framework of the six cost recovery principles but has criticised the way in which Ofcom has applied the framework.

Cost causation

356. The need for additional routing arises from the receiving party’s decision to port. In an RCP pays model, Ofcom has a slight preference for LRIC as it more directly reflected the costs caused by the decision to port.
357. At present third parties do not provide transit. In any event the availability of third party transit does not undermine the choice of LRIC.
358. As regards the criticism that Ofcom’s use of the cost causation principle is “*simplistic to the point of being tautologous*”, the fact of the matter is that LRIC is by definition the costs caused by porting.
359. Ofcom’s analogy with two sided markets was not erroneous. Ofcom did not treat porting as two-sided market but drew a helpful comparison with such a market. The key point is that BT is able to recover common costs elsewhere.
360. It was the ability to recover common costs from this different group of customers that Ofcom factored in, among other matters, to the decision to adopt a LRIC standard. In addition, APCCs above LRIC amplify some of the competition effects of asymmetry of ported traffic between CPs in ways similar

to (but not the same as) how termination rates above LRIC can amplify the impact of traffic differences on the competitive position between CPs.

Cost minimisation

361. In principle the higher the proportion of costs that the DCP is required to bear, the stronger its incentives to minimise costs. Because a large proportion of the infrastructure used to deliver ported calls is in general also used to provide services now subject to effective competition, Ofcom accepted that LRIC would provide only slightly stronger incentives than LRIC+ for the DCP to minimise porting costs.
362. Dr Maldoom gave no reason to suppose that in principle incentives to minimise costs would be stronger under LRIC+.

Incentives to move to direct routing

363. As regards incentives to move to direct routing, Ofcom last considered the benefits of direct routing in 2010 and concluded that it has a negative NPV of around -£128m over 7 years and -£138m over 10 years. During the consultation process BT argued that Ofcom was not required to carry out a new cost benefit analysis. The claimed benefits of direct routing were raised in relation to the different question of whether the OCP or RCP should bear the costs of onward routing. BT has not established that direct routing is necessarily more efficient than onward routing. The essential comparison is between the ongoing incremental costs of onward routing as against the set up and ongoing costs of direct routing. APCCs set at LRIC would give efficient price signals whereas APCCs set at LRIC+ would introduce distortions. BT's claim that onward routing inhibits innovation is incorrect.

Effective competition

364. In principle, the higher the porting charges that the RCP has to pay, the fewer incentives it would have to compete intensively to gain customers that are likely to port their number. Higher porting charges would exacerbate the competitive

disadvantage faced by rivals with a larger proportion of ported in numbers compared to incumbents.

365. Ofcom addressed four criticisms made by BT as follows:

(a) Effects on retail competition. Ofcom does not accept, as BT contends, that any increase in retail competitive intensity brought about by the use of LRIC instead of LRIC+ would be very limited. A large proportion of consumers still purchased voice services separately to other services. Accordingly, BT is wrong to say that voice services are now a “minor contributor to consumers’ switching decisions”. In any event, voice services play a role even where the consumer does purchase bundled services. It is true that the competitive nature of retail markets limits the scope for further gains in competitiveness, but that does not mean that there is no scope for such gains. The range of market outcomes is a continuum, not a binary concept (competitive/uncompetitive).

(b) Effects on wholesale markets. BT argues that LRIC would increase the incentives on RCPs to use BT’s network for ported traffic rather than their own network. Ofcom submits that there is no evidence that this would happen but if it did that would be an efficient choice. Further, that would increase utilisation of BT’s core network and would not erode economies of scale. It would be efficient for RCPs to have an incentive to port numbers from BT; decisions based on LRIC are likely to be efficient, which is all the more important given that telephone numbers are scarce. If an RCP faced reduced incentives to interconnect deeper into BT’s network than is currently the case, that would reflect an efficient choice, if responding to price signals based on LRIC.

(c) One-off migration charges. BT argues that in deciding upon LRIC, Ofcom has wrongly conflated one-off migration charges (in respect of which LRIC has been applied in other contexts) with ongoing charges for wholesale services related to the use of network assets. However, any rational CP considering its investment in attracting ported customers would consider not only the immediate costs of acquiring a customer but also the ongoing costs - i.e. how they will affect the lifetime customer value. Accordingly, LRIC has similar advantages in the context of ongoing costs as in the context of one-off charges.

(d) Termination and two sided markets. BT criticises paragraph 4.59 of the Guidance. In fact, Ofcom has not stated that porting conveyance is a two-sided market, but this is a helpful analogy. The essential point is that BT could recover common costs elsewhere, from those customers that do not switch and port away.

366. In addition, APCCs above LRIC amplify some of the competition effects of asymmetry of ported traffic between CPs in ways similar to (but not the same as) how termination rates above LRIC can amplify the impact of traffic differences on the competitive position between CPs.

Alleged inconsistency

367. Ofcom does not accept that its treatment of APCCs is inconsistent with its approach to mobile transmission and DCCs and inconsistent with its approach to direct routing.

(c) Gamma's Statement of Intervention

368. Gamma submitted, in relation to incentives to direct routing, that:

“As Mr Farmer explains, BT's presentation of this issue fails adequately to deal with four important factors:

(a) The United Kingdom is a complex telecommunications market with many and diverse participants, all of whose systems would have to be adjusted to accommodate direct routing. More widespread migration to NGNs would assist in this regard. However, it is by no means clear whether a universal migration to NGNs would be in the overall best interests of the market (as Ofcom indicates) and, indeed, BT itself has apparently decided not to make the shift to a fully Internet Protocol ('IP') based NGN. For example, BT abandoned its '21CN' project in 2010.

(b) There have already been a number of industry initiatives that sought to promote the shift to direct routing, one of which (Ofcom's 2007 decision) BT actively opposed. It is ironic, in this regard, that BT claims a change from LRIC+ to LRIC will have a “detrimental impact on incentives to move to direct routing at all” when BT's own view has, apparently, been that direct routing is not commercially desirable at the historical LRIC+ prices .

(c) [...]

(d) Finally, other parties in the market have made the shift to NGN and direct routing. Gamma made the shift to a NGN as early as 2006 and other providers, such as Sky and TalkTalk, are in the course of making, or have already made, that transition now. Gamma anticipates that it will soon be operating direct routing with other CPs. In short, the incentives to shift to direct routing are, and remain, sufficiently strong to encourage market participants to adopt it.”

(d) CP Group Statement of Intervention

369. The CP Group argues in its Statement of Intervention as follows:

“First, the decision to direct route relates to the fact that BT operates (for the most part) a TDM network. The CP Group agrees entirely with Ofcom that

‘... the only reason why onward routing might preclude the use of NGNs is if the OCP and RCP use NGNs but the DCP continues to use a TDM. In other words, the problem identified by BT is that whilst a number of other CPs have migrated to NGNs, BT has not yet commenced such a migration’.

As Rosbotham 1 explains, interworking between IP and TDM networks has a number of problems, including: a detrimental impact on call quality; and both the OCP and RCP having to incur costs associated with “gatewaying” a call from IP to BT’s TDM network and from BT’s TDM network back to IP. These are material costs.

Secondly, all members of the CP Group are committed to implement direct routing and are engaged in ongoing commercial negotiations to implement direct routing between themselves.”

(e) BT’s Reply

370. In its Reply BT made the following additional points.

371. Ofcom has failed to set up a framework analysing the effects arising from the choice of a cost standard, and, specifically, the incentives on market participants. The three factors relied upon by Ofcom (cost causation, cost minimisation and intensification of retail competition) are inadequate to justify the choice of LRIC. BT submits that Ofcom has changed its position on competitive benefits at retail level, having considered them to be small in the Guidance. Ofcom has confused the benefits of enabling number porting with the incremental benefit of LRIC as against LRIC+. Ofcom has failed to provide any evidence to demonstrate sufficient enhancement of retail competition to justify moving to LRIC. The evidence demonstrates that there would be no

significant benefits on retail competition. Even if there are such benefits, Ofcom has failed to consider and assess other possible remedies.

372. As regards BT's argument that LRIC would distort competition in wholesale markets, Ofcom's contention that decisions based on prices set at LRIC are likely to be efficient is based on an incomplete and overly simplistic view of the economic efficiency of different cost standards.
373. Pricing at LRIC is seldom appropriate in the telecoms sector due to many costs being fixed and common across a number of services. Unless special circumstances apply, common costs should be spread across as many services as possible to maximise overall consumer welfare.
374. To justify pricing a service at below LRIC+ there needs to be a sufficient countervailing benefit that outweighed the implicit cost made by that service.
375. The examples of regulatory pricing at pure LRIC offered by Mr Godfrey are very much exceptional and are not supportive of LRIC for conveyance because in each of those cases there have been particular reasons for using pure LRIC, in many instances because the common costs are already being recovered from closely associated services.
376. As to one-off migration charges, BT contends that Ofcom has drawn a false distinction between one-off and ongoing charges on the basis that a rational CP seeking to acquire a customer would consider the lifetime profitability of that customer. Whilst that is true, the expected lifetime profitability of a customer does not inform what the relative cost would be on a hypothetical alternative future path where the consumer migrated services more often or sooner. As a result Ofcom may have had sound reasons to keep migration charges at pure LRIC which do not apply to ongoing charges. Hence, Ofcom erred in considering one-off migration charges to be relevant to an analysis of APCCs.
377. Unregulated general conveyance and transit services already act as a constraint on the pricing of APCCs. Price differentials between porting conveyance and conveyance in general could create distortions of which Ofcom has not taken account of these potential distortions.

378. It is wrong for Ofcom to ignore the implications of pure LRIC APCCs at the network level in terms of incentives to treat ported traffic differently to non-ported traffic and to move to deeper interconnection with BT, on the basis that such possible distorted behaviour is “speculative”. These impacts are necessarily hypothetical, but regulatory policy should focus on the incentives that regulation created which market players would tend to respond to, rather than the merits or otherwise of current and previous interconnection and investment decisions.
379. Likewise, it was wrong for Ofcom to ignore the implications of pure LRIC APCCs at the network level in terms of incentives to move to direct routing and long-term incentives for the industry to migrate to all-IP networks.
380. Ofcom contends that direct routing is not necessarily more efficient than indirect routing and is costly to implement. However, there are good reasons to expect the balance of costs and benefits to shift over time in favour of direct routing given that volumes of ported calls has grown and technological changes has made it easy and cheap to implement distributed databases of ported numbers.
381. It is no answer to BT’s criticism for Ofcom simply to assert that APCCs set at LRIC would give efficient price signals. Ofcom fails to explain why prices set at LRIC would provide the correct incentives for migration to direct routing. It is not axiomatic that pricing at LRIC ensured efficient price signals. Ofcom’s Defence failed to engage with BT’s case that, where a differential existed, between APCCs and unregulated prices of conveyance and transit services, this undermined incentives to switch to direct routing and from TDM to IP-based networks. Moreover, in light of the quality of service impact associated with moving to direct routing, it is wrong for Ofcom to assume that migration incentives to IP-based networks are adequate.
382. As Mr Morden explains, it is a cost analysis, rather than a desire for service improvements, which is the key driver in implementing direct routing. The lower the APCC charge, the fewer the situations in which a move to direct

routing would be cost effective and the greater the capacity that has to be retained by BT for onward routing on its legacy network.

383. Ofcom's reliance upon BT's response to the Guidance consultation is misplaced. As Mr Morden explains, BT stated that a comprehensive cost benefit analysis is not required before Ofcom took action to incentivise a move to direct routing (as opposed to mandating direct routing). Ofcom's decision fails to put in place incentives allowing CPs to make an efficient choice, to the detriment of BT and ultimately of consumer.
384. Two sided markets. Ofcom states in its Defence that in reaching its decision to adopt a LRIC standard, it draws a helpful comparison between ported conveyance and a two-sided market given that: (i) BT is able to recover common costs elsewhere; and (ii) lowering porting charges may reduce competitive asymmetries and intensify retail competition in an analogous manner to reducing termination rates.
385. It does not follow from having the ability to recover costs elsewhere that it is optimal to lower the price of one particular service to LRIC. The appropriate economic framework for considering the issue of common cost recovery is to consider whether benefits could be created which exceeded the implicit cost to lowering the price of one service to LRIC (as set out above) rather than drawing any sort of comparison with two sided markets.
386. Ofcom's reliance on BT being able to recover common costs from customers that have not switched and ported away could have adverse consequences for vulnerable consumers given that competition is focused on customers buying bundled services with voice-only subscriptions being more prevalent among the elderly and lower income households.
387. There is no evidence that lowering porting charges will intensify retail competition and even if there is such evidence, Ofcom would need to give further consideration to appropriate remedies.
388. There is no relevant analogy to be drawn with call termination where the market dynamics are such that a larger operator could gain an advantage if termination

rates are significantly above cost. Those dynamics are absent in the case of porting.

Cost causation

389. Ofcom's error in considering the cost causation principle to be relevant to its decision to impose a pure LRIC cost orientation standard is further exposed in the report of Mr Godfrey as not meaningfully informing the choice of cost standard.

Cost minimisation

390. The question of cost minimisation incentives could only be of secondary importance given that Ofcom accepted that only "slightly stronger" incentives existed to minimise costs through LRIC as compared to LRIC+. For the reasons given by Dr Maldoom, the choice of cost standard cannot be expected to have a material impact on incentives to reduce cost.

(2) Summary of the main issues

391. At this point, it may be helpful for the Tribunal to summarise its understanding of the main issues between the parties arising out of their pleaded cases:

- (1) whether in relation to the cost recovery principle of effective competition, LRIC is likely to any material extent to increase incentives to compete for ported customers;
- (2) whether LRIC is likely to give rise to distortions in the wholesale market that Ofcom has failed to take into account;
- (3) whether LRIC will distort incentives to direct routing and whether LRIC will reduce incentives to move to IP networks.

392. We intend to focus on these issues in our review of the arguments and evidence.

393. A number of other issues were debated, in some cases at considerable length, which, (for reasons that we set out briefly in the final section of our

consideration of Ground 3 below), we did not find to be of assistance in resolving Ground 3. These included:

- (1) The cost recovery principles of cost causation and cost minimisation;
- (2) whether LRIC or LRIC+ was likely to be more effective in achieving allocative efficiency;
- (3) whether porting is akin to a two sided market;
- (4) whether there was inconsistency in Ofcom's treatment of APCCs and its treatment of the equivalent services used in mobile number portability and direct routing;
- (5) whether there was inconsistency in the Guidance in relation to effective competition between the section on cost standard and the sections on who pays;
- (6) the relevance of fixed termination rates being fixed at LRIC;
- (7) whether Ofcom erroneously conflated one-off migration charges and ongoing charges for wholesale services related to use of network assets;
- (8) whether it is appropriate for BT to continue to earn a contribution to common costs from lost customers.

(3) The evidence and the parties' closing submissions

(a) The Skeleton Arguments

394. The parties sought to reinforce the foregoing contentions in their Skeleton Arguments and in their opening submissions at the hearing. As these submissions repeated the arguments summarised above and are based on and anticipated the expert and factual, evidence, we do not consider it necessary to summarise them in our judgment.

(b) BT's expert evidence (Dr Maldoom)

Dr Maldoom's First Expert Report

395. Dr Maldoom provided two reports and was cross-examined by Counsel for Ofcom.

396. The sections of his report directed to Ground 3 are:

- (1) Section 3: The Regulatory background.
- (2) Section 4: The 2014 Guidance and the subsequent dispute.
- (3) Section 6: Pure LRIC versus LRIC+ for conveyance charges
- (4) Section 7: Direct vs. indirect routing

Section 3: The Regulatory background

397. In section 3 Dr Maldoom discusses previous regulatory decisions regarding portability. He makes the point that previous regulatory interventions adopted LRIC+ to reserve equality of treatment between porting and non-porting conveyance.

Section 4: The 2014 Guidance and the subsequent dispute

398. In section 4 Dr Maldoom discusses the Guidance and the subsequent dispute. In his opinion, the Guidance overall lacked both substance and clarity about Ofcom's reasons for adopting the LRIC+ cost standard for porting conveyance. It was unclear what weight Ofcom gave to the analogy with two sided markets, which, in any event, was erroneous.

399. Ofcom implicitly assumed, without analysis, that the choice of cost standard would not affect incentives to move to direct routing.

400. Dr Maldoom then considered the three principles of pricing and cost recovery as used by Ofcom.

Cost causation

401. The use of pure LRIC amounted to a narrow application of just the first principle of cost causation.

Cost minimisation

402. Dr Maldoom agreed with Ofcom that the choice of cost standard should not have a significant effect on cost minimisation incentives but disagreed that LRIC should lead to somewhat stronger incentives than LRIC+. LRIC is likely to suppress cost minimisation, as the benefits of a cost reduction could not be enjoyed even for a short time.

Effective competition

403. Ofcom's focus was on retail competition. Ofcom proceeded on the basis that *"the higher the porting charges that the RCP has to pay, the fewer incentives it would have to compete intensively to gain customers that are likely to port their number."*

404. In paragraph 4.70 of the Guidance, Ofcom explained that it wished to minimise the wholesale charges that affect the cost of acquiring customers or switching suppliers. Ofcom contended that the choice of LRIC for ported conveyance is consistent with its own decisions in its Fixed Access Market Review. Dr Maldoom criticised Ofcom for making the basic economic error of relying on its decisions in relation to migration charges when making a decision about on-going charges. The only major wholesale market to which Ofcom has applied LRIC is call termination. Specific issues with regard to its competitive bottleneck justified the different treatment of call termination.

Factors not considered in Ofcom's assessment

405. There were two significant omissions in Ofcom's assessment.
406. First, there was no consideration of competition effects on wholesale markets. The principle of effective competition requires that *"the charging structure should not distort competition"*.

407. Second, the Guidance took indirect routing as a given and did not consider incentives to shift to direct routing and whether this might lead to benefits for consumers.

Changes in the regulation of termination rates

408. There was no direct link between APCCs and fixed termination charges. Whilst the Determination appeared entirely clear on this point, the Guidance was far less clear, perhaps even contradicting the Determination.

Two sided markets

409. In a lengthy treatment of the issue, Dr Maldoom criticised Ofcom's reference to two sided markets. (As the analogy was relied on by Ofcom only to make the uncontroversial point that common costs could be recovered elsewhere, we did not find it useful to seek to resolve this somewhat academic debate and, accordingly, have not sought to summarise the detail of the argument).

Section 6: LRIC versus LRIC+ for conveyance charges

410. In section 6, Dr Maldoom addressed the issue of pure LRIC versus LRIC+ for conveyance charges.
411. In paragraph 145 he prefaced his examination of Ofcom's reasons for choosing LRIC in these terms:

“Therefore, in summary, if a LRIC-plus cost orientation standard were adopted, then we would expect this to allow commercial determined pricing provided there is a reasonable degree of competition and no need to regulate within conveyance markets. However, a pure LRIC standard would most probably not permit commercially determined pricing, in that even with effective competition some mark-up over pure LRIC can be expected.”

412. Dr Maldoom's conclusion was that Ofcom fails to identify all relevant effects of moving to pure LRIC.

413. In paragraphs 146 - 7, he said

“146. Regulation of the porting charges under the indirect model needs to consider three broad issues:

- a) *The level of porting charges may have effects in terms of the relative average costs of different types of providers and so potentially affect competition between CPs for customers;*
- b) *How porting charges might affect the incentives to switch to direct routing;*
- c) *Pricing of any porting conveyance needs to ensure that there are not perverse incentives created to split out traffic associated with ported calls, route it to arbitrage differences in the costs of conveying ported and non-ported traffic or distorting the choice of points of interconnection between DCPs and RCPs.*

147. Of these effects, Ofcom identifies only the first, but then does not consider the factors affecting its magnitude. The second and third effects are not considered by Ofcom in the assessment within the Guidance (i.e. Chapter 4)."

414. We summarise Dr Maldoom's analysis of these issues below.
415. a) Retail cumulative effects. If one assumes that there are small entrants with a net outbound traffic position, then in principle to the extent that porting charges eat into their termination revenues, incentives to win customers through porting could be reduced. However, in practice that effect was unlikely to occur to a material extent.
416. First, it was only relevant to the extent that ported traffic is imbalanced. Second, voice services are now of fairly minor importance in driving customers' choices of telecoms provider, who are likely to be influenced by choices over broadband and other bundled services. Third, the retail market for customers was now competitive, which limited the extent of any further potential gains.
417. Ofcom itself in the Guidance pointed to the limited impact of APCC revenues on fixed operators and limited impact on line rental and call prices. Ofcom said, "*we do not expect the changes to the flow of funds between CPs to be significant*". The Guidance was not clear about whether Ofcom expects any material positive impact on retail competition from the switch to pure LRIC for APCCs. There was no reckoning of costs versus benefits within Ofcom's assessment.

418. b) Incentives for direct routing. Ofcom simply assumed that moving to LRIC charging for porting conveyance would allow adequate incentives for moving to direct routing without having considered the impact. Ofcom has only considered the issue in the context of the quite different question of comparing an RCP-pays with an OCP-pays regime
419. With a LRIC-plus standard, porting conveyance services would be priced in a broadly similar manner to general conveyance. However, with a pure LRIC standard, conveyance of ported calls would be cheaper than a commercial price for conveyance. This created an incentive to maintain indirect routing, as with direct routing conveyance would no longer be associated with porting and so be at commercial rates.
420. c) Distortions of the conveyance and transit market. To avoid creating distorted behaviours of various types, consistency was needed between the structure of APCCs and commercial terms for conveyance that are determined in an unregulated market. In 2002 the MMC and then Oftel were concerned about this question of consistency.
421. Pushing porting conveyance below the price of the corresponding services for non-ported traffic would create incentives for a number of possible inefficient, distorted behaviours:
- (1) There may be an incentive to split out ported traffic to convey this to a greater degree over BT's network, even where non-ported traffic between BT and the RCP is conveyed to a greater extent on the RCP's network, to arbitrage lower prices for conveyance of ported traffic;
 - (2) Splitting of ported and non-ported traffic by different routes has the potential to erode economies of scale in core networks by fragmenting traffic over different links when it could be aggregated;
 - (3) CPs could have an incentive to port numbers from BT rather than issue new numbers, as the latter can enjoy regulated conveyance. Again, this is inefficient as the provenance of a number should be irrelevant to how a CP chooses to compete;

- (4) Incentives for other CPs to interconnect deeper into BT's network to pull off traffic sooner and carry it on their own or third-party networks could be reduced. To the extent that ported and non-ported traffic remained intermixed, this incentive may be diluted; however, ported and non-ported traffic could in principle be split. In turn, this reduced the incentives for CPs to build infrastructure needed to interconnect more deeply with BT.

Section 7: Direct vs indirect routing

422. Ofcom in the Guidance merely assumed that there will be sufficient incentive to move to direct routing under the proposed pure LRIC standard for APCCs. The incentives for CPs to migrate to direct routing are potentially undermined by reducing APCs to pure LRIC, which should be considered as a cost to this approach.

Dr Maldoom's Second Expert Report

423. Dr Maldoom's second expert report was a response to Mr Godfrey's first report and to Ofcom's Defence.

Section 2: Key issues regarding LRIC versus LRIC+

424. Dr Maldoom considered that Mr Godfrey's report now provides some additional elaboration of the reasons for the choice of LRIC but this did not amount to an adequate justification.
425. According to Mr Godfrey, the essence of Ofcom's considerations amounted to a balancing of three factors:
- (1) an intensification of retail competition resulting from lowering APCCs;
 - (2) sharper incentives to minimise costs under a pure LRIC standard than LRIC+; and
 - (3) pure LRIC being aligned with a principle of cost causation, expressed as "*costs should be recovered from those whose actions cause the costs to be incurred at the margin*" in Ofcom's Defence.

426. Of these three factors, retail competitive effects appeared to be by far the most important in Ofcom's overall conclusion.

427. Dr Maldoom summarised his response as follows:

***“Retail competitive effects:** It is common ground that retail competitive effects need to be considered. Ofcom's Defence and Mr Godfrey's report assert that there are significant competitive benefits. However, this is contrary to the position that Ofcom adopted in the Determination, where retail effects are considered small because of the modest impact of changing the cost standard on CPs' prices. Moreover, neither Ofcom, in its Defence, nor Mr Godfrey are sufficiently careful to maintain the distinction between the competitive benefits of enabling porting in general (which is not in issue and which has already been achieved) and the incremental benefits to competition that might result from lowering APCCs from LRIC+ to pure LRIC. Evidence on the conduct of the retail market presented in Ofcom's Communications Market Reviews is not supportive of Mr Godfrey's arguments as retail competition is already effective, limiting the scope for further improvement.*

***Distortion of transit and conveyance markets:** Neither Ofcom's Defence nor Mr Godfrey's report significantly engage with the problem of distortions that could arise if porting conveyance are constrained to a price below that of broadly comparable general transit and conveyance services. My first report discussed the possibility of creating incentives for porting traffic being segregated to enjoy the benefits of a lower regulated price and knock-on effects dampening incentives for deeper interconnection with BT and migration from TDM to IP-based networks.*

***Incentives for direct routing:** In both the Determination and the Guidance, Ofcom largely dismiss the question of incentives to migrate to direct routing, largely assuming that APCCs at LRIC would maintain sufficient incentive for migration. This is intertwined with the issue of the incentives to migrate to IP-based networks, as this change would facilitate direct routing.”*

428. In relation to competitive impacts Dr Maldoom made the following main points:

- (1) in the Guidance Ofcom said (§ 7.3) “the total size of wholesale porting charges covered under GC18 is small in the context of retail revenues in both the fixed and mobile sectors” and that its proposal would have “a limited effect on consumers”;
- (2) Mr Godfrey confused the competitive benefits of enabling porting with the incremental impact on retail competition of changing the cost

standard; he accepts that the choice of cost standard is likely to be of secondary importance compared to the introduction of porting itself;

(3) Dr Maldoom disputed Mr Godfrey's contention that voice services are significant in relation to competitive effects; in the 2015 Communications Market Report, Ofcom appeared to acknowledge that competitive outcomes are driven by competition for customers buying bundles; the retail fixed voice market is already sufficiently competitive that Ofcom has removed retail regulation on BT;

(4) Ofcom has presented no evidence that the intensity of retail competition will be increased by moving to LRIC.

429. In relation to possible wholesale distortions, these were hypothetical but it was relevant to consider what incentives APCCs at LRIC could create for CPs rather than what CPs might currently do. Incentives were knowable whereas behaviour was essentially unknowable. Regulation should be designed to avoid distortion of incentives.

430. As regards incentives for direct routing, there were good reasons to expect the balance of costs and benefits to shift over time in favour of direct routing. This was a decision for each CP and the correct incentives should be in place.

431. Mr Godfrey does not explain why he considers that LRIC would provide the correct incentives for direct routing. In relation to efficiency, Mr Godfrey failed to allow for the fact that unregulated conveyance and transit services can be expected to be priced to include a contribution to common cost recovery and so be above pure LRIC.

Section 3: General comments about the efficiency of LRIC

432. In section 3 of his second expert report, Dr Maldoom considered the efficiency of LRIC. He expressed concern with aspects of Mr Godfrey's report where he appeared to take it as almost axiomatic that pure LRIC will drive efficient outcomes.

433. Dr Maldoom presented a detailed exposition of his point in paragraphs 64 to 76. Under the constraint that fixed and common costs need to be recovered across a number of services, one should consider that there is an implicit cost associated with dropping the price of a service to pure LRIC in that other services would eventually need to be more expensive. One could not axiomatically take pricing at pure LRIC as being efficient.
434. We understand the key point that Dr Maldoom was seeking to make here is that if prices are subject to the constraint that (common) cost recovery must be achieved one is in a situation where the price of services need to be above the first best efficient level. There is an implicit cost in pricing one service at LRIC in respect that other services need to be priced higher to allow for recovery of common costs. To justify pricing a particular service at pure LRIC there needs to be a sufficient countervailing benefit from lowering its price that outweighs the implicit cost of reducing the contribution to common costs that that particular service makes.
435. It is worth noting at this point that, as we record below, in cross-examination Mr Godfrey accepted the need to identify such countervailing benefit. In that regard he relied substantially on the principle of effective competition.

Other services priced at LRIC

436. 106. Dr Maldoom also commented on Mr Godfrey's examples of other services priced at LRIC. We do not consider that whether these services are comparable to porting charges assists the Tribunal in deciding whether pure LRIC for APCCs is justified and accordingly do not consider this issue further.
- Whether it is unreasonable for BT to earn a margin on customers lost to BT
437. Dr Maldoom also challenged Ofcom's view that it is unreasonable for BT to earn a margin on customers lost to BT. Again we do not consider that this debate assists the Tribunal.

Section 4: Secondary issues related to LRIC vs LRIC+

438. In section 4 Dr Maldoom addresses points that he considers to be of secondary importance - two sided markets, incentives for cost minimisation and the principle of cost causation.
439. The Tribunal agrees with Dr Maldoom that these are secondary issues. Whether Ofcom was correct in concluding that LRIC is the appropriate cost standard does not turn on any of these issues, either individually or cumulatively.

Dr Maldoom's cross-examination

440. We now set out the main points arising from Dr Maldoom's cross-examination.
441. The three broad issues most relevant to the choice between pure LRIC and LRIC+ are the impacts on retail competition, incentives to move to direct routing and potential wholesale distortions. Accordingly, we focus on these issues in our review of Dr Maldoom's cross-examination.

Retail competitive effects

442. Dr Maldoom accepted that, in the Guidance, Ofcom attached particular importance to retail competitive effects. He agreed that that should be the starting point that needed to be weighed against other issues. Dr Maldoom's position was that any effect on retail competition was likely to be weak.
443. He agreed that the relevant factor in terms of any impact on incentives to win customers from rival operators by porting is the differential between margins earned on a ported and non-ported call respectively. It is that differential which affects the incentive to acquire ported customers. Dr Maldoom accepted if there were additional costs associated with serving a ported customer, there would be less of an incentive to compete for that customer, but qualified his agreement with the caveat that magnitude is important. He accepted that porting conveyance charges gave rise to additional costs that are specific to ported customers.
444. Dr Maldoom made the point that it may be difficult for a CP to differentiate between ported and non-ported customers, but accepted that there could be marketing targeted at ported customers.

445. Dr Maldoom was then cross-examined in relation to the three reasons given by him in paragraph 150 of his first report as to why he considered that the level of porting conveyance charges would have limited practical effect on retail competition.
446. The first reason was that the level of APCCs was only relevant to the extent that ported traffic was imbalanced. He accepted, however, in cross-examination that, if one focused on ported customers, higher APCCs would affect retail incentives, irrespective of imbalance (imbalance in the sense that an entrant CP has more ported customers than a more established rival). He also accepted that, if there is an imbalance of ported traffic, that is relevant in so far as it would exacerbate the effect of higher porting charges by disproportionately increasing the costs of some operators. He accepted that there is a substantial imbalance, but felt unable to comment on whether the imbalance is in fact significant for retail competition. Dr Maldoom did not have the information available to analyse the retail competitive impacts. Only Ofcom could do that.
447. The second reason was that voice services are now of fairly minor importance in driving customers' choice of telecoms provider, who are likely to be influenced by choices over broadband and other bundled services. The third reason is that the retail market for customers is now competitive, thereby limiting the effect of any further gains.
448. When asked about the evidential basis of these reasons, Dr Maldoom described them as "*more logical propositions*". He said of these two reasons that he was offering them as general propositions which could be used as the basis of further analysis to come to a more informed view of retail competition effects. He was "*just trying to make these as general points which I think hadn't really been considered in my view sufficiently by Ofcom.*"⁸²
449. Dr Maldoom accepted, under reference to Mr Godfrey's evidence, that a substantial proportion of the population - 30% were voice only customers. Competition in this sector was relatively weak. It was put to him that that would be a reason to be more rather than less concerned about disincentives to compete

⁸² Day 5/ p35.

for voice only customers. His view was that in relation to the other 70% APCCs are a tiny proportion of the picture in terms of revenue. For the voice only customers the APCC element was larger within the revenues for those customers. But there was still a question about materiality. To make a proper assessment of materiality it would be necessary to segment the market and look at how important APCCs are within that segment.

Comparative efficiency of LRIC and LRIC+

450. Dr Maldoom was then asked in cross-examination about the comparative efficiency of LRIC versus LRIC+ pricing. Dr Maldoom's view was that on this was that there was a lot of common ground between him and Mr Godfrey but some fairly fundamental disagreements.
451. Dr Maldoom agreed that as a general proposition marginal cost pricing is generally seen as first best in the sense of maximising allocative efficiency, subject to the qualification that one has to define what one meant by first best. LRIC is for a defined set of circumstances which one might call first best and static in nature.
452. In response to questions from Professor Reid, he agreed that LRIC+ is regarded as the regulatory surrogate for competitive pricing in that it is efficient and provides a rational basis for allocating costs.
453. Lowering the price of a particular service to LRIC would have an implicit cost, because more common costs would need to be recovered from another service. It was agreed that, in principle, common costs should be spread as far as possible and there would have to be a specific reason for not applying it to a particular product.
454. Dr Maldoom agreed that under direct routing, the costs currently being recovered through APCCs would not be levied. So, the common cost element of BT's operations being recovered under APCCs would have to be recovered elsewhere. In relation to APCCs the inability to recover common costs due LRIC would be of small magnitude. The point was one of principle. The question was why APCCs are being singled out for not recovering common

costs. There is a burden to be overcome in terms of justifying not recovering common costs - a sufficient countervailing benefit. He accepted that the benefit identified by Ofcom, namely increased retail competition, is relevant in principle, but the debate is as to the magnitude of the benefit and the other countervailing factors.

Distortions in wholesale markets

455. In relation to this issue, Dr Maldoom expressed the view in paragraph 146 of his first report that “*pricing of any porting conveyance needed to ensure that there are not perverse incentives created to split out traffic associated with ported calls, route it to arbitrage differences in the costs of conveying ported and non-ported traffic or distorting the choice of points of interconnection between DCPs and RCPs*”.
456. We note that Dr Maldoom described all of his potential distortions as hypothetical. His position was “*why create even the theoretical possibility?*”⁸³ When it was put to him that some of these hypothetical distortions were contradicted by the factual evidence presented by the CPs, Dr Maldoom’s response was that a regulator ought to be concerned with incentives rather than behaviour.

Incentives to split traffic and arbitrage

457. In his written evidence, Dr Maldoom postulates that if a CP has general network capacity that could take ported and non-ported traffic, and that starts to fill up, the CP could get a cheap deal by pushing the ported traffic off on the BT route. He accepted in cross-examination that in the (confidential) example he has relied on there is no evidence that this is happening at the Tandem layer. The evidence also related to a time when APCCs has not been capped at LRIC so at that time arbitrage would not have been possible.
458. In relation to the evidence of Mr Rosbotham (of Vodafone) that he would have incentives to use his existing links at the Tandem layer rather than pay BT’s APCCs even capped at LRIC, Dr Maldoom considered that particular instances

⁸³ Day 5/ p65.

of behaviour were not very informative. The issue was one of incentives. The relevant question was about how incentives are modified not whether the behaviour changes

459. In paragraph 160 of his first report Dr Maldoom expressed the opinion that that the above scenario is more likely in the context of migration from TDM to IP networks. He accepted in cross-examination that this is only a theoretical possibility although not implausible. His concern is why even create the theoretical possibility. However, he considered that incentives should be the starting point for a regulator.

Erosion of economies of scale

460. Dr Maldoom identifies as the second type of possible distortion the potential of splitting ported and non-ported traffic to erode economies of scale by fragmenting traffic over different links when it could be aggregated. He accepted in cross-examination that leaving ported calls on BT's network for longer would allow BT to exploit economies of scale. When asked if it was for a CP to decide which is more cost effective, leaving on BT's network or moving to its own, Dr Maldoom's response was that behaviour would not necessarily follow the efficiency incentives.

Incentives to port numbers rather than issue new numbers

461. The third possible distortion identified by Dr Maldoom is that RCPs might have an incentive to port numbers rather than issue a new number. He accepted that if the costs of acquiring a ported customer are reduced that could incentivise the acquisition of such a customer. Dr Maldoom's point was that, although it is not of much practical significance, there is an oddity in creating differences in the incentives to acquire a customer.

Reduction of incentives for CPs to interconnect deeper into BT's network

462. The fourth possible distortion is the possible reduction of incentives for CPs to interconnect deeper into BT's network. Dr Maldoom accepted that there is

already extensive interconnection and that further inter-connection is already unlikely for reasons other than the cost standard.

Incentives to move to direct routing

463. As regards direct routing, Dr Maldoom argued in his first expert report that reduced porting charges could give CPs an incentive to maintain indirect routing even if total industry costs could be reduced by moving to direct routing. He criticised Ofcom for simply assuming that LRIC would allow adequate incentives for moving to direct routing. At LRIC, porting conveyance services would be cheaper than the commercial price for conveyance. Ofcom has not considered this issue.
464. He agreed in cross-examination that if the industry are to move to direct routing the common costs recovered for APCCs set above LRIC would have to be recovered elsewhere.
465. Dr Maldoom agreed that in terms of the incentives for BT to switch from TDM to NGN, ported traffic is only about 20% of BT's total traffic across its network. The decision to make the multi-billion investment would not turn on the level of APCCs. The level of APCCs would not affect incentives to turn on the NGN but might affect turning off TDM and migration from that to NGN. He accepted that if BT had to keep some TDM switches open because of the increment of ported traffic that they carry, LRIC could capture the incremental cost of keeping BT's network provisioned to carry the increments of ported traffic, although he described that as an imaginative interpretation of LRIC.
466. As regards Mr Godfrey's suggestion that the correct incentives to migrate to direct routing will be captured by LRIC, Dr Maldoom agreed that that would be the case in the first best world but in the real world there are deviations from the first best.

Dr Maldoom's re-examination

467. In his re-examination Dr Maldoom said that in his cross-examination he and Counsel for Ofcom has agreed on lots of points about how competition might

work. The trouble was that Ofcom has carried out no analysis along the lines discussed to see what the effect actually is.

468. Dr Maldoom was asked what kind of analysis would be necessary to identify the effects of a move to LRIC on retail competition.

469. He answered in the following terms:

“I think one would want to look, as we discussed earlier, at the question of the incentives to attract customers from other CPs and what effect APCCs might have on that. In this regard, everything is not symmetric. So yes, there’s obviously a question about taking a customer over from BT, but there are also questions about customers who might be moving amongst the other large CPs who are around two thirds of the market, something like that, who might be porting within those number ranges which might then in future be dealt with possibly under direct routing arrangements. So those are all things which need to be looked at separately.

We had this question about what are the effects on the incentives to acquire a customer, and I think as we heard earlier, then in a world in which a customer is buying a bundle of services, if we have a cost penalty which is associated with their incoming calls, we have to then think about materiality, about what other services they are buying and whether having a small cost penalty associated with their incoming calls, whether that can have any conceivable effect.

It may be that there are certain customers for whom that is significant, but then we have to ask, how many are there? How important are those to competition? We have to also ask about pricing and the extent to which prices generally, versus the segmentation of the market, if we think that there are particular groups that are particularly affected by porting charges.

So there’s a whole raft of questions to actually address that properly.”⁸⁴

(c) Ofcom’s expert evidence (Mr Godfrey)

470. Mr Godfrey (of Ofcom) produced one expert report. He was cross-examined by Counsel for BT.

Section 2: Summary of key economic principles and regulatory background

471. Mr Godfrey addressed the appropriate cost standard in the context of efficiency. For reasons given in paragraphs 434 to 435 above, namely that Mr Godfrey

⁸⁴ Day 5/ pp82-83.

accepted that there was a need to identify a countervailing benefit from lowering a price for a particular service to LRIC that outweighs the implicit cost of reducing the contribution to common costs that that particular service makes, we do not consider it necessary to address this evidence.

472. In paragraph 34, Mr Godfrey characterised Ofcom’s decision in the following terms:

“(a) There are good reasons to minimise the costs faced by a CP when acquiring a customer who switches from and ports their number to another CP. First, lower switching costs facilitate the competitive process which benefits all customers and, second, there are wider benefits to callers, not just those that port their number;

(b) Porting charges below LRIC impose a loss on the DCP (and while in general external benefits could justify pricing below LRIC, certain costs associated with porting are explicitly non-recoverable already). However, it is not necessary for porting charges to be priced above LRIC (i.e. some form of LRIC+), because common costs can be recovered on other services (retail or wholesale) and in competitive markets a losing provider would not expect to be able to earn revenues (let alone contribute to common costs) when it loses a customer;

(c) In relation to the other principles of pricing and cost recovery considered relevant (i.e. cost causation and cost minimisation), LRIC was considered to perform slightly better;

(d) Therefore, LRIC strikes the appropriate balance between minimising charges for porting services, yet providing the opportunity for the DCP to avoid a loss on the chargeable porting services.”

Section 3: Competitive market pricing and cost orientation

473. In paragraph 49 - 53, Mr Godfrey explained that in his view, any judgment on the appropriate measure of costs to use as a basis for regulated charges needed to be made in the context of the regulatory framework. The regulatory basis for intervention under GC18 was to facilitate consumer choice and effective competition. To facilitate the competitive process, it was important that any charges levied by the losing provider on its rival (the gaining provider) are kept to a minimum.

474. In paragraph 62 Mr Godfrey concluded:

“62. In my view, the range of prices set in unregulated inter-switch conveyance markets (even if these are competitive markets for traffic in general) is likely to be wide both in theory and in practice. Even if inter-switch conveyance prices were cost oriented in a general sense, I do not think they can be presumed to be appropriately cost oriented for the regulatory aim of minimising the costs of porting and switching between CPs.”

475. In paragraphs 67 to 68 he added:

“67. Prices at LRIC+ can be interpreted as cost oriented if the “+” is no higher than necessary to recover total costs calculated across the relevant set of services sharing common costs.

68. However, for the reasons explained earlier, the appropriate form of cost orientation depends on the regulatory objectives in question. In the context of APCCs, I disagree with Dr Maldoom that the appropriate interpretation of cost orientation is LRIC+. I consider that LRIC represents the form of cost orientation most consistent with the regulatory aim underpinning the regulation of porting charges, including APCCs.”

476. For the reasons given in paragraphs 438 and 439 we do not address Mr Godfrey’s evidence on cost causation and cost minimisation,

Section 5: Incentives to move to direct routing⁸⁵

477. Mr Godfrey also dealt with incentives to move to direct routing in this section of his expert report.

478. Mr Godfrey disagreed with BT that direct routing was necessarily more efficient than onward routing. That depended on whether the NPV of the setup and ongoing costs of direct routing are less than the NPV of the LRIC of onward routing. A comparison was last carried out by Ofcom in 2010. The NPV of direct routing relative to onward routing was found to be negative over 7 and 10 years based on fixed to fixed traffic alone.

479. In any event Mr Godfrey disagreed that APCCs at LRIC would create inefficient price signals to CPs to consider the optimal choice. Prices at LRIC would give efficient price signals. Therefore in seeking to provide efficient price signals to

⁸⁵ In his report, Section 5 has the title “Choice of cost standard – arguments regarding cost minimisation” but for convenience we have used the label “Incentives to move to direct routing” as we regard this element to be the most important within that section of the report.

CPs to consider the optimal choice, it is more likely that the efficient choice will be made if APCCs are based on LRIC. He accepted that APCCs above LRIC will, other things being equal, create a stronger incentive to move to direct routing. However this would not be efficient if on a LRIC basis the forward looking costs of onward routing were lower than implementing and operating direct routing.

Section 6: Arguments regarding retail competition

480. In this section of his report, Mr Godfrey replied to Dr Maldoom's criticism of Ofcom's analysis of effective competition.
481. Mr Godfrey dealt first with the claimed insignificance of voice services on consumer decisions. He pointed out that Dr Maldoom offered no specific evidence that fixed voice services were of minor importance, and referred to research carried out relative to the Ofcom Communications Market Report in 2015. This showed 30% of landlines are purchased on a non-bundled basis. In 2014, 27% of household telecoms spend is on fixed voice. Around 10% of UK adults are in landline only homes.
482. Mr Godfrey next considered the claimed limitations on the potential for further gains in competition. He accepted that the first order of interventions was in relation to number portability itself and that the choice of cost standard is likely to be of secondary importance. However, even markets that are not characterised by dominance could potentially be made more competitive. The range of market outcomes is a continuum, not binary.
483. He then considered BT's arguments about the impact of wholesale charges at retail level. Mr Godfrey recognised that the overall impact on retail consumer bills was likely to be limited. Ported traffic was not balanced to the point where it could be concluded that it was irrelevant to competition. Porting charges worked to the disadvantage of entrant CPs since they were more likely to win customers that wanted to port their number.

Section 7: Arguments regarding wholesale competition

484. As regards arbitrage and incentives to split out ported and non-ported traffic, Mr Godfrey considered that it was not clear that there was an efficiency concern if in response to LRIC, CPs sought to convey more traffic onto BT's network. Arbitrage was not inefficient per se.
485. Dr Maldoom argued that splitting of ported and non-ported traffic has the potential to erode economies of scale in core networks by fragmenting traffic over different links. Mr Godfrey did not consider that this would lead to inefficiency.
486. Further, Mr Godfrey did not agree that if lower APCCs created incentives to use ported numbers rather than issue new numbers, this would lead to inefficiency.
487. Dr Maldoom argued that if CPs are to split ported and non-ported traffic, this could reduce the incentives for CPs to interconnect more deeply with BT. According to Mr Godfrey, it would not be inefficient for this to happen. Deeper inter-connection with BT would only be efficient if the CP could not carry the traffic at lower cost on its own network. Where CPs have already built out deep into BT's network, that investment would represent a sunk cost and the forward looking costs of using that network are likely to be relatively low.

Mr Godfrey's cross-examination

The need for Ofcom to justify a departure from LRIC+

488. Mr Godfrey accepted that either LRIC or LRIC+ would be consistent with GC 18, and that in principle Ofcom could have decided that LRIC was appropriate for some aspects of the service and LRIC+ for others. He agreed that in choosing LRIC for APCCs, Ofcom's objectives were consumer choice and effective competition.
489. Mr Godfrey was asked about allocative efficiency. In theory and in a narrow sense the higher over LRIC that a service was priced, the greater the loss of allocative efficiency. However, it was necessary for certain services to be priced

above LRIC to ensure cost recovery when there are fixed and common costs. Mr Godfrey accepted that that is why in commercial terms, it is exceptional to price at LRIC. It was also a fundamental principle in regulatory terms that CPs like BT should have a reasonable opportunity to recover common costs. Mr Godfrey accepted that one was, therefore, looking for sufficient benefit from the exclusion of common costs to justify that exceptional approach. We set out the passage in cross-examination below:

Q (Mr Palmer) You go on to explain at your [paragraph] 28 that it is necessary of course for certain services to be priced above LRIC to ensure costs recovery when there are fixed and common costs

A (Mr Godfrey) That's correct.

Q (Mr Palmer) That is why, in commercial terms, it's exceptional to price at LRIC?

A (Mr Godfrey) I think that's right. Typically, firms would be pricing above LRIC. It would depend on the competitive intensity. Some would be priced closer to, some further above.

Q (Mr Palmer) But all would be pricing so that somehow they can recover their fixed and common costs?

A (Mr Godfrey) Correct.

Q (Mr Palmer) And in regulatory terms as well it's a fundamental principle that CPs, like BT, should have a reasonable opportunity to recover their common costs?

A (Mr Godfrey) That is fair, yes.

Q (Mr Palmer) Even in SMP markets?

A (Mr Godfrey) Correct.

Q (Mr Palmer) If we depart from allowing a particular service to recover any proportion of common costs, there needs to be sufficient benefit, doesn't there, from the lower prices for that specific service, to outweigh the general presumption that common costs recovery should be broadly spread?

A (Mr Godfrey) I think it really does critically come to that trade-off between the expected benefits of pricing one service at LRIC with the common costs being recovered elsewhere, and that benefits analysis should not just be framed within a narrow allocative efficiency perspective particularly when we are talking about wholesale charges that would affect competition between CPs.

Q (Mr Palmer) So we are looking then for sufficient benefit from the exclusion of common costs to justify that exceptional approach?

A (Mr Godfrey) I think that's fair, yes.

Q (Mr Palmer) One of the reasons is, and we heard this from Dr Maldoom earlier, if you do not include an allocation to the common costs for a specific service, let's take APCCs, those common costs must be recovered elsewhere, so other charges must be raised further above LRIC and so, by definition, that must in turn involve a loss of allocative efficiency and a detriment to consumer welfare in respect of those services?

A (Mr Godfrey) Insofar as the margins on the other services do not already recover those common costs, that would be correct, that other prices would have to go up, but I think it would require close examination as to whether those other prices would go up or would need to go up.⁸⁶

Effective competition

490. In the section of the Guidance dealing with distribution of benefits (paragraphs 6.40 to 6.60), Ofcom has defined as Type 2 benefits those that “*arise from efficiency improvements and price reductions which result from increased competitive pressure due to the availability of number portability*”. Ofcom has referred back to and adopted that section when assessing effective competition.
491. In paragraph 6.54 of the Guidance, Ofcom states that the increase in porting conveyance charges (under the RCP pays rule as opposed to an equal split between RCP and DCP) would amount to £1.71 per year for a fixed customer and £1.24 per year for a mobile customer, based on annual bills of £255 and £185 respectively.
492. Mr Godfrey accepted that the effect of the Determination had been to reduce APCCs paid by CPs by just over a half. So the actual effect on costs saved by each RCP as a result of the reduction in APCCs would be broadly equivalent, around £1.71 per customer averaged across all of the RCP's customers and not just ported customers.
493. At paragraph 4.24.3 of the Guidance, Ofcom stated that it expected the impact on retail prices that would result from moving from LRIC+ to LRIC for porting

⁸⁶ Day 5/ pp101-103.

charges would be small. Mr Godfrey accepted that the effect on consumer bills would be relatively modest. However, the effect on the margins of the RCP would be likely to be more significant. The “*key point is where the porting charges add to the cost, reduce the margin, that is a skew which will always be faced by entrants. I think that is the point at which I become a little more concerned about incentives to compete.*”⁸⁷

494. In response to a question from Professor Reid, Mr Godfrey informed the Tribunal that Ofcom had not, for the purpose of the Guidance, carried out a quantitative analysis of individual potential customer benefits and costs in an explicit consumers’ surplus/producers’ surplus framework. Ofcom had made a qualitative assessment of, first, the benefit to the customer that switches and then the broader customer base, so, in fact, all the RCP’s customers. Ofcom had not carried out the sort of exercise carried out in the mid-1990s by NERA for the MMC. Mr Godfrey’s experience of using such an analysis in about 2006 in relation to mobile termination rates was that there are difficulties with the assumptions to be used in such a model and that it probably does not deliver the instructive results that may have been hoped for. Mr Godfrey does not consider that such an analysis is instructive in the context of a dynamic situation. In the present case one is considering wholesale charges that significantly affected the competitive dynamic between the alternative networks. Mr Godfrey said that “[...] *the analysis was primarily qualitative looking at the trade offs, and then ballpark orders of magnitude are then, if you like, quantified.*”⁸⁸

495. In paragraph 169 of his report, Mr Godfrey expressed the view that the overall retail pricing effects (of moving to LRIC) are likely to be limited. It was put to Mr Godfrey by Counsel for BT that if Ofcom considered that retail pricing effects were material it would have required to have looked at the retail impact by reference to different categories of customer and ascertain what the effect is on the RCP’s margins. Mr Godfrey accepted that one could do that type of analysis. He agreed that when selecting LRIC over LRIC+, Ofcom would need to find a specific benefit that justified that exceptional course - more effective

⁸⁷ Day 5/ p130.

⁸⁸ Day 5/ p137.

competition. He agreed that one does not find an analysis quantifying such benefits anywhere in the Guidance. The Guidance did not contain a quantitative assessment of the materiality of the reduced margins that LRIC+ would imply for RCPs in a situation where 75% of customers are bundled customers. The analysis is qualitative - that eating into the margins of entrant CPs, compared to the incumbent, would compromise their ability to compete for customers.

496. For the purposes of his report, however, and in response to Dr Maldoom's report, Mr Godfrey, in paragraphs 169 - 173, identifies in minutes (billions) 'Onward routed and ported in minutes for the year to end of October 2013 for calls to geographic and non-geographic numbers' for BT, Virgin, Sky, Gamma, Vodafone and TalkTalk and, in £M, 'Revenue from APCCs 2012Q4 to 2013Q3 across calls to geographic and non-geographic numbers'. From this he has concluded that ported traffic is not balanced to the point where one might conclude that it is irrelevant to competition (or at least the relative financial position between CPs) contrary to Dr Maldoom's argument in paragraph 150 of his report. As we have noted Dr Maldoom accepted this conclusion in cross-examination when the detailed figures were put to him. Accordingly, we do not consider it necessary to quote the confidential figures themselves.

497. For convenience, we quote paragraphs 166 to 173:

"Impact of wholesale charges at the retail level

166. As noted above, BT and Dr Maldoom argue that Ofcom acknowledged that the change in APCCs is small in the context of retail revenues and would be anticipated to have a limited impact on consumers. Dr Maldoom makes a further argument in his discussion of retail competition impacts that the balance of traffic arguments relevant to the assessment of termination markets would be of limited practical relevance only to the extent that ported traffic is imbalanced.

167. In response to BT and Dr Maldoom, I recognise that the overall impact on retail consumer bills is likely to be limited. However, I think it is important not to lose sight of what Ofcom was showing in section 7 of the Guidance, from which the excerpts relied on by BT and Dr Maldoom are taken (e.g. Guidance paragraph 7.12).

168. Section 7 of the Guidance presents a static impact assessment and shows that even if CPs sought to rebalance any lost wholesale revenues from reduced APCCs onto retail prices, the effect was likely to be small.

However, the dynamic impact of changes in APCCs is more complex and depends on the profitability of customers who port their number to different CPs; the balance of ported traffic overall for each CP; and the retail price reaction of different CPs (including how they expect rivals to respond).

169. While I accept that the overall retail pricing effects are likely to be limited, I would expect this to be driven by the tendency of rivals to BT to absorb APCCs within their margins, whereas for BT, APCCs above LRIC clearly work to its advantage in proportion to the amount of net onward routed traffic it provides to rival CPs.

170. Using information gathered in preparation of the Guidance, I show below the net position of CPs in terms of ported traffic (Figure 7). [...]

172. On the above basis, I do not think that ported traffic is balanced to the point where we might conclude that it is irrelevant to competition (or at least the relative financial position) between CPs, contrary to what I understand Dr Maldoom to be arguing at paragraph 150 of his report.

173. As explained by Ofcom in the Guidance (paragraph 4.69) porting charges work to the disadvantage of entrant CPs (since they are more likely to acquire customers that wish to port their number - as evidenced in the traffic flows presented in Figure 7). This effect is exacerbated under LRIC+ in which APCCs make a contribution to common costs.”

498. Mr Godfrey added that, in paragraph 220 of his report, he had listed BT’s wholesale services currently regulated on a LRIC basis and provided an indication of the level of expenditure by other CPs on these services prior to the prices being reduced to LRIC. According to Mr Godfrey these numbers gave the order of magnitude.
499. It was put to Mr Godfrey that as Dr Maldoom said in his second report at paragraph 78, all of the services referred to in paragraph 220 were closely associated with other services that already made contributions to common cost recovery through their ongoing charges. The key point, according to Mr Godfrey, was that as regards APCCs the common costs could be recovered elsewhere.
500. The analysis referred to in the foregoing paragraphs was not prepared for the purpose of producing the Guidance and has not been the subject of consultation.

It was prepared in response to Dr Maldoom's report. Mr Godfrey has drawn on material that was gathered for the purposes of the Guidance.

Distortions of wholesale competition

501. Mr Godfrey accepted that it was a relevant consideration whether distortions of wholesale markets are likely to occur. Mr Godfrey considered that even if APCCs are reduced, CPs such as Vodafone would opt to carry additional traffic at relatively low cost on their own networks. Arbitrage would only be a problem where it introduced inefficiency. Mr Godfrey considered it to be extremely unlikely that this would happen because most of BT's rivals now operated NGNs, which are a big investment. CPs with an NGN would want to get as many subscribers as possible onto it. Once a CP has bought an NGN network it would want to build it as quickly as possible and start to fill it with traffic.
502. Mr Godfrey agreed that a detailed discussion of these kinds of incentive effects is not raised in the consultation or the Guidance.

Direct routing

503. The issue of incentives for CPs to direct route was addressed in the Guidance in the context of consideration of the proposal that the RCP pays rule should be maintained. It was put to Mr Godfrey that there was no discussion in the Guidance of the effect that LRIC+ to LRIC would have on incentives to move to direct routing. Mr Godfrey referred to footnote 87 on page 39 of the Guidance, which recorded BT's submission that the choice of cost standard would affect incentives to direct route. The detailed reasoning in relation to incentives to direct routing is not in the section dealing with cost standard but in that dealing with the 'who pays' rule. The incentive effects would be similar. Mr Godfrey accepted that it would be hard to dispute in general that pricing would affect incentives.

New entrants disproportionately affected by APCCs

504. Mr Godfrey's evidence was that APCCs above LRIC amplified some of the competition effects of asymmetry of ported traffic between CPs in ways similar

to how termination rates above LRIC can amplify the impact of traffic differences on the competitive position between CPs. The reduction in termination rates from LRIC+ to LRIC produced a similar order of magnitude per customer effect to the effects discussed in section 6 of the Guidance.

505. It was put to Mr Godfrey that Ofcom's underlying assumption was that this disproportionate effect on new entrants is material. He responded that it is an observation about effects and not about their materiality. In the Guidance at paragraph 6.54 Ofcom had carried out a broad-brush analysis to conclude that APCCs would be at most 0.67% of the largest RCP's total revenue more under RCP pays than under a 50:50 DCP:RCP pays rule. The difference for the RCP of APCCs at LRIC+ as opposed to LRIC would be of the same order of magnitude when averaged over all customers.

Mr Godfrey's re-examination

506. In relation to incentives to move to direct routing, Mr Godfrey was referred to footnote 148 and also paragraphs 6.119 – 6.121 of the Guidance. The pricing signals faced by CPs in relation to a move to direct routing would come from both the choice of cost standard and who pays. Ofcom has sought to refer in section 4 to the discussion in section 6.

(d) The factual evidence relevant to Ground 3

507. Certain of the factual evidence was relevant to Ground 3, this mainly related to the effect of APCCs at LRIC on incentives for CPs to move to direct routing. As set out in section G(8) above, we have concluded based on the factual evidence before us that reducing APCCs to LRIC from LRIC+ does not materially reduce CPs' incentives to switch to direct routing.
508. Of relevance to Ground 3 also was Mr Farmer's comments on Dr Maldoom's evidence that "*voice services are only a minor contributor to consumers switching decisions in a world of bundled Internet and media services*". Mr Farmer stated that voice services were an essential part of Gamma's sales to the UK business market.

(e) BT's closing submissions

509. In his closing submissions, Counsel for BT submitted that when assessing the effect on effective competition - the key principle - Ofcom has failed to analyse to a sufficient degree the effects on intensity of competition in the retail market, the effect on the prices of BT's other services or the potential to create perverse incentives in the wholesale conveyance and transit market and incentives to move to direct routing.
510. The analysis that Ofcom has carried out into the issue of who pays for the "post-bounce" costs proceeds on the basis that the competition concerns that might arise are not sufficient to outweigh the conclusion that RCP pays. It is necessary to play the same reasoning back into the choice of cost standard.
511. Mr Godfrey now accepted that to justify moving to LRIC it would be necessary to identify a countervailing benefit beyond the fact that dropping prices leads to increased consumption and reduces the costs of those who pay APCCs.
512. In response to a question from Professor Reid, Counsel explained that BT's ultimate criticism was that at no point did Ofcom really engage with identifying the materiality of its concerns and consider whether these concerns amounted to sufficient reason to depart from the ordinary principle that a share of common costs ought to be recovered spread across all services.
513. Counsel adopted the detailed argument set out in his Skeleton Argument and sought to highlight the key points in BT's position.
514. The context was that, first, LTC and ITC were unregulated. BT could not charge a higher price than was currently being charged. Secondly, it was a matter of agreement that it was exceptional to price at LRIC, given that CPs must recover their fixed and common costs. Thirdly, Mr Godfrey accepted that it was a fundamental regulatory principle that CPs should be able to recover fixed and common costs; and it was common ground that the imposition through regulation of LRIC required justification by reference to the identification of a sufficient countervailing benefit. Further, Ofcom fully accepted that the merits of LRIC do not dramatically outweigh the merits of the other.

515. There was no dispute that the key point in Ofcom's preference for LRIC was the principle of effective competition. There was a central inconsistency between section 6 of the Guidance with the position that Ofcom now sought to advance, that there is a material effect on retail competition. There is no assessment of the materiality of the broadly stated principles that Ofcom relied on in section 4, namely that it would cost RCPs less if you lower the APCCs, so therefore they have greater incentives to compete for customers, or of the proposition that new entrants would disproportionately be paying ported charges. In the absence of an assessment of the materiality of the effects on competition there was no basis to decide that that benefit was sufficiently material to overcome the presumption of LRIC+. If Ofcom had done the analysis and concluded that the effects on competition are material, it would have needed to reconcile that with its decision that RCP pays.

516. Ofcom did not assess competition at the wholesale level either.

517. Crucially there had been no analysis of incentives to direct route. Whether there are incentives to move to direct routing would depend on a cost benefit analysis. Mr Godfrey has accepted that those incentives are relevant but Ofcom has failed to assess them.

(f) Ofcom's closing submissions

518. Counsel for Ofcom started his submission by making three overarching preliminary points.

519. First, he reminded the Tribunal of the statutory provisions regulating the Tribunal's powers in an appeal under section 192(2) as elucidated by the CAT in *British Sky Broadcasting Ltd & Ors v Ofcom* [2012] CAT 20.

520. Secondly, contrary to BT's submission, the Tribunal is entitled to have regard to the evidence in Mr Godfrey's expert report, even if it has not been relied on in the Guidance. The reasons given by Ofcom in the Guidance and the Determination are informed by the wider industry awareness referred to by Mr Godfrey.

521. Thirdly, Ofcom had engaged in industry wide consultation.

522. Ofcom attached importance to effective competition for two reasons. First, Recital 42 of the USD made it clear that number portability was intended to facilitate competition through switching and that, amongst other things, charges should not hinder consumers from changing providers. Second, Ofcom's principal duty was to further the interests of consumers where appropriate by promoting competition under section 3 of the Communications Act.
523. Ofcom's analysis of effective competition started at paragraph 4.67 of the Guidance. Ofcom split the issue into three themes: incentives to compete, recovery of common costs and costs excluded under GC18.
524. On the first issue, incentives to compete, the point made at 4.68 is that the higher the porting charge the RCP has to pay the fewer incentives it would have to compete intensively to gain customers that are likely to port their number. Dr Maldoom explained in his evidence that he agreed with this as a matter of principle; where he took issue is with the magnitude of the incentive effect. A large part of Dr Maldoom's reason for disagreeing on the magnitude of the effect was his view that a CP could not discriminate between ported and non-porting customers. But he accepted, when pressed, that there were a number of means of discriminating between ported and non-porting customers: bill boards targeting BT's customers, targeted rates, mailings, and so on.
525. At paragraph 4.69, Ofcom made the point that another disadvantage would arise in consequence of the imbalance in the number of ported customers each CP has, which would be likely to disadvantage later entrants since they will have to pay porting charges for a greater proportion of their customer base.
526. Dr Maldoom accepted that the imbalance indicated the type of customer that each CP might acquire, which can then be expected to shape the CP's incentives to acquire ported customers. His written evidence was that he would expect any traffic imbalance to iron itself out over time. He thought consumers would move back and forward between providers, so that eventually all CPs would have a balanced spread of new and ported customers. But in cross-examination he accepted that he had not appreciated that consumers who port away from BT and then move back become un-porting but that former BT customers moving

between other CPs would always remain ported. This substantially undermined any tendency for the imbalances to equalise over time. Dr Maldoom accepted that the data on traffic imbalances showed there to be a substantial imbalance between CPs.

527. Thus far, then, there was a substantial amount of common ground between the experts in relation to the effect of higher APCCs and traffic imbalances.
528. As regards Dr Maldoom's reliance on the diminishing effect of voice services, Mr Godfrey's evidence had demonstrated that this is still a very important market. 30% of homes with landlines purchased them on an unbundled basis. Dr Maldoom accepted that competition in this sector was relatively weak.
529. Mr Godfrey was cross-examined at length in relation to section 6 of the Guidance on the subject of whether the RCP or OCP should pay porting charges. BT's Counsel relied on Ofcom's conclusion that a small bill increase would not deter customers from porting their numbers and argued that the same logic would apply to the incentive effect in this case. However, this argument failed to take account of the key point that Ofcom was not looking at the impact on consumer prices but on the incentives for CPs to acquire porting customers.
530. For these reasons Ofcom was correct to conclude that effective competition at retail level pointed towards LRIC.
531. Counsel for Ofcom founded on Dr Maldoom's evidence that "[...] *it is a balance. I think this is my ultimate conclusion. You have these retail effects on one hand, and you have got various wholesale effects, of which there's a large ragbag of them, and we in some sense try to balance that. [...] we are worried about these other potential wholesale impacts.*"⁸⁹
532. Counsel submitted that that was the very exercise that Ofcom is engaged in - a regulatory balancing exercise. As Dr Maldoom has recognised, if it had not been necessary to strike a balance, the criterion of effective competition could have supported an even lower cost.

⁸⁹ Day 5/ p52.

533. In striking the balance, Ofcom had particular regard to the fact that APCCs at LRIC would require BT to recover more common costs from other sources. Ofcom concluded that the increase in charges on BT's retail customers would be small relative to BT's annual rental. Dr Maldoom has agreed with that conclusion.
534. Under direct routing the common costs would not be recovered via APCCs.
535. BT raised two other countervailing considerations - distortions in the wholesale market and incentives to direct route.
536. In relation to retail competition Dr Maldoom accepted that Ofcom has identified the relevant incentives but argued that in the real world these incentives are unlikely to have much impact. However, when it came to alleged distortions of the wholesale market, he was identifying hypothetical incentives rather than looking at behaviour.
537. Ofcom's position was that in relation to retail competition, Dr Maldoom played down the real world significance of the incentives; whereas in relation to distortions and direct routing, the real world evidence showed his concerns to be misplaced.
538. The evidence showed that the concern about APCCs at LRIC pushing traffic onto BT's network was not realistic. At the prices prior to the determination the only CP picking up at the DLEs is TalkTalk. The evidence of Mr Rosbotham of Vodafone was that where a CP was already connected at the Tandem, it would much prefer to collect the traffic there than leave it on BT's network. A CP in that position would prefer to bear the incremental cost of the call on its own network as the incremental cost would be very low where there is spare capacity.
539. The second hypothetical distortion mentioned by Dr Maldoom was that splitting ported traffic would lead to fragmenting of traffic over different routes thereby eroding economies of scale in the networks. This hypothesis was not readily understood. Such traffic would be aggregated with other traffic to BT's network and thereby would benefit from economies of scale.

540. The third hypothetical distortion is that CPs might have an incentive to port numbers rather than issue new numbers. Ofcom's position was that this would not be a distortion but would promote the benefits associated with porting.
541. The fourth hypothetical distortion was that LRIC would reduce the incentives for CPs to interconnect more deeply into BT's network. The evidence was that there is extensive interconnection at the Tandem layer. At the DLE layer, BT required a segregated link for ported traffic and imposed contractual limitations that CPs found inconvenient. Further, Mr Morden's evidence was that BT does not want extensive additional interconnection at DLEs because it planned to close them as part of its proposed move to NGN. The DLE handover product has been available since 2010. The price of APCCs has been at LRIC+ for five years. Only one CP, TalkTalk has used the DLE handover product. In any event it might be that the links are subject to GC18 and required to be priced at LRIC in which case the distortion would not arise because the conveyance cost and the interconnection cost would be the same.
542. In relation to incentives for direct routing, this point was raised in the consultation process, unlike the alleged wholesale distortions now being pursued. This matter is discussed in section 6 of the Guidance, the section dealing with who is to pay, because it was in relation to this issue that BT raised incentives to direct route. The consultation had not proposed mandating direct routing because the cost benefit analysis in 2010 had been significantly negative and there was no reason to hold that that conclusion is no longer valid.
543. In paragraph 6.121 of the Guidance, Ofcom has stated: "*Direct routing between two CPs would only be efficient where the costs identified in the previous paragraph are lower than the benefits of avoiding onward routing and, hence, cost based porting charges.*"
544. This paragraph showed the link between the discussion about direct routing and efficient charges for porting conveyance. Ofcom had already concluded that porting charges are efficient when set at LRIC. That is the first best or closest to that in the regulatory context. Ofcom has not failed to address incentives to direct route.

545. The CPs gave evidence to the Tribunal that they had strong incentives to direct route independent of the price of APCCs.
546. There was, in any event, no substance in the suggestion that BT would have to keep its TDM network going to provide onward routing. It could move all traffic to the NGN network and charge at the LRIC of the NGN network for so long as NGN and TDM are judged both to be valid efficient choices. If BT did have to keep ported traffic on the TDM network, it could charge at LRIC for that. As other services dropped off the TDN network, the LRIC would increase.
547. Ofcom did not accept that any of the distortions advanced by Dr Maldoom would arise in the real world. What Ofcom wanted to ensure was that market participants faced the right incentives to make efficient choices. As explained in paragraph 6.121 of the Guidance efficient choices would be determined by LRIC.
548. In relation to quantitative analysis, Counsel noted that BT has suggested at certain points during the hearing that Ofcom should have done an analysis of different customers or a detailed model of economic welfare. Normally on an appeal on the merits the appellant would provide the information said to have been omitted. BT has not done that. This was not part of BT's grounds of appeal. Cost benefit analysis had been raised only in the context of direct routing. Had BT made an issue of the lack of a wider quantitative analysis, Ofcom would have defended that on the basis that it has reached a lawful regulatory judgment about the appropriate analysis. Mr Godfrey's evidence was that such an analysis did not always deliver the desired results, given the various assumptions and trade-offs involved. That point was made in the Guidance at paragraph 6.47.

(g) CP Group's closing submissions

549. The case in favour of LRIC was a strong one. BT was incorrect in submitting that in order to depart from LRIC+, Ofcom had to identify some specific exceptional reason or countervailing benefit. The correct approach was simply to ask which standard was the most appropriate having regard to the underlying purposes of Article 30(2) USD.

550. If a specific justification were required, that was supplied by the specific context, number porting. It was exceptional for a business that lost a customer to continue to earn revenues from that customer and to be required to continue to provide services to that customer.
551. Dr Maldoom accepted in paragraph 149 of his report that the level of porting charges might have an effect on competition for ported customers, but expressed the opinion that there has been inadequate analysis of the cost of a LRIC approach. Dr Maldoom has failed to explain why it would have been proportionate to have carried out such an analysis.
552. The fact that LRIC v LRIC+ might be expected to have a relatively small effect on retail competition did not mean that Ofcom has no rational basis for preferring LRIC.
553. Business customers do not purchase multiproduct bundles. Vodafone's business was for fixed line business customers. It was unrealistic for Dr Maldoom to suggest that business customers could use geographic numbers.
554. It was somewhat rich of Dr Maldoom to criticise the limitations of Ofcom's analysis in view of the limitations of his own analysis.

(h) BT's closing submission in reply

555. Mr Godfrey had confirmed that Ofcom did not rely on his quantitative evidence on retail competition impact at the time of the Guidance.
556. BT was not challenging section 6 of the Guidance. It was, however, entitled to rely on inconsistencies between it and section 4.
557. Ofcom had failed to identify the materiality of its concerns in relation to effects on retail competition. Dr Maldoom agreed that, in principle, the higher the porting charges that the RCP paid, the fewer the incentives it had to compete intensively to gain customers that are likely to port their number. He disagreed, however, in relation to materiality. Materiality was the 'elephant in the room'. In the real world there was no evidence that CPs could discriminate when seeking customers between ported and non-ported. Ofcom ought to have

analysed the narrow band market and competition in voice (as opposed to bundles) on which Counsel for Ofcom places so much importance.

558. Only Ofcom was in a position to carry out the sort of analysis that should have been carried out in this case. All that BT could do was look at the analysis and identify any missing link. Ofcom had identified a principle but had not shown how that operates in the real world. It was not incumbent on BT to do a market wide survey on the effect on other CPs. Prima facie, if one looks at the numbers, there would be no impact at all. Ofcom accepted that the effect on consumers' bills would be immaterial.
559. Further, Ofcom had never assessed the possible wholesale distortions or the effect on incentives to direct routing raised by Dr Maldoom.

(4) The Tribunal's decision on Ground 3

560. We propose to structure our decision as follows:
- (a) The legal approach to an appeal on the merits
 - (b) Outline of the Tribunal's views as to which are the key issues
 - (c) Effective competition - Dr Maldoom's evidence that effects on retail competition are likely to be limited - the need for quantitative analysis
 - (d) Potential distortions in the wholesale market
 - (e) Incentives to move to direct routing
 - (f) The relevance of the previous adoption of LRIC+ by the regulators
 - (g) Inconsistency between sections 4 and 6 of the Guidance
 - (h) Inconsistency with Ofcom's treatment of DCCs and direct routing
 - (i) Allocative efficiency
 - (j) The analogy with two-sided markets
 - (k) One-off migration charges set at LRIC
 - (l) Whether it is appropriate for BT to earn a margin from lost customers
 - (m) Overall conclusion on Ground 3

(a) The legal approach to an appeal on the merits

561. For the reasons set out in section B4 above, we proceed on the basis that we should not interfere with Ofcom’s exercise of its judgment that APCCs should be set at LRIC unless we are satisfied that it is wrong. It is not for the Tribunal to set aside the determination on the ground that we might have preferred to have given different weight to the various factors considered by Ofcom in the exercise of its regulatory judgment.
562. An important issue arises in relation to the approach we should take to BT’s criticism that Ofcom has failed to quantify the materiality of effects on retail competition.
563. BT submitted that it was for Ofcom to identify material adverse effects. It was not for BT to identify what Ofcom would have found had it performed a quantitative analysis of the materiality of the effect on retail competition of APCCs at LRIC rather than LRIC+. BT did not have the information to enable it to carry out such an analysis.
564. BT referred to *Everything Everywhere Ltd v Competition Commission* [2013] EWCA Civ 154 at paragraphs 23 – 25 (“*Everything Everywhere*”).
565. Ofcom responded in its supplemental closing submissions by arguing that the passage relied upon by BT in *Everything Everywhere* makes it clear that the Appellant does ordinarily bear the burden of demonstrating the alleged flaws in the original decision but also the merits of the proposed alternative. At paragraph 25, Moses LJ left open the possibility that there could be a case in which an appellant might, “[succeed] *in so undermining the foundations of a decision that it cannot stand, without establishing what the alternative should be.*” At paragraph 26, his Lordship stated that he would expect such cases to be rare.
566. The *Everything Everywhere* case concerned a decision by the CAT on an appeal on the merits. Moses LJ dealt with the task facing an Appellant in these terms:

“23. *It is for an appellant to establish that Ofcom’s decision was wrong on one or more of the grounds specified in s.192(6) of the 2003 Act: that*

the decision was based on an error of fact, or law, or both, or an erroneous exercise of discretion. It is for the appellant to marshal and adduce all the evidence and material on which it relies to show that Ofcom's original decision was wrong. Where, as in this case, the appellant contends that Ofcom ought to have adopted an alternative price control measure, then it is for that appellant to deploy all the evidence and material it considers will support that alternative.

24. The appeal is against the decision, not the reasons for the decision. It is not enough to identify some error in reasoning; the appeal can only succeed if the decision cannot stand in the light of that error. If it is to succeed, the appellant must vault two hurdles: first, it must demonstrate that the facts, reasoning or value judgments on which the ultimate decision is based are wrong, and second, it must show that its proposed alternative price control measure should be adopted by the Commission. If the Commission (or Tribunal in a matter unrelated to price control) concludes that the original decision can be supported on a basis other than that on which Ofcom relied, then the appellant will not have shown that the original decision is wrong and will fail.

25. Usually an appellant will succeed by demonstrating the flaws in the original decision and the merits of an alternative solution. But that is not necessarily so. I would not rule out the possibility that there could be a case where an appellant succeeds in so undermining the foundations of a decision that it cannot stand, without establishing what the alternative should be. In such a case, if there is no other basis for maintaining the decision, the Commission or Tribunal would be at liberty to conclude that the original decision was wrong but that it could not say what decision should be substituted. The Tribunal would then be required to allow the appeal under s.195(2) and direct Ofcom to make a fresh decision with such directions as the Tribunal thinks are necessary to reach a properly informed conclusion. The Tribunal may wish to specify the steps to be taken by Ofcom to make good any deficit in evidence and material so as to reach a fresh decision, or leave it to Ofcom to act as it sees fit in the light of the Commission's conclusion.

26. I would expect such an outcome to be rare [...]"

567. Applying the approach taken by the Court of Appeal in the *Everything Everywhere* case, we consider that it is for BT in this appeal to establish that Ofcom's decision to prefer LRIC was wrong and that the appropriate cost standard was LRIC+, and in doing so to present the evidence on which the Tribunal should accept that conclusion.

568. That approach is relevant to BT's complaint that no quantitative analysis of the effects on retail competition was carried out by Ofcom. We consider that in relation to this issue it is for BT to establish that Ofcom could not have reached

a conclusion that LRIC was preferable without carrying out such a quantitative analysis. It is for BT to establish that such a quantitative analysis would probably have left Ofcom better informed about the effects on retail competition. We comment further on the issue of quantitative analysis below.

569. We also consider that, in relation to alleged distortions of wholesale competition and incentives to move to direct routing, it is for BT to establish these as factors that in fact invalidate Ofcom's decision. It is not sufficient for BT to point to them as hypothetical considerations that ought to have been considered.

(b) Outline of the Tribunal's views as to which are the key issues

570. Our approach is informed by the acceptance by Mr Godfrey in cross-examination, which we have quoted in paragraph 489 above, that in order to justify the exceptional step of moving from LRIC+ to LRIC, it was incumbent on Ofcom to identify a sufficient countervailing benefit.

571. Mr Godfrey also accepted in cross-examination that it was relevant to the exercise of identifying a sufficient countervailing benefit to consider whether adopting LRIC would produce distortions that outweighed that benefit.

572. The principal countervailing benefit identified by Ofcom, and supported in his evidence by Mr Godfrey, resides in the proposition that restricting APCCs to LRIC would promote effective competition between CPs for ported customers.

573. Against that background, in our opinion, the issues on which our decision must turn are effective competition, potential distortions in the wholesale markets and incentives to move to direct routing. That conclusion is supported by the emphasis placed on these issues by Counsel in their closing submissions.

574. Issues (h) to (k), listed in paragraph 560 above, were the subject of detailed argument and, in some cases technical economic, evidence from Dr Maldoom and Mr Godfrey. We consider, however, that none of these issues are material to the merits of Ofcom's decision to prefer LRIC to LRIC+. Accordingly in so far as we deal with these issues, we do so briefly.

- (c) Effective competition - Dr Maldoom's evidence that effects on retail competition are likely to be limited - the need for quantitative analysis
575. It is common ground that this was the decisive factor in Ofcom's preference for LRIC to LRIC+.
576. The reasoning contained in the Guidance on the issue of effective competition in so far as it related to cost standard is to be found in paragraphs 4.58 to 4.88.
577. Central to Ofcom's conclusion that a LRIC cost standard is most consistent with the criterion of effective competition were, first, the proposition, set out in paragraph 4.68 of the Guidance, that the higher the porting charges a CP has to pay, the fewer incentives it would have to compete intensively to gain customers that are likely to port their numbers, and, second, the proposition, set out in paragraph 4.69, that the cost standard could have an impact on barriers to entry and expansion because later entrants are likely to have a larger proportion of ported in customers than incumbent CPs.
578. In paragraph 4.70 Ofcom stated that "*Generally we wish to minimise the wholesale charges that affect the costs of acquiring customers or switching suppliers*".
579. In paragraphs 4.76 to 4.80 Ofcom addressed the issue of how common costs are to be recovered if LRIC is imposed on APCCs. Ofcom states "*We discuss at paragraphs 7.11 to 7.12 that porting charges are relatively small in the context of retail revenues (and common costs form only a portion of porting charges), therefore we expect any redistribution of common costs if we adopt a LRIC cost standard would have a small impact on the charges of the services from which they are recovered.*"
580. In his first report, Dr Maldoom, in paragraph 145 - 152 appeared to accept that to the extent that porting charges eat into termination revenues, incentives to win customers through porting could be reduced but considers that retail competitive benefits from lower porting charges are likely to be limited and weak. In cross examination he accepted that if there are additional costs associated with serving a ported customer in the form of APCCs there will be

less of an incentive to compete for such a customer's business. He qualified his agreement with the proviso that magnitude is important

581. Dr Maldoom gave three reasons why he considered the effect on competition likely to be of limited practical relevance. It was only relevant to the extent that ported traffic is imbalanced; voice services were now of fairly minor importance in customer's choice of telecoms provider; and the retail market is now competitive limiting the effect of further potential gains.
582. In relation to the imbalance of ported traffic, in cross-examination Dr Maldoom ultimately accepted that there are substantial imbalances in respect that CPs other than BT have substantially more ported customers than non-porting customers. He suggested that such imbalances were likely to equalise over time but that suggestion was based on an erroneous premise as he had not appreciated that consumers who port away from BT and then move back become un-porting but that former BT customers moving between other CPs would always remain porting.
583. As regards the contention that voice services are now of fairly minor importance in customers' choice of telecoms provider and that further gains in competition are likely to be weak, we noted above in our précis of Dr Maldoom's cross-examination that he disclaimed any factual basis for these propositions, characterising them as logical propositions. We do not consider that these propositions are consistent with the unchallenged factual evidence provided by Mr Godfrey that 30% of homes with a landline are voice only customers and that in 2014 27% of household telecoms spend was on fixed voice telephony. Landline only households are a segment of the market where BT has an especially high market share. Of customers who purchase bundles, the vast majority port their numbers. We also note Mr Farmer's evidence that Gamma's voice only customers are a significant source of Gamma's business.
584. Dr Maldoom accepted that the level of APCCs would have a larger effect on competition in relation to the 30% than the 70% purchasing bundles (on which there would also be some effect) but contended that there was still an issue about materiality. He argued that in order to assess materiality it would be necessary

it look at the market in segments but Ofcom had not done that. We deal below with the issue of quantitative assessment.

585. The Tribunal concludes from Dr Maldoom's evidence that he accepted that to some extent APCCs at LRIC as opposed to LRIC+ are likely to enhance retail competition for ported customers. We consider that his reasons for suggesting that retail competitive effects are likely to be weak and limited are invalidated by the factual evidence deployed by Mr Godfrey and summarised in paragraphs 481 to 482 above. Accordingly we find that APCCs at LRIC are likely, to some degree, to enhance retail competition for ported customers. As we note below, in paragraph 7.13 of the Guidance, Ofcom itself considered that the impact on competition would be small.

Quantitative analysis

586. In its closing submissions, BT argued that Ofcom should have carried out a detailed quantitative analysis of the materiality of the effect of cost standard on incentives to compete for ported customers in order to have a proper basis for concluding that APCCs at LRIC+ would have a detrimental effect on competition for ported customers, or at least a sufficiently material effect to justify restricting APCCs to LRIC in the context of possible distortions.
587. BT itself did not carry out or present to the Tribunal any such analysis. It was submitted by Counsel for BT that BT did not have the information to do so. The relevant information was in the hands of the CPs who were unlikely to share it with BT. Dr Maldoom supported that proposition in his evidence, but only in general terms. We do not consider that the matter was sufficiently explored in the evidence to enable us to make any finding as to the the validity of that contention, although we accept that Ofcom has statutory powers to obtain information not possessed by BT.
588. What is more significant, in our view, is that BT presented no evidence that a quantitative analysis could be devised which would have produced satisfactory conclusions. No evidence on this matter was elicited from Dr Maldoom.

589. The matter was, however, raised by Professor Reid with Mr Godfrey. We have summarised Mr Godfrey's evidence on this matter above but the full exchange is instructive:

Q (Professor Reid) If I may, because I think we are getting into quite a labyrinth of costs and benefits, the possible missing categories like benefits to RCP customers. What I wanted to know was: behind these various accounts of cost and benefits, at any point were all potential customer benefits individually looked at and all potential costs individually looked at, in a kind of explicit consumers'/producers' surplus type of framework?

In other words, you have been talking about a full efficiency, if you like 'first-best, type of competitive equilibrium, so that kind of calculation should be possible. But actually one does search in vain for that form of calculation, and that sometimes means there may be categories that are missing which are part of what the hunt is on about at the moment.

So behind this is somebody who is an in house researcher within Ofcom. Was that kind of exercise undertaken, where you enumerate all potential customer types and look at costs and benefits there in an explicit consumers' surplus/producers' surplus framework?

A (Mr Godfrey) I think there was a qualitative assessment of, if you like, first the benefit to the customer that switches, then the broader customer base of, if you like, customers on the same network, so all the RCP's customers. And built up in a qualitative way we looked at who might gain and who might who might benefit and where the costs fell.

We didn't do a quantified cost benefit analysis along the lines that you describe looking at some sort of general equilibrium model of sort of switching in the fixed telecoms sector.

Quite a sophisticated or a relatively sophisticated analysis was done by NERA for the MMC and obviously that was admittedly in the mid 1990s, so there is a question as to how much faith one would put on those numbers today. What we didn't propose doing was anything to that degree of sophistication for these purposes. What was felt was instructive was the relative ranking of how the benefits might fall where, if I recall correctly, the type 1 benefits, which is the benefits

to the individual, were felt not to be as significant as the broader benefits of competition engendered by more porting and switching, and the benefits to the calling parties were felt to be relatively low compared to those first two.

Q (Professor Reid) I am familiar with the NERA study and those methodologies do have their weaknesses as well. But one of the big advantages is it goes beyond qualitative assessment and allows you to tot up benefits to different consumer types, for example, and to tot up the dis-benefits, if you like, to get an aggregate sort of score. Whereas what we are doing here is really fiddling around to look at small categories of advantage and disadvantage without seeing how it adds up in the large. So is there a reason why you didn't update, as it were, a NERA type study?

A (Mr Godfrey) I think in the realms of having attempted these in the past, in fact ironically, I think I was supporting my colleague at the time on mobile termination rates, just over 10 years ago, and I think Dr Maldoom was acting for one of the parties at that time, where fairly sophisticated models of consumer/producer surplus, and the distribution of how changes in termination rates affected the suite of services traded off was undertaken. Where that ended up shifting I think, well, ultimately in litigation, but firstly engaging with the industry, was just around the difficult assumptions and the trade offs within that model. I think ultimately it was felt probably not to deliver quite the instructive results that we hoped. And because of the complexity of such an exercise here, we didn't undertake such a sophisticated analysis of consumer and producer surplus gains.

Q (Professor Reid) I think there are disadvantages to that type of exercise and also the resource costs are rather high, and you have limited time horizons on getting that result. I thought you might have said, and I picked up a phrase of yours earlier but in the same part of the evidence today, where you said: "going beyond narrower allocated efficiency considerations...", and then you considered rolling out some other types of arguments.

You either do the equilibrium thing properly and put the results together and stack them up to a set of net benefits, or you might be saying that there's an entirely different reason why, for example, there is a plus on LRIC, and are there motivations

for such a plus being there. But it's quite difficult for you to say that plus is zero if you do not have a general equilibrium calculation, in my view, if you are looking at it in terms of analytical economics.

A (Mr Godfrey)

I think I agree with you if you are looking at a purely static model. Suppose we were talking about setting retail prices by a monopoly telecoms network, then perhaps that environment does lend itself to that kind of analysis where you would say: when would I mark up a service? Not at all. Well, clearly if the demand is highly, highly elastic and utterly price responsive, you would say that justifies no mark up for the purposes of allocative efficiency.

In the present context, I think when we are talking about wholesale charges, and wholesale charges that significantly affect the competitive dynamic between the alternative networks, then that kind of Ramsey pricing general equilibrium analysis becomes rather more difficult, and I think we encountered that when we were looking at the termination rates situation.

Q (Professor Reid)

I think that takes it as far as I want to at this moment. But it is part of my general misgiving, I think, about the way the quantitative side of the evidence has been led because, as you say, to a degree it is in fact qualitative. Would that be true to say?

A (Mr Godfrey)

I think it's fair to say that the analysis was primarily qualitative looking at the trade offs, and then ballpark orders of magnitude were then, if you like, quantified.⁹⁰

590. This was the only evidence about the efficacy of a quantitative analysis. We note in particular Mr Godfrey's evidence that:

"I think ultimately it was felt probably not to deliver quite the instructive results that we hoped. And because of the complexity of such an exercise here, we didn't undertake such a sophisticated analysis of consumer and producer surplus gains."⁹¹

591. BT's Counsel did not challenge this evidence in cross-examination. The line taken in cross-examination was that for the purposes of the Guidance, or the Determination, no quantitative analysis had been carried out. No evidence was

⁹⁰ Day 5/ pp134-137.

⁹¹ Day 5/ p136.

led from Dr Maldoom about the detailed nature or value of such an exercise. It was not put to Mr Godfrey that such an analysis would have left Ofcom better informed. As Counsel for the CP Group put it, BT did not establish in evidence that such an exercise would have been proportionate.

592. On the basis of Mr Godfrey's evidence, we accept that it was reasonable for Ofcom to proceed on the basis that a quantitative cost benefit analysis would probably not have advanced matters. We do not consider that there is any basis in the evidence for concluding that that judgment was wrong.
593. Having concluded on the basis of its qualitative analysis that there would be some enhancement of retail competition, Ofcom then balanced these effects against the effects of CPs having to recover common costs from other services.
594. In paragraph 4.76 of the Guidance, Ofcom recognised that if LRIC were adopted, the DCP would have to recover common costs from its remaining customers (in the absence of an exit charge).. It noted that in paragraphs 7.11 and 7.12 it discussed that porting charges are relatively small in the context of retail revenues (and common costs form only a portion of porting charges). Ofcom expected any redistribution of common costs to have a small impact on the charges of the services from which they would be recovered.
595. In paragraph 7.12 Ofcom noted that for the five fixed CPs that provided information in response to a formal information request in October 2013, in aggregate their current APCC revenues represented only around 0.2% of their aggregate retail fixed access and calls revenues. Dr Maldoom agreed in cross-examination that this would not have a material effect on BT's competitive position.
596. Ofcom noted that it expected fixed porting charges to fall, which would have a negative impact on net exporters of numbers, the biggest of which was BT. Even if BT were to seek to recover this loss in wholesale revenues from other (non-regulated) services - including from its retail customers, any impact on headline line rental/call prices would be very small.

597. Ofcom noted the arguments that it had heard from some CPs that APCCs should be set even lower than LRIC. After balancing these considerations, it concluded that APCCs should be set at LRIC.
598. As Counsel for Ofcom put it, Ofcom did not consider the benefits of LRIC dramatically to outweigh the benefits of LRIC+. In paragraph 7.13 it concluded that the Guidance (in so far as it related to, amongst other things, APCCs) was likely to have a positive, although small, impact on competition and consumers.
599. Ofcom's preference for LRIC was a decision reached on balance, having regard to the objectives of Article 30(2) USD. We do not consider that we have any grounds to hold that Ofcom was wrong in the way it balanced these factors.
600. Ofcom also considered that the principles of cost causation and cost minimisation supported its preference for LRIC. Counsel for Ofcom accepted that both of these principles played a relatively small role in Ofcom's decision.
601. Our view is that neither was material to Ofcom's decision to the extent that the decision would have been different had these two principles not supported LRIC. Accordingly we do not propose to deal with the detailed arguments advanced by the parties in relation to the application of these principles.
602. For these reasons, subject to the issue of whether the enhancement of effective competition is outweighed by the distortions and negative effects on incentives argued for by BT, (which we address below) we conclude that the Tribunal has no basis for concluding that Ofcom was wrong to hold that restricting APCCs to LRIC was justified on the ground that it would promote effective competition.

(d) Potential distortions in the wholesale market

603. As we have noted above, in paragraph 429 Dr Maldoom accepted that these potential distortions were hypothetical. His position was encapsulated by the rhetorical question "*Why create even the theoretical possibility?*"⁹²

⁹² Day 5/ p65.

604. We understood Dr Maldoom to mean by his use of the terms “hypothetical” and “theoretical” that he was not in a position to say that these distortions were likely to arise, merely that it was possible that they might do so, having regard to the incentives that would be created by imposing a LRIC cost standard.
605. In our view, the approach taken by BT, and by Dr Maldoom on its behalf, in relation to these hypothetical distortions, is not compatible with the observations of the Court of Appeal in the *Everything Everywhere* case. We consider that it is for BT to adduce the evidence to establish that any benefits in terms of effective competition identified by Ofcom are likely to be outweighed by incentives that are conducive to such distortions. We do not accept that it is sufficient for BT to raise these as hypothetical possibilities and to argue that Ofcom failed to address them, particularly where BT did not raise them during the consultation process that preceded the publication of the Guidance. For that reason alone, we would reject the contention that any benefits deriving from increased competition are outweighed by hypothetical wholesale distortions.
606. With that introduction, we turn briefly to consider the four categories of distortion postulated by Dr Maldoom.

Incentives to split traffic and arbitrage

607. Dr Maldoom’s suggestion, as we understood it, is that it is possible that with APCCs reduced to LRIC, a CP would have an incentive to leave ported traffic on BT’s network rather than pick it up at the first Tandem to which it was connected.
608. The choice for a CP would be to collect the traffic at the earliest point possible on the Tandem layer or to leave the traffic on BT’s network for as long as possible. That CP has a choice between the incremental cost to it of routing the call on its own network or pay the LRIC of keeping it on BT’s network. If the CP had the capacity to do so the incremental cost of its own network would be very low. We did not hear any evidence that demonstrated that there was likely to be a cost advantage to such a CP of incurring APCCs.

609. Mr Rosbotham, (of Vodafone), explained that substantially for operational reasons, that CP would prefer to accept the very low incremental cost of routing the call on its own network to paying BT's APCCs. It would be unacceptable to Vodafone's customers to have calls that could be accommodated on Vodafone's network to be held up on BT's.
610. We note Dr Maldoom's distinction between incentives and actual behaviour, but we do not consider that BT has produced any evidence that Vodafone's likely behaviour is at odds with the relative incentives inherent in a CP using its own network or using BT's.
611. Accordingly, we agree with Ofcom that this hypothetical distortion is not plausible.
612. In any event, even if it were to occur, like Mr Godfrey, we are unable to view this as a distortion or giving rise to inefficiency, as a CP would only be incentivised to behave in this way if it reduced its overall costs.

Economies of scale

613. We agree with Ofcom that this alleged distortion is difficult to understand. We accept Mr Godfrey's point that if a CP were to send traffic onto BT's network rather than its own, the traffic would be aggregated with other traffic on BT's network and would thereby benefit from any economies of scale. Dr Maldoom did not produce any evidence, or otherwise justify the proposition, that the economies of scale enjoyed on BT's network were likely to be less favourable than those available if the ported traffic were kept on the CP's network.

Incentives to use ported numbers rather than issue new numbers

614. We agree with Ofcom that it is not clear that this result would be a distortion in a statutory context that is designed to encourage porting and its attendant benefits, for example to callers and in relation to the scarcity of new numbers.

Incentives to interconnect deeper into BT's network

615. We note that Dr Maldoom volunteered that this was of limited practical relevance. The evidence discloses that there is already extensive interconnection at the Tandem layer.

616. For these reasons we reject the submission that the benefits in terms of effective competition of adopting a LRIC cost standard is likely to be outweighed by distortions in wholesale markets.

(e) Incentives to move to direct routing

617. BT's case is that restricting APCCs to LRIC has the potential to reduce incentives for CPs to move to direct routing. It argues that Ofcom has failed to address this issue.

618. From Mr Morden's evidence, we understand that BT in this argument is not seeking to establish that APCCs at LRIC would prevent or inhibit an industry wide adoption of direct routing, which otherwise should be mandated by Ofcom. For that reason BT did not consider it necessary for Ofcom to carry out a fresh cost benefit analysis of direct versus onward routing for the industry as a whole. Rather, the point is that APCCs at LRIC would weaken the incentives for individual CPs to make bi-lateral agreements to direct route between each other.

619. We note that Dr Maldoom did not advance the proposition that direct routing was in fact currently or was imminently likely to be more efficient than onward routing - rather, his point was that the balance of costs and benefits would even out over time. Nor did he go so far as to argue that APCCs at LRIC would be likely to affect CPs' incentives to move to direct routing, only that they had the potential to do so. He argued that Ofcom had failed to address the issue.

620. For the reasons we set out below, we found the factual evidence of the CPs to be more instructive than the more theoretical economic evidence.

Whether Ofcom addressed the effect of cost standard on incentives for direct routing

621. Ofcom addressed the issue of incentives to move to direct routing in section 6 of the Guidance (paragraphs 6.95 to 6.139), in the context of the who-pays rule. It did so because it was in that context that BT had raised the issue during the consultation process.
622. Ofcom recorded in paragraph 6.95 of the Guidance that it noted in the March 2014 Consultation that its analysis of the relative costs of onward and direct routing in the 2010 review of routing calls to ported numbers suggested that mandating direct routing was not appropriate in 2010. It considered that that the results of that analysis are still valid.
623. In the Guidance, at footnote 147 on page 69, Ofcom gave its reasons for considering that the overall conclusion of the 2010 cost benefit analysis remained valid. Although the costs may have fallen, the benefits will also have gone down with declining traffic volumes.
624. In paragraphs 6.120 Ofcom listed the costs of direct routing and, in paragraph 6.121, states that direct routing between two CPs would only be efficient where the costs of implementing direct routing were lower than porting charges at LRIC.
625. Counsel for Ofcom submitted that, in paragraphs 6.120 to 6.121, Ofcom addressed the issue of incentives for direct routing in relation to the issue of cost standard. He submitted that paragraph 6.121 shows the link between incentives for direct routing and efficient charges for portability and tied that in with Mr Godfrey's evidence that APCCs at LRIC would provide efficient incentives for direct routing.
626. We are not persuaded that that is the case. We do not find in the Guidance any consideration by Ofcom of the effect of APCCs at LRIC on incentives to move to direct routing. In paragraph 6.131 Ofcom states that "*we conclude that on balance an RCP pays charging rule is unlikely to act as material barrier to CPs implementing direct routing between themselves when it is efficient to do so.*" There is no corresponding conclusion in relation to the effect on incentives of a LRIC cost standard.

627. It is not surprising that Ofcom did not address the effect of APCCs at LRIC in the context of cost standard because no representations were made on that subject during the consultation process.
628. For the reasons set out below, we find that, notwithstanding that Ofcom did not address the issue in the Guidance, the evidence does not support BT's contention that APCCs at LRIC would adversely affect incentives to direct routing.

Effect of APCCs at LRIC on incentives for individual CPs to agree direct routing with other CPs

629. Mr Godfrey argued in his report that APCCs at LRIC will give efficient price signals in the assessment to be made by CPs as to whether to move to direct routing. While that may be true as a matter of economic theory, the evidence from the CPs was consistently to the effect that, in practice, the level of APCCs has played or is likely to play no part in the incentives for CPs to move to direct routing. Accordingly, we did not find this way of approaching the issue to be illuminating.
630. Although the CPs' witnesses agreed that a commercial benefit of direct routing was reduced APCCs, we heard no evidence that the level of APCCs in practice had influenced or were likely to influence CPs in deciding whether to move to direct routing. It appeared to us that this commercial benefit was entirely theoretical and, in reality, played no part in CPs' decisions to move to direct routing.
631. On the contrary, the evidence presented by the CPs, which paints a fairly consistent picture, contradicts BT's submission that APCCs at LRIC are likely to distort incentives to move to direct routing. We found Mr Morden's evidence on this issue to be unpersuasive.
632. The evidence discloses that from the perspective of the CPs, they have strong incentives to move to direct routing irrespective of whether APCCs are priced at LRIC or LRIC+. CPs other than BT have already moved or are making the move to NGNs that will support direct routing amongst them. Call quality is a

more important incentive than the level of APCCs. The level of APCCs has not influenced negotiations between CPs with a view to agreeing direct routing.

633. We accept the evidence of the CPs that negotiations have been proceeding productively in relation to direct routing with other CPs. We do not accept the sceptical inference drawn by Mr Morden based on the time that these negotiations are taking in the light of the evidence of the CPs' witnesses as to the reasons for the delay.
634. As an adjunct to this submission, BT argued that APCCs at LRIC would require BT to keep its TDM network going for longer than it would otherwise do specifically in order to cater for onward-routed ported traffic.
635. We agree with Ofcom that the fatal flaw in this argument is that, if it so wished, BT could opt to provide onward routing in its (hypothetical new) NGN. It is for BT to decide how to meet that need, whether on its TDM or on an NGN network. In either case, it would be entitled to charge the LRIC for that service. As other services drop off the TDM network, the LRIC would increase.
636. For these reasons while we accept BT's submission that Ofcom did not in the Guidance address the issue of whether APCCs at LRIC would distort incentives for CPs to move to direct routing, we do not accept that that BT has established that APCCs at LRIC are likely to have any practical effect on the decisions of CPs to agree direct routing with each other.
637. We now turn to deal very briefly with issues that, although keenly contested, we did not regard as material to the resolution of Ground 3.

(f) The relevance of the previous adoption of LRIC+ by the regulators

638. Dr Maldoom argues that previous regulatory decisions in relation to APCCs have favoured LRIC+ in order to achieve consistency between charges for ported and non-ported traffic using the same network. He contends that it is incumbent on Ofcom to explain why it was abandoning that approach in the Guidance.

639. In our view Mr Godfrey was correct in his contention that Ofcom required to look at the matter afresh when producing the Guidance.

(g) Inconsistency between sections 4 and 6 of the Guidance

640. We understand the point to be that if retail competition effects were sufficient to justify the LRIC price standard, one would have expected them to be given greater prominence in section 6, which deals with the who-pays rule. We do not consider it to assist the Tribunal in dealing with Ground 3 to analyse the reliance placed on retail competition effects in section 6. We have focused on whether the evidence supports the conclusions about effective competition in section 4.

(h) Inconsistency with Ofcom's treatment of DCCs and direct routing

641. This issue was not pursued in oral submissions and we were left in doubt as to whether it was insisted on. In any event, our focus is on Ofcom's treatment of APCCs and the evidence bearing on that. We do not find it helpful to look at Ofcom's treatment of equivalent services in mobile number porting and direct routing.

(i) Allocative efficiency

642. In his Expert Report, Mr Godfrey appears to rely, to some extent at least, on the principle of allocative efficiency to justify the preference for LRIC on the basis that it was a proxy for marginal cost. In paragraph 28 of his report, he seems to accept that a reduction in allocative efficiency can sometimes be justified to allow cost recovery and to allow services to be priced above LRIC. We understand Mr Godfrey to accept that if there was good reason to price above LRIC, then the principle of allocative efficiency would not prevent that.

643. We have summarised Dr Maldoom's comments on allocative efficiency in paragraphs 450 to 454 above. Dr Maldoom did not disagree with Mr Godfrey's exposition of the principle of allocative efficiency. He pointed out, though, that it was a principle that was predicated on an idealised situation. In practice that idealised situation did not exist because, for example, and pertinently, there was the constraint that BT required to recover its common costs and if they were not recovered from APCCs that might have consequences for efficiency.

644. Ultimately Mr Godfrey did not seem to place reliance on allocative efficiency as a justification for LRIC. As we have noted, he accepted in cross-examination that, in commercial terms, it is exceptional to price at LRIC. Mr Godfrey also accepted that it is a fundamental principle in regulatory terms that CPs like BT should have a reasonable opportunity to recover common costs. Mr Godfrey assented to the proposition that one is required to look for sufficient countervailing benefit from the exclusion of common costs to justify that exceptional approach. In these circumstances we consider that the issue for the Tribunal is whether Ofcom in the Guidance identified sufficient countervailing benefit. We do not rely on the suggestion that the principle of allocative efficiency supports LRIC.

(j) The analogy with two-sided markets

645. This issue produced a lengthy debate between Mr Godfrey and Dr Maldoom. This debate did not assist the Tribunal. We regarded it as academic in view of the fact that it was deployed in the Guidance to make the uncontroversial point that BT had other services from which it could recover common costs.

(k) One-off migration charges set at LRIC

646. In his report, Mr Godfrey refers to paragraph 4.70 of the Guidance, which mentions instances where Ofcom has set a pure LRIC cost standard to promote competition. This led to a sustained debate on whether these instances were relevant comparisons because they concerned one-off migration charges. According to Dr Maldoom to confuse one-off charges with ongoing charges constitutes a basic economic error on Ofcom's part. The only relevant wholesale market subjected by Ofcom to pure LRIC is call termination, to which special competition considerations apply.

647. We do not consider that this issue is material to the resolution of Ground 3. Accordingly, we do not find it helpful to arbitrate on the technical argument between the expert witnesses.

(l) Whether it is appropriate for BT to earn a margin from lost customers

648. We did not consider that this debate was of assistance to the Tribunal.

(m)Overall conclusion on Ground 3

649. For the foregoing reasons we reject BT's Ground 3.

K. CONCLUSION

650. For the reasons set out in this judgment, we dismiss all three grounds of BT's appeal. We also dismiss Gamma's time-bar argument.

L. POSTSCRIPT

651. We would like to thank the parties' legal advisers for their assistance to the Tribunal throughout the proceedings. We have a few additional observations which we hope may be taken into account in future appeals before the Tribunal to assist the smooth-running of those appeals.

652. The evidence before the Tribunal in this appeal was, in many places, of a very technical nature. In addition, a number of disputes arose over inconsequential matters but which nevertheless generated a considerable volume of evidence (both written and oral).

653. On the question of the technical complexity of the evidence, we consider that some additional steps could have been taken to assist the Tribunal in understanding the evidence before it. We note that BT helpfully annexed to its Skeleton Argument a document setting out the facts which BT understood not to be in dispute. It was also of assistance to the Tribunal that in advance of the hearing BT and Ofcom were able to cooperate and expand this 'annex' into a slightly more complete statement of 'agreed' facts. In the course of cross-examination of Mr Perry (for Ofcom) on Day 3, and in response to questions put to the witness by the Tribunal, counsel for BT and Ofcom agreed that it would be useful to produce a further agreed document with diagrams illustrating the routing of ported and non-ported traffic. Ultimately, a largely agreed document was produced (it was marked to indicate where some areas of disagreement remained). Suitably adapted, we have taken those diagrams for inclusion in 'Factual Background' part of this judgment (see Figure 2 and Figure 3 at pages 21 and 23 above). The agreed diagrams proved extremely helpful in assisting the Tribunal to understand the evidence before it. We consider that it

would have been of even greater assistance to the Tribunal had this agreed document been prepared still earlier in the proceedings, ideally before the Tribunal had begun its pre-reading for the hearing.

654. On the question of the disputes over inconsequential matters, we consider that the appeal could have been considerably more focused had the parties and the experts sought to identify the material disputes and, for non-material disputes, simply ‘agreed to disagree’. For example, in this case, of the three principles of ‘cost minimisation’, ‘cost causation’ and ‘effective competition’ it became clear that the only principle of material significance was that of ‘effective competition’. Similarly, disputes over the question of two-sided markets and the comparability of certain other markets where LRIC had been imposed proved only distracting.
655. In this regard, we would draw attention to the discussion on expert evidence contained in the judgment of Mr Justice Green in *R (British American Tobacco and others) v Secretary of State for Health* [2016] EWHC 1169 (Admin) at paragraphs 635 to 645.⁹³ We do not suggest that that discussion is fully transposable to telecoms proceedings before this Tribunal. Nevertheless, we do consider that it is incumbent on the parties to identify all sensible measures to help the Tribunal identify the core dispute between the parties on which an appeal turns. Admittedly, the inclusion of additional procedural steps, such as a meetings of expert to draw up lists of: (i) agreed issues; (ii) immaterial non-agreed issues; and (iii) material non-agreed issues, may add to the duration of the pre-trial proceedings. Nevertheless, we consider that such steps are worthwhile and likely to generate an overall time saving when taking into account the hearing duration and the time spent preparing a judgment. This is so simply because the Tribunal will be better able to focus its attention on the material elements in dispute. We consider that it is also in the interests of the parties to focus their case since otherwise their position is liable to be less compelling; the costs they incur may also be reduced.

⁹³ See in particular paragraph 637, which notes the importance of experts identifying the materiality of areas of dispute between them.

Heriot Currie QC Brian Landers Gavin Reid

Heriot Currie QC

Brian Landers

Gavin Reid

Charles Dhanowa

Charles Dhanowa OBE, QC (Hon)
Registrar

Date: 04 November 2016

ANNEX 1

(Paragraph 1, footnote 1 of the Judgment)

TERMS AND ABBREVIATIONS USED IN THE JUDGMENT

TERM	MEANING	FIRST REFERENCE IN THE JUDGMENT
THE PARTIES AND INTERVENERS		
BT	British Telecommunications PLC	§1
Ofcom	Office of Communications	§1
Gamma	Gamma Telecom Holdings Ltd	§1
Sky	Sky UK Ltd	§1
TalkTalk	TalkTalk Telecom Group PLC	§1
Vodafone	Vodafone Ltd	§1
LEGISLATION, CASES AND OTHER MATERIALS		
<i>European legislation</i>		
AID	Access and Interconnection Directive (2002/19/EC)	§9
AuthD	Authorisation Directive (2002/20/EC)	§9
FD	Framework Directive (2002/21/EC)	§9
USD	Universal Service Directive (2002/22/EC)	§9
<i>Domestic legislation</i>		
2003 Act	Communications Act 2003	§23
GC18	General Condition 18	§3
<i>European case law</i>		
<i>Mobistar</i>	Case C-438/04 <i>Mobistar v IBSPT</i>	§149
<i>Domestic case law</i>		

<i>08 case</i>	<i>British Telecommunications Plc v Telefonica O2 UK Ltd and Others</i> [2014] UKSC 42	§238
<i>Everything Everywhere</i>	<i>Everything Everywhere Ltd v Competition Commission</i> [2013] EWCA Civ 154	§564
<i>Nash</i>	<i>R (Nash) v Barnet LBC</i> [2013] EWCA Civ 1004	§96
<i>T-Mobile</i>	<i>T-Mobile (UK) Limited v Office of Communications</i> [2008] EWCA Civ 1373	§90
<i>Other domestic materials</i>		
2007 Statement	Ofcom's statement on 'Telephone number portability for consumers switching suppliers'	§58
2010 Statement	Ofcom's statement on 'Routing calls to ported telephone numbers'	§59
The Guidance	Ofcom, 'Porting charges under General Condition 18', 29 September 2014	§3
The Final Determination	Ofcom, 'Disputes between BT and each of Gamma and Vodafone in relation to BT's average porting conveyance charges', 11 November 2015	§1
OTHER TERMS USED		
21CN = twenty-first century network		§41
APCCs = Average Porting Conveyance Charges		§2
The Article 8 Objectives		§11
CP = Communications Provider		§2
CPL = Carrier Price List		§68
CRF = Common Regulatory Framework		§9
DCC = Donor Conveyance Charges		§354
DCP = Donor CP		§2

DLE = Digital Local Exchange	§39
FTR = fixed call termination rates	§352
GC = General Condition	§3
IA = Indirect Access	§300
IP technology = Internet Protocol technology	§40
IBC = In Building Connection	§172
IEC = Interconnection Extention Circuits	§172
Inter-Switch Conveyance	§§60 and 61
ISC = Inter-Switch Conveyance	§§60 and 61
ITC = Inter-Tandem Conveyance	§44
LRIC = Long Run Incremental Cost	§3
LRIC+	§§3 and 4
LTC = Local to Tandem Conveyance	§44
NBMR = Narrowband Market Review	§75
NCCN = Network Charge Change Notice	§68
NGN technology = Next Generation Network technology	§40
NPV = Net Present Value	§59
NRA = National Regulatory Authority	§10
OCP = Originating CP	§2
Ported calls	§2
RCP = Recipient CP	§2
SC = Switch Conveyance	§290
Set-up costs	§2
SIA = BT's Network Charge Control Standard Interconnect Agreement	§66
SMP = Significant Market Power	§20

Switch Conveyance	§§60 and 61
TDM technology = time division transmission (multiplexing) technology	§40
VIC = Virtual Interconnection Circuit	§196