WCA/WLA market review

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Oxera report: Part 1
Prepared for Commission for Communications Regulation

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Contents

Acronyms

Term	Definition
AAC	average avoidable cost
ACL	average customer lifetime
ATC	average total cost
AVC	average variable cost
BEREC	Body of European Regulators for Electronic Communications
BU	bottom up
BU LRIC+	bottom up long run incremental cost plus
CGA	current generation access
ComReg	Commission for Communications Regulation
DCF	discounted cash flow
EECC	European Electronic Communications Code
EEO	equally efficient operator
(E)VDSL	(enhanced) very high-speed digital subscriber line
FTTC	fibre to the cabinet
FTTH	fibre to the home
FTTP	fibre to the premises
FWA	fixed wireless access
HEO	hypothetically efficient operator
IA	intervention area
LLU	local loop unbundling
LRAIC	long-run average incremental cost
LRIC	long-run incremental cost
Mbit/s	megabits per second
MST	margin squeeze test
NDCM	non-discrimination obligations and costing methodologies
NGA	next-generation access
NPV	net present value
NRA	national regulatory authority
OOB	out of bundle
PIA	physical infrastructure access
RAB	regulatory asset base
RSPs	retail service providers
SLU	sub-loop unbundling
SMP	significant market power
VHCN	very high capacity network
VUA	virtual unbundled access
VULA	virtual unbundled local access

Term	Definition
WACC	weighted average cost of capital
WCA	wholesale central access
WLA	wholesale local access

Note: this includes acronyms from the Oxera report: Part 1 and the Oxera report: Part 3.

1 Introduction and summary

1.1 Having completed its latest draft market reviews of the wholesale local access (WLA) and wholesale central access (WCA) markets, the Commission for Communications Regulation (ComReg) has made a number of proposals. These are outlined below, together with some of the key findings from its reviews.

1.2 The retail broadband market is deemed to remain competitive in the absence of WCA regulation (and in the presence of WLA regulation and physical infrastructure access (PIA) regulation upstream of the WLA markets) such that the WCA market is proposed to be deregulated.

1.3 For the WLA market, ComReg has defined two separate product markets:

- CG WLA Market: including local loop unbundling (LLU) over Eircom's legacy copper-only network;
- NG WLA Market: including virtual unbundled access (VUA) over fibre to the cabinet (FTTC) and fibre to the home (FTTH), with services provided by Eircom on FTTC and FTTH and by SIRO and NBI on FTTH.

1.4 The CG WLA Market will be deregulated given that it is in persistent decline and that CG WLA numbers are likely to continue to decline over the lifetime of this market review, alongside the likelihood of asymmetric substitution to VUA over FTTH.

1.5 The NG WLA Market has been split across two geographic markets. Specifically, ComReg defines:

- the Intervention Area (the IA NG WLA Market)—areas covered by the national broadband plan (NBP);
- the Commercial Area (the Commercial NG WLA Market)—premises not covered by the NBP where at least Eircom is present in the wholesale market.

1.6 In the IA NG WLA Market, NBI is expected to be the main provider, but no significant market power (SMP) was found as ComReg considers that NBI is sufficiently constrained by the terms of its contract with the State, which means that it cannot act independently of competitors, customers and end-users.

1.7 Eircom has been found to have SMP in the Commercial NG WLA Market, given that this market is not effectively competitive, and that Eircom would not be sufficiently constrained such that it would be prevented from behaving, to an appreciable extent, independently of competitors, customers and end-users in this market.

1.8 In this context, ComReg asked Oxera to produce two Expert Economic Reports outlining the options for wholesale price

controls and ex ante margin squeeze tests (MSTs) on those services where Eircom has been found to have SMP, and to recommend the most appropriate wholesale price control and MST obligations for the next five years. These recommendations should take into account ComReg's concerns that, absent regulation, Eircom as the SMP operator would have the incentive and ability to set excessive wholesale prices and/or engage in exclusionary behaviours through low, or loyalty-enhancing, wholesale pricing and/or impose a price squeeze, leading to negative outcomes for consumers.

1.9 In this report, the focus is on wholesale price controls to address concerns about excessive pricing and exclusionary behaviours. While we note the role of ex ante margin squeeze in addressing the concerns of margin squeeze directly (as we set out in more detail in the separate report[1]), we also note the role that a margin squeeze test (MST) can have in providing additional safeguards for access seekers where there is pricing flexibility on some key wholesale inputs.

1.10 Specifically, we consider whether wholesale price control obligations are appropriate for the monthly rental fees for FTTC VUA and FTTH VUA services (NGA services) given the finding of SMP in the WLA markets, and examine the options for such a price control. We then recommend the most appropriate wholesale price control obligations for NGA services for the next market review period, taking into account the specifics of the Irish WLA market, ComReg's objectives, and the recommendations and guidelines adopted by the European Commission and BEREC.

1.11 Following our assessment, our recommendation to ComReg is that price regulation of NGA VUA services, in the WLA market where Eircom has SMP, should follow an anchor pricing approach. This approach should include:

- pricing continuity of FTTC VUA services, taking as a starting point the current price from the BU LRIC+ model (which in July 2023 will be €19.12), with any future price increase limited to no more than inflation (CPI-0%)—i.e. a flat, real price cap;
- pricing freedom on FTTH VUA services;
- a requirement on Eircom to make available a 100Mbit/s FTTC-like service over its FTTH network wherever there is no parallel FTTC network, and to provide this service at the regulated price of FTTC in line with the above recommendation. This service should be made available in advance of the implementation of copper switch off such that new FTTC connections are no longer available.

1.12 We consider that this option strikes the most appropriate balance between:

[1] Oxera (2022), 'WCA/WLA market review – Oxera report: Part 3', prepared for the Commission for Communications Regulation, December.

- offering protection to customers from the risk of excessive prices, as FTTC and (at least lower-bandwidth) FTTH services will be substitutable, and hence will act as a constraint on the pricing of FTTH services; and
- providing investors in FTTH networks with an opportunity to earn fair returns by not directly capping FTTH prices too early, as this might undermine investment incentives, especially if there remains uncertainty over the speed of the transition from FTTC to FTTH.

1.13 This approach is also supportive of ComReg's objectives to:

- ensure that wholesale prices do not lead to excessive end-user prices on FTTC services, as these services will continue to be regulated at current levels;
- encourage investment in FTTH by the network operators, given the pricing flexibility and assurances that the FTTC prices will not be significantly below the costs of providing FTTH services;
- ensure that regulated FTTH access prices are not set so low as to choke off investment that would otherwise be commercially viable;
- provide protection against excessive end-user prices on FTTH (particularly lower-bandwidth FTTH services).

1.14 A recommendation to maintain pricing flexibility on FTTH, in the presence of a retail pricing constraint from a price anchor stemming from other regulated access products, is consistent with European Commission guidance—specifically with the conditions set out in the European Electronic Communications Code (EECC) and the 2013 Recommendation on non-discrimination obligations and costing methodologies (NDCM) to promote competition and enhance the broadband investment environment.

1.15 We note that Oxera also recommends (in Oxera report: Part 3) for there to be an obligation not to engage in a margin squeeze (i.e. to ensure economic replicability of retail FTTH services by access seekers), with reference to retail services that rely on FTTH VUA wholesale services as an input. This provides a further safeguard, in line with the European Commission's recommendations.

1.16 In addition to Oxera's recommendations for controls to protect against excessive monthly rental prices, we consider whether the current regulatory approach to wholesale offers (e.g. discounts and promotions) needs to be revised, in line with ComReg's objective to promote competition and encourage investment, including by ensuring that investment by other operators is not jeopardised (e.g. were Eircom to set prices too low).

1.17 To safeguard against exclusionary behaviours, including pricing practices that might impair investment by alternative network operators, we recommend that, instead of banning wholesale

promotions and discounts, as is currently the case (subject to an exceptional circumstances review), it would be more proportionate to allow Eircom to launch price reductions or other wholesale offers. However, these would need to be first assessed and approved by ComReg on an ex ante case by case basis, in line with a number of key principles.

1.18 Specifically, ComReg must be satisfied that Eircom's wholesale pricing practices:

- are unlikely to have a material impact on economically efficient alternative investment by alternative network operators that are either investing or planning to invest in very high capacity networks (VHCNs);
- will generate clear and demonstrable benefits, in terms of being a critical element of Eircom's investment plans, and/or that the prices will deliver benefits for consumers.

1.19 We provide examples of key considerations for ComReg when assessing geographically differentiated pricing, price reductions assessed against a price floor, and the terms and conditions attached to wholesale offers.

1.20 We also assess the need for the continuation of controls on FTTH connection and migration charges, which are currently required to be set at the same level.[2] We consider that ComReg's approach to date might have had the desired effect, at a time when most new customer acquisitions would have required new connections. We also observe that Eircom has lowered its connection (and migration) charges to zero. If this charging behaviour were to continue and become the norm during the market review period, concerns about the level of connection charges affecting customers' decisions to take up FTTH, and any potential distortions to competition resulting from above-cost migration charges, may continue to be unwarranted. Also, ComReg may choose not to make any changes to its current regulatory approach to FTTH connection and migration costs.

1.21 If, however, the number of customers connected to Eircom's FTTH network increases over time such that the large majority of customers changing RSP would face migration charges (and if the wholesale charges increase above zero and these are passed on the end-users), there could be a distortion to competition whereby customers face a higher cost to switching through high migration charges being passed through at the retail level. In this case, ComReg could consider requiring migration charges to be set in line with their incremental costs.

1.22 If controls on migration charges are changed to ensure that the prices are no higher than the costs, and where there is a concern that Eircom might move away from non-zero connection charges, ComReg could cap wholesale connection

[2] Provided that, together, the price does not exceed the level that would allow Eircom to recover its customer-specific connection-related investment over the lifetime of the underlying assets.

charges at €100—their most recent levels before Eircom reduced the price to zero.[3] This will prevent prices increasing significantly to a level that could disincentivise new connections. While this may be below the incremental cost of delivering a new connection, we consider that the regulatory framework affords sufficient flexibility for Eircom to seek to recover costs through other charges—for example, in the monthly line rental charge which we recommend should continue to be subject to pricing flexibility.

1.23 This Economic Expert Report is structured as follows.

- In section 2 we set out key points of context to be considered in any assessment of the need for, and form of, price controls, including the main findings and conclusions from ComReg's updated market review analysis, the competition concerns to be addressed, and ComReg's objectives.
- In section 3 we consider whether, in this context, there is a need for price controls in the NGA WLA Market in areas where Eircom is designated as having SMP.
- In section 4, we focus on the options for controlling wholesale FTTC VUA and FTTH VUA monthly rental prices, and provide our recommendation.
- In sections 5 and 6 we look at the need for further controls to restrict the ability of the SMP operator to make wholesale offers that could lead to worse outcomes for competition, and controls on ancillary charges including connection and migration charges.

1.24 For completeness, in Annex A we summarise the existing regulation (as set out in ComReg's 2018 Decisions).[4]

[3] €100, in place between 1 January 2019 and 30 September 2022. See Eircom's Reference Access Offer, p. 57, https://www.openeir.ie/wp-content/uploads/2022/09/ARO-Price-List-V23_0-Marked-01102022.pdf.

[4] Namely: ComReg (2018), 'Market Review Wholesale Local Access (WLA) provided at a Fixed Location Wholesale Central Access (WCA) provided at a Fixed Location for Mass Market Products. Response to Consultation and Decision', ComReg 18/94, D10/18, 19 November (henceforth referred to as 'ComReg 18/94'); ComReg (2018), 'Pricing of wholesale broadband services: Wholesale Local Access (WLA) market and the Wholesale Central Access (WCA) markets. Response to Consultation and Decision', ComReg 18/95, D11/18, 19 November (henceforth referred to as 'ComReg 18/95'); ComReg (2018), 'Response to Consultation and Decision on price control obligations relating to bundles: Further specification of the wholesale price control obligation not to cause a margin squeeze in the WLA, and WCA markets. Response to Consultation and Decision', ComReg18/96, D12/18, 19 November (henceforth referred to as 'ComReg 18/96').

2 Context for the current assessment

2A Key findings from the market analysis

2.1 Having completed its latest draft market reviews of the WLA and WCA markets, ComReg has made a number of proposals. These are outlined below, together with some of the key findings from its reviews.

2.2 The retail broadband market is deemed to remain competitive in the absence of WCA regulation (and in the presence of WLA regulation and PIA regulation upstream of the WLA markets) such that the WCA market is proposed to be deregulated. This is consistent with the European Commission 2020 Recommendation on markets susceptible to ex ante regulation.

2.3 For the WLA market, ComReg has defined two separate product markets:

- CG WLA Market: including LLU over Eircom's legacy copper-only network; and
- NG WLA Market: including VUA over FTTC and FTTH, with services provided by Eircom on FTTC and FTTH and by SIRO and NBI on FTTH.

2.4 The CG WLA Market will be deregulated given that it is in persistent decline and that CG WLA numbers are likely to continue to decline over the lifetime of this market review.

2.5 The NG WLA Market has been split across two geographic markets, for which the geographic unit of analysis was Eircom exchange areas. Specifically, ComReg defines:

- the Intervention Area (the IA NG WLA Market)—areas covered by the NBP;
- the Commercial Area (the Commercial NG WLA Market)—premises not covered by the NBP where at least Eircom is present in the wholesale market.

2.6 In the IA NG WLA Market, NBI is expected to be the main provider, but no SMP is found as ComReg considers that NBI is sufficiently constrained by the terms of its contract with the State, which means that it cannot act independently of competitors, customers and end users.

2.7 Eircom has been found to have SMP in the Commercial NG WLA Market, given that the market is not effectively competitive, and that Eircom would not be sufficiently constrained such that it would be prevented from behaving, to an appreciable extent, independently of competitors, customers and end-users in this market.

2.8 While there is scope for a third geographic area for NG WLA markets in which ComReg would deem there to be sufficient presence of alternative operators such that the conditions of competition would be appreciably different (requiring at least

three operators with 60% coverage of the exchange and overlapping coverage for at least 50% of premises in the exchange), ComReg found no areas that currently meet these requirements.

2.9 Therefore, the analysis set out below is focused on the need for price regulation in the Commercial NG WLA Market, where Eircom is found to have SMP. In line with the product market definition, this includes consideration of price controls for FTTC VUA and FTTH VUA services.

2B Competition concerns to be addressed

2.10 In the presence of SMP in the Commercial NG WLA Market, there is a concern that, absent regulation, Eircom as the SMP operator would have the incentive and the ability to set excessive wholesale prices and/or engage in exclusionary behaviours through low, or loyalty-enhancing pricing and/or to impose a price squeeze leading to negative outcomes for consumers.

2.11 In this report, the focus is on imposing a price control to address the concerns about excessive pricing. We note the role of ex ante margin squeeze in addressing the concerns about margin squeeze directly (as covered in more detail in our separate report[5]). However, we also note the role that an MST can have in providing additional safeguards for access seekers where there is pricing flexibility on some key wholesale inputs, in line with European Commission Recommendations.

2C ComReg's objectives

2.12 When choosing the relevant price control obligation and/or appropriate network pricing and costing approaches, ComReg needs to take into account its statutory objectives. Under the Communications Regulation Act of 2002 (as amended), ComReg's objectives regarding the electronic communication market are:

- to promote competition;
- to contribute to the development of the internal market;
- to promote the interests of users within the Community;
- to ensure the efficient management and use of the radio frequency spectrum and numbers.[6]

2.13 According to the Communications Regulation Act of 2002 (as amended), promoting competition can be achieved by:

- ensuring that users, including disabled users, derive maximum benefit in terms of choice, price and quality;
- ensuring that there is no distortion or restriction of competition in the electronic communications sector;

[5] Oxera (2022), 'WCA/WLA market review – Oxera report: Part 3', prepared for the Commission for Communications Regulation, December.
[6] This objective is not relevant to the context of this report, and is therefore not covered any further.

- encouraging efficient investment in infrastructure and promoting innovation;
- encouraging efficient use, and ensuring the effective management of radio frequencies and numbering resources.[7]

2.14 Among these objectives, it is clear that ComReg must find a balance between two key ones:

- to encourage the development of alternative infrastructure ('encouraging efficient investment in infrastructure');
- to promote competition.

2.15 This is also reflected in ComReg's Strategy Statement:[8]

In general, ComReg has a preference for infrastructure-based competition, based on inter-platform competition as well as access-based competition at the deepest level possible. At all times, ComReg's pricing decisions aim to strike a balance between the following:

- Encouraging investment in VHCN by the network operators. It is important that regulated access prices are not set so low that investment that would otherwise be commercially viable is choked off;
- Encouraging viable investment in own infrastructure by those who purchase access from other networks, particularly those who use regulated access to Eircom's network;
- Ensuring that regulated prices reflect efficient practice and that excessive recovery by the SMP operator does not happen;
- Ensuring that wholesale prices do not lead to price squeezes;
- Wholesale prices do not lead to excessive end user prices; and
- Wholesale prices ensure a timely and efficient migration to new infrastructure over time.

Further, national regulatory authorities of European Member States shall pursue general objectives, as set out in Article 3 EECC. In particular:

a) promote connectivity and access to, and take-up of, very high capacity networks, including fixed, mobile and wireless networks, by all citizens and businesses of the Union;

(b) promote competition in the provision of electronic communications networks and associated facilities, including efficient infrastructure-based competition, and in the provision of electronic communications services and associated services.

[7] This means of promoting competition is not relevant to the context of this report, and is therefore not covered any further.
[8] ComReg (2021), 'Electronic Communications Strategy Statement 2021 to 2023', para. 4.45, https://www.comreg.ie/media/2021/12/ComReg-ECS-Strategy-Statement-English-Dec-7-Final-Web.pdf.

2.16 Below we set out some options that take these objectives into account and consider to what extent the proposed options would strike the appropriate balance between the objectives. However, ComReg's decision on which approaches to take forward will be based on its own assessment of the appropriate balance to strike given its overall policy objectives.

3 Assessing the need for a price control

3.1 Price controls on wholesale services can be imposed only in markets where SMP has been identified and thus that is the first necessary condition, informed by the findings of market analysis.

3.2 Given the finding of SMP in the Commercial NG WLA Market (which includes FTTC and FTTH wholesale VUA services), but no SMP (and therefore deregulation) in the WCA market, we assess the options for price controls on NGA WLA services in the Commercial NG WLA Market only.

3.3 While there is a finding of SMP in the NG Commercial WLA Market, the need for (and form of) price regulation on FTTC VUA and/or FTTH VUA will depend on a number of factors.

3.4 In addition to the key competition and policy issues at play (concerns about excessive pricing and margin squeeze) and ComReg's objectives (as set out above), it is important to examine the presence or otherwise of retail price constraints, either present now or expected in future.

3.5 Indeed, following a finding of SMP at the wholesale level, price control regulation may be needed to protect consumers from excessive pricing. However, price controls will be necessary only where there are no demonstrable retail price constraints resulting from, for example:

- alternative infrastructure competition; or
- constraints coming from a price anchor from a cost-oriented copper access price (or an equivalent NGA service), where these are found to be in the same market.

3.6 This is a view consistent with the EECC and the 2013 European Commission Recommendation on NDCM.

3.7 In determining whether price control obligations are appropriate, Recital 193 of the EECC provides that:[9]

> National regulatory authorities should be able to decide to maintain or **not to impose regulated wholesale access prices** on next-generation networks if sufficient competition safeguards are present…and a **demonstrable retail price constraint** resulting from infrastructure competition **or a price anchor stemming from other regulated access products,** or both. [Emphasis added]

3.8 This is reflected in the NDCM, which advocates pricing flexibility for NGA products where sufficient competitive safeguards are put in place (non-discrimination, economic replicability test, pricing constraints coming from the regulated legacy product

[9] EECC, Art. 74.1.

(the 'copper anchor') or an alternative networks retail constraint.[10]

3.9 In practice, the degree of retail pricing constraints in a market may vary, and thus the need for price controls may vary across different services, as follows, for example:

- If retail prices are constrained to a competitive level, wholesale price controls may not be needed. In fact, in such a situation, the market is likely to be effectively competitive and a finding of SMP would not be warranted.
- There may be a degree of constraint on retail prices, but not sufficient to constrain prices to a competitive level. In this case the retail price constraint would not be sufficiently strong to conclude that the relevant market is effectively competitive and therefore that no operator has SMP. Here the question is whether regulation should focus on allocative efficiency (i.e. keeping wholesale access prices low to encourage further entry through wholesale access), or on dynamic efficiency (i.e. to ensure that prices are not controlled so tightly as to close off the upstream investment opportunity and potential for further infrastructure competition).
- If there are no retail pricing constraints and ineffective regulated anchors, there is a significant risk of prices being set at excessively high levels, which may require more intrusive intervention in the form of a direct control on prices. Indeed, when Eircom launched FTTC services in 2013 and it was subject only to a margin squeeze obligation, FTTC Bitstream prices increased twice over a two-year timespan, from €17.50 to €23.00.[11]

3.10 In assessing the form of price control to apply, a balance must also be struck between price controls that set a cap on the SMP operator to prevent excessive pricing (a focus on allocative efficiency) and overly tight controls on the SMP operator that could discourage investment by the SMP operator and by independent competitors (to the extent that the regulated prices of the SMP operator would also constrain the prices of any potential entrants).

3.11 In this context, we examine a range of price control options that could be imposed on the WLA market in Ireland (described in more detail in section 4). For each option considered, some form of price regulation will be needed on at least one of the services (FTTC VUA and/or FTTH VUA). This is because, given the findings of the market review and the SMP assessment implying an absence of sufficient retail pricing constraints from competing infrastructure, no wholesale price control on *any*

[10] European Commission (2013), 'Commission Recommendation of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment', 2013/466/EU, Recitals 49–69.
[11] ComReg (2016), 'Market Reviews: Wholesale Local Access and Wholesale Central Access', ComReg 16/96, para 13.306(b). (Henceforth referred to as 'ComReg 16/96').

services would not be appropriate or supportive of ComReg's objectives.[12]

3.12 As a number of service providers use WLA inputs to compete with Eircom in related downstream wholesale and retail markets (including in the supply of WCA services), the findings of ComReg's market review imply that Eircom would have the ability and incentive to exclude or foreclose access seekers competing in the provision of wholesale and/or retail services by setting WLA prices at an excessive level (and/or engaging in a margin squeeze). This would ultimately be detrimental to retail competition.

3.13 While having no price controls in place may support some of ComReg's objectives (in particular, those relating to encouraging competing network operators to invest in VHCNs, as well as a timely migration to the new FTTH infrastructure), this could come at the expense of excessive end-user prices and over-recovery of costs by the SMP operator, as well as the risk of an inefficient migration from FTTC to FTTH infrastructure (in particular, where customers on the FTTC network are force-migrated onto the new infrastructure without any safeguards). To the extent that the absence of any price controls would also allow Eircom to set very low wholesale prices with the intention to undermine actual or potential investments by alternative network operators, this would also be against ComReg's objectives of promoting competition and encouraging investment.[13]

3.14 In summary, we find that an approach of no wholesale price controls on both FTTC and FTTH is unlikely to be consistent with ComReg's objectives, and would not address the competition concerns where SMP is found. We therefore do not consider this to be a viable option for further discussion.

[12] Having considered the possibility of market entry or expansion by Virgin Media or SIRO in the Commercial NG WLA Market, ComReg considers that there is insufficient evidence to suggest that the potential competition from these sources would exert an effective competitive constraint on Eircom's provision of NG WLA, given the limited current and expected rollout by SIRO and insufficient data in respect of Virgin Media's entry into NG WLA (see ComReg (2023), 'Market Reviews; Wholesale Local Access (WLA) provided at a fixed location; Wholesale Central Access (WCA) provided at a fixed location for mass-market products; Consultation and Draft Decision', sections 6.5.2 and 6.5.3).
[13] The prospect of price floors is discussed in further detail in section 5.

4 Price control recommendation for the Irish WLA market

4A Introduction

4.1 Having established the need for some form of price control on NGA services in the WLA market, this section assesses a range of options for how such price controls can be designed, before recommending the most appropriate option for the WLA market in Ireland.

4.2 At a high level, we examine four types of price control option for the Irish WLA market.

1 Anchor price regulation

4.3 This would involve a price cap on FTTC wholesale services and pricing flexibility on FTTH wholesale services. The idea behind this approach is that the prices of FTTC services will provide a sufficient constraint on the pricing of FTTH services, while still allowing for price experimentation and maintaining investment incentives on FTTH. While ComReg's current approach to price regulation is based on a form of anchor price regulation, there are alternative ways in which such regulation could be implemented, as we explore in further detail below.

2 Cost-based price controls on both FTTC and FTTH

4.4 This would involve capping the wholesale prices of both FTTC and FTTH services at a cost-oriented level based on the hypothetical (bottom-up) cost of providing access.

3 A RAB-based approach

4.5 This would involve pooling all the SMP operator's NGA assets into one regulated asset base (RAB) and estimating the allowed revenues that can be earned based on a top-down RAB–weighted average cost of capital (WACC) model. Depending on the design of the RAB-WACC model, this option could allow the SMP operator to vary the relative prices of FTTC and FTTH to manage the migration from legacy to VHCN infrastructure, while still earning returns in line with its costs, including its cost of capital. This approach is typically used to set price controls on utility networks with natural monopoly characteristics that face no or limited competition.

4 A retail-minus approach

4.6 This would involve establishing the wholesale access price by considering what proportion of avoidable retail and other downstream costs and margins would need to be removed from the retail price so that just the wholesale components remain. This approach is therefore conceptually similar to an ex ante MST.

4.7 In sections 4B to 4E below, we describe and assess each of these options, having regard to whether they would help to

achieve ComReg's policy objectives, as well as considering their impact on different stakeholders and on competition. Section 4F concludes with our recommendation on the most appropriate price control option for the Irish WLA market.

4B Option 1: Anchor pricing approaches—charge controls on FTTC with FTTH pricing flexibility

4.8 This approach would involve imposing a charge control of some form on FTTC services, while having pricing flexibility on FTTH services. This would ensure that the charge control on FTTC services protects FTTC consumers from the risk of excessive prices (in the absence of retail pricing constraints), while providing a degree of pricing flexibility on FTTH VUA services to avoid undermining investment incentives.

4.9 ComReg's existing approach to price regulation, as set out in the 2018 WLA/WCA Market Review Decision,[14] is a specific application of the anchor pricing approach, and involves setting cost-based controls on both CGA[15] and FTTC wholesale access products. For FTTC in particular, the price control on wholesale FTTC services is based on the outcomes of a BU LRIC cost model, while allowing pricing freedom on FTTH services (subject to compliance with an ex ante MST test and other constraints on geographic pricing and wholesale offers).[16]

The need for price controls on FTTC VUA

4.10 ComReg introduced price controls on FTTC VUA as part of its 2018 WLA/WCA Market Review Decision. This followed a period when FTTC VUA prices were subject only to an ex ante MST obligation, and where legacy CGA services were subject to cost-based price controls. In other words, CGA services were the anchor product and FTTC was allowed pricing flexibility.

4.11 At the time of the 2018 WLA/WCA Market Review Decision, ComReg considered that:[17]

> the lack of effective constraint exercised by Eircom's legacy copper access network indicates that LLU can no longer be considered as an anchor product that would constrain the pricing of FTTC-based services in a way that would avoid a negative knock-on effect for retail broadband prices.

4.12 This was one of the key reasons that Eircom's prices were deemed not to be effectively constrained at the retail or wholesale level—evidenced by NGA wholesale prices increasing twice since the launch of NGA services in 2013—and price caps were imposed on FTTC services.[18]

[14] ComReg 18/94.
[15] In the 2018 WLA Market Review Decision, ComReg (re)imposed an obligation of cost orientation based on a TD HCA costing methodology, with the exception of Active Assets, where the costs are calculated using a BU-LRAIC+ methodology for CG SABB.
[16] Annex A1 of this report summarises the 2018 WLA/WCA Market Review Decisions.
[17] ComReg 18/94, para. A3.111.
[18] ComReg 16/96, para. 8.626.

4.13 In light of the findings of the present market review—in particular, the proposals to deregulate CGA services, and the finding of a lack of effective infrastructure competition in the market—there are unlikely to be any retail pricing constraints on FTTC services. In the absence of such constraints, pricing freedom on FTTC services could lead to excessive pricing of wholesale FTTC, which is of concern given the large number of subscribers in the market who obtain broadband services over FTTC technologies. In particular, despite some small decreases in recent quarters, in Q2 2022 there remain around 571,000 broadband subscribers taking VDSL services, representing 35% of all fixed broadband subscribers.[19]

4.14 While that number may be expected to decline over the course of the market review (on the basis that Eircom is continuing to roll out FTTH over its FTTC network), such consumers should still be protected from excessive prices during the transition.

4.15 Absent price controls on FTTC, Eircom would be free to raise FTTC prices to encourage migration. While this could support faster migration, the migration may not necessarily be done in an efficient or non-exploitative manner if there are no controls on how customers remaining on FTTC services will be treated and how customers on the new network will be protected from excessive prices.

4.16 For these reasons, we consider that price controls on FTTC will continue to be needed, particularly in view of the role that such regulation could have in ensuring retail pricing constraints on FTTH services, as discussed below.

The need for pricing flexibility on FTTH VUA

4.17 Pricing flexibility on FTTH is consistent with ComReg's objectives to promote investment in VHCNs and allow a timely migration from legacy to new infrastructures.

4.18 The case for pricing flexibility was made by ComReg in the 2018 WLA/WCA Market Review Decision. ComReg considered that with uncertainty over costs and demand, the FTTH price was likely to be sensitive to the penetration rate.[20] Furthermore, it considered that incorrect forecasts could affect future market developments and distort investment decisions, for example if the wholesale price were set too high or too low.[21]

4.19 This is consistent with sound economic principles in favour of pricing freedom, particularly during the early stages of FTTH roll-out, including:[22]

[19] ComReg (2022), 'Quarterly Key Data Reports: Data Portal: Internet Statistics', https://www.comreg.ie/industry/electronic-communications/data-portal/graphic-info/, accessed 21 September 2022.
[20] ComReg 16/96, para. 7.1313.
[21] Ibid, para. 7.1313.
[22] As set out in Oxera's submission to European Commission (2020), 'Targeted consultation on the revision of the Commission's access Recommendations',

- operators investing in these networks may face a number of **risks** (due to demand, cost and regulatory uncertainty);
- in this case, it may be appropriate for regulators to allow for a period of **pricing flexibility**. Such pricing flexibility may enable operators investing in NGA networks to test price points and **wait for the period of demand and cost uncertainty to play out**;
- not imposing strict price controls in the early stages of roll out will also allow a period for clarity on **the impact of (or emergence of) competition** from alternative technologies and any **pricing constraints** caused by other elements of the regulatory regime itself, such as anchor pricing or copper services regulation;
- in this regard, pricing flexibility could support regulatory objectives with respect to **fostering investment in VHCNs**;
- in contrast, early regulation of FTTH through price caps that may be set at the 'wrong' level (at a level that significantly reduces the expected returns on the investment below the WACC) can **undermine the investment incentives** for FTTH.

4.20 An approach of pricing flexibility in these circumstances is in line with recommended practice from the 2013 Recommendation on NDCM and the EECC:

> Due to current demand uncertainty regarding the provision of very high-speed broadband services it is important in order to promote efficient investment and innovation [...] to allow those operators investing in NGA networks a certain degree of pricing flexibility to test price points and conduct appropriate penetration pricing.[23]
>
> Due to **uncertainty** regarding the rate of materialisation of demand for the provision of next-generation broadband services, it is important in order to promote efficient investment and innovation to allow those operators investing in new or upgraded networks a certain degree of **pricing flexibility**.
>
> National regulatory authorities should be able to decide to maintain or **not to impose regulated wholesale access prices** on next-generation networks if sufficient competition safeguards are present.[24] [Emphasis added]

4.21 Many of these remain important considerations when assessing the need for continued pricing flexibility on FTTH services.

4.22 However, as shown in the market review, in recent years there has been increased roll-out and take-up of FTTH services in Ireland, with early indications that users are starting to migrate away from FTTC services to FTTH services (see Figure 4.1). For example, FTTC subscriber volumes peaked in Q3 2020 (at around 645,000) and have since declined in each quarter, falling to around 571,000 as at Q2 2022. In contrast, FTTH broadband subscriptions are increasing significantly—between

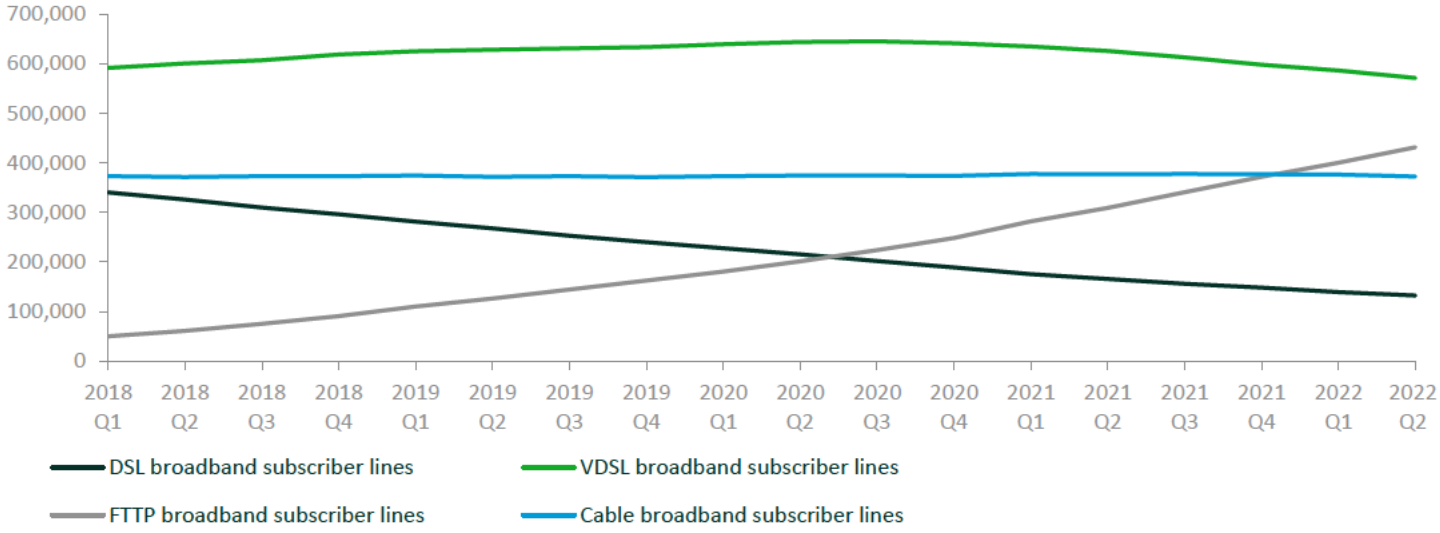
https://digital-strategy.ec.europa.eu/en/library/access-recommendations-factual-summary-report-targeted-consultation-proposed-revision.

[23] Commission Recommendation of 11 September 2013 on NDCM, Recitals 49–69.

[24] EECC, Recital 193.

Q4 2018 (after the previous market review) and Q2 2022, FTTH subscriptions grew from around 91,000 to 431,000. This trend is expected to continue across the review period.

Figure 4.1 Retail broadband subscriber lines by technology



Note: Excludes satellite, fixed wireless access and mobile broadband subscribers.
Source: Oxera based on ComReg (2022), 'Quarterly Key Data Reports: Data Portal: Internet Statistics', https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/, accessed 21 September 2022.

4.23 In addition, a number of announcements have been made to further investment throughout the country, including Eircom's plans to increase its FTTH footprint to 1.9 million premises by 2026.[25] Its FTTH investment commitments and signals of other investors committing to FTTH investment[26] show that the current regulatory regime in Ireland has been supportive in encouraging FTTH roll-out.

4.24 With these developments, an important question arises in this market review of whether continued pricing flexibility on FTTH VUA is still warranted, or whether the time is right to impose price caps on this service.

4.25 Simply observing increased FTTH roll-out does not alone make the case for moving away from pricing flexibility and imposing more stringent price controls on wholesale FTTH services.

4.26 Any move away from pricing flexibility needs to be properly justified, taking into account the impact on Eircom's investment

[25] On 11 August 2021 Eircom announced the expansion of the FTTH fibre network roll-out to include a further 200,000 premises in Ireland, which were initially not included within the open eir FTTH roll-out or in the government-backed NBP. The revised target is to have 1.9m premises within the open eir FTTH footprint by 2026. See eir (2021), 'Ireland on track to become one of the most connected countries in the world', press release, 11 August, https://www.eir.ie/pressroom/eirs-Gigabit-Fibre-network-to-expand-to-a-further-200000-homes-and-businesses.

[26] For example, SIRO's Phase 2 plans to roll out to an additional 344,161 premises, with the eventual announced intention being to pass 770,000 premises in 154 towns. *The Irish Times* (2021), 'Siro announces €620m investment to upgrade broadband network', 28 October, https://www.irishtimes.com/business/technology/siro-announces-620m-investment-to-upgrade-broadband-network-1.4712850.

incentives, and those of other actual or prospective FTTH providers. In assessing the options for FTTH regulation, which may involve either continued pricing flexibility on FTTH services or the introduction of a direct price control on FTTH services, ComReg needs to give due consideration to the downside risks of an investment in FTTH and to the allowable returns over the investment's lifetime (as we explore further under Option 2 below and in our recommendations in section 4F below).

4.27 This requires taking account of the fact that, notwithstanding the investment plans being announced, risks may remain during the investment phase of the project, which is still ongoing. As discussed in section 4F, such risks may come from uncertainty about: the speed of take-up (a key driver of value and payback in the FTTH business plan); the impact of infrastructure competition; and costs.

4.28 Under Option 2 below and in our recommendations in section 4F, we set out further detail on why strict cost-based price caps should be considered only once the major risks have crystallised, and Eircom continues to have SMP, and why it may still be too early to move away from pricing flexibility on FTTH VUA.

FTTC price caps constraining FTTH prices

4.29 Under anchor pricing, even though no direct price control would be applied to FTTH VUA services, the effectiveness of this approach in limiting the risk of excessive prices is predicated on the continued regulation of FTTC VUA prices providing a retail pricing constraint on FTTH.

4.30 This works under the assumption that FTTC and FTTH services are part of the same relevant economic market,[27] and therefore any attempts by Eircom to increase FTTH VUA prices will be unprofitable, given the availability of a cheaper price-capped alternative.

4.31 In summary, an anchor pricing approach aims to strike a balance between: (i) providing protection from the risk of excessive prices by imposing a price cap on an anchor product that can indirectly constrain the prices of all other wholesale products, and (ii) maintaining investment incentives to deploy VHCNs by not directly capping FTTH prices while investment risk and uncertainty over the speed of transition from FTTC to FTTH remain.

4.32 The precise balance between these objectives can differ depending on how the anchor pricing approach is implemented in practice—in particular, how the anchor product is specified

[27] ComReg has provisionally concluded that it is appropriate to include VUA delivered over FTTC and VUA delivered over FTTP in the VUA focal product (see ComReg (2023), 'Market Reviews; Wholesale Local Access (WLA) provided at a fixed location; Wholesale Central Access (WCA) provided at a fixed location for mass-market products; Consultation and Draft Decision', section 5.2.1).

and the form of price control imposed on it. In this context we consider three options below.

- Option 1a: a cost-based charge control on FTTC services based on a BU LRIC cost model and pricing flexibility on FTTH.
- Option 1b: flat real prices (pricing continuity) on FTTC services and pricing flexibility on FTTH.
- Option 1c: requiring an emulated FTTC product on the FTTH network in combination with the above, such that in areas where FTTC is not currently available alongside FTTH and, looking forward, in areas where the FTTC network is switched off, the prices of FTTH continue to have a regulated anchor.

4B.1 Option 1a: charge control on FTTC services (based on cost model assuming continuation of existing volumes) and pricing flexibility on FTTH

4.33 This option is essentially the continuation of the existing regime, with FTTC regulated with reference to the outputs of ComReg's BU LRIC cost model. ComReg's model assumes that demand for the existing FTTC network will continue at current levels and is unaffected by the roll-out and take-up of FTTH services. In other words, it models a hypothetical steady-state FTTC demand.[28] The model is therefore implicitly assuming that FTTC technology remains the primary NGA modern efficient network that a hypothetically efficient operator (HEO) would continue to invest in. Such an approach is consistent with the European Commission's 2013 Recommendations.[29]

4.34 Under these assumptions, the unit costs obtained from the BU LRIC model are also relatively stable and not subject to increases in unit costs that would be observed if actual volumes of FTTC active connections were used (which would be falling as a result of customers migrating away from FTTC to

[28] This approach has also been taken in other jurisdictions. Specifically, Ofcom has used a similar principle in the past with its application of a 'hypothetical ongoing network' approach. Under this approach Ofcom set charge controls on legacy services based on BT's costs but including a hypothetical ongoing network adjustment, which uplifted the value of BT's heavily depreciated assets (mainly exchange equipment) to reflect the cost of maintaining a network on an ongoing basis (see Ofcom (2018), 'Wholesale Local Access Market Review: Statement: Annexes 10–16', 28 March, paras A12.84–A12.89; Ofcom (2019), 'Promoting competition and investment in fibre networks: Initial proposals – Approach to remedies', 29 March, para. 2.14). This was to adjust for a situation whereby unit capital costs were likely to be calculated to be too low, with prices set on that basis giving uneconomic signals to customers, encouraging more consumption of a declining service, and potentially leading to a requirement for new investment to support the demand.
The conceptual approach for adjusting volumes in this case would be the same. The objective would again be to set sensible economic prices and to prioritise this relative to concerns about over- or under-recovery of sunk costs. In addition, under the modelling approach used for Eircom's costs, it is not clear that it would be necessary to raise prices as volumes fall in order to allow full cost recovery over the lifetime of the investment. The relationship between allowed revenues and actual costs would need to be assessed in detail to establish the likelihood of over- or under-recovery of costs over the investment's lifetime.

[29] This is consistent with Recitals 25–42 of the European Commission Recommendation of 11 September 2013 on NDCM. 'A costing methodology that provides the appropriate "build-or-buy" signal strikes an appropriate balance between ensuring efficient entry and sufficient incentives to invest and, in particular, to deploy NGA networks and hence deliver new, faster and better-quality broadband services.'

FTTH). This allows for more stable and predictable wholesale access prices over time.

4.35 In this regard, one of the key inputs into the FTTC BU LRIC model is ComReg's access network model, which does assume that the FTTC network will be subject to some line losses to rival networks (e.g. SIRO, Virgin Media), as well as reduced use of e-side copper as CGA service volumes decline. As such, all else equal, slight increases in the modelled FTTC prices would be expected each year.[30]

4.36 One of the main advantages of implementing the anchor pricing option based on the continued use of the BU LRIC model is that it is a tried and tested approach on which the market has been consulted. However, we note that the current FTTC prices in the NGA model are set until 2024 only.[31] We understand that while the access network model produces outputs up to 2029, the NGA model does so only until 2024. We also understand that NGA data post 2026 is effectively held steady in real terms. Therefore an extension beyond 2024 prices may require further updates or the construction of a new FTTC BU LRIC model.

4.37 The benefits of engaging in such an exercise need to be set against the costs, in time and resources, of the exercise, notwithstanding the practicalities of obtaining information on copper-based VDSL assets at this stage. Furthermore, it is not clear whether there are large benefits to engaging in an exercise whose core assumption is that an HEO would continue to invest in an FTTC network as a modern equivalent asset at a time when both Eircom and alternative network operators are rolling out FTTH networks.

4.38 Over time, telecoms services will be increasingly provided over FTTH networks, calling into question a costing approach based on a hypothetical steady-state FTTC network.

4.39 In this regard, if the current FTTC prices are deemed already to be in line with modelled costs, a simpler approach would be to adopt 'pricing continuity'—i.e. to allow no price increases over the existing FTTC prices (beyond inflation). We discuss this option (Option 1b) next.

4B.2 Option 1b: pricing continuity (flat real prices) on FTTC and pricing flexibility on FTTH

4.40 Rather than re-running and updating a BU LRIC model to forecast the costs of FTTC VUA services under a hypothetical steady-state scenario, an alternative option for regulation could be simply to prevent FTTC VUA from any further price

[30] This is consistent with Recital 39 of the European Commission Recommendation of 11 September 2013 on NDCM: 'Only traffic volume moving to other infrastructures (for example cable, mobile), which are not included in the cost model, will entail a rise in unit costs.'

[31] See ComReg (2021), 'Regulated Wholesale Fixed Access Charges – Review of the Access Network Model – response to consultation and final decision', D11/21, December 20, Table 3.

rises, beyond inflation, above their current regulated levels—in other words, a flat, real price cap. We refer to this as the 'pricing continuity' approach whose primary advantage over Option 1a would be in avoiding the need to re-run and update a hypothetical FTTC BU LRIC model.

4.41 The pricing continuity approach is appropriate if current FTTC prices are already cost-oriented and general inflation trends are a reasonable predictor of how the costs in a hypothetical FTTC model might be expected to evolve.

4.42 Compared to a hypothetical BU LRIC model, as in Option 1a, a flat, real pricing continuity approach can be expected to produce a slightly higher price path for FTTC prices as there are no explicit efficiency assumptions built into the approach.

4.43 As such, this approach would tilt the balance slightly towards incentivising investment between competing network infrastructures, while still providing protection for consumers by limiting the extent to which prices can rise to general inflation levels. For similar reasons, a pricing continuity approach may also incentivise a speedier migration towards FTTH services, provided that FTTH prices stay constant or increase at a lower rate than general inflation.

4B.3 Option 1c: emulated FTTC product on the FTTH network

Rationale for requiring the provision of an emulated FTTC-like product on FTTH

4.44 Each of the anchor product approaches considered above implicitly assumes that the FTTC services will continue to be available in the market, thus providing a competitive constraint on FTTH pricing. However, we understand that Eircom has plans to continue to upgrade its FTTC network to FTTH[32] and ultimately to proceed to copper switch off in the future.[33] There are also areas of the country where Eircom has deployed an FTTH network as a direct upgrade from CGA, such that FTTC services are not present in those areas.

4.45 In this regard, the presence of FTTC VUA as an alternative input for the provision of retail broadband services may not be available in all areas for the duration of the market review. In those areas, the absence of a regulated FTTC service will therefore mean that there are no pricing constraints on FTTH.

4.46 In this case, ComReg could require the SMP operator to provide an 'FTTC-like' service over the FTTH network, at a price similar or equivalent to the FTTC service and on non-price terms.

4.47 This emulated FTTC product on the FTTC network would serve two purposes:

[32] As noted above, in 2021 Eircom announced the expansion of the FTTH network roll-out to include a further 200,000 premises, giving a revised target to have 1.9m premises within the open eir FTTH footprint by 2026.
[33] Open eir, Copper Switch Off: https://www.openeir.ie/copper-switch-off/.

- continuation of an indirect pricing constraint on FTTH prices (through continuation of the anchor pricing constraint imposed by regulation of FTTC VUA services);
- the provision of protection to users who, at the point of FTTC switch off, would have an equivalent service available on the FTTH network and would otherwise face the prospect of being force-migrated onto a higher-price/higher-speed FTTH product that they may not wish to purchase.[34]

4.48 This approach will be necessary where the FTTC network is retired (and the implementation of copper switch off means that new FTTC connections are no longer available). It may also be needed in areas where FTTC is already absent, to ensure that FTTH prices continue to be constrained by the presence of an anchor. For example, in the absence of FTTC in a 'rural commercial area', and where the CG WLA Market is deregulated (as is proposed in the market review), there is a risk to consumers in these areas that they would be force-migrated onto a higher-priced, higher speed FTTH service that they may not want. In this case, the role of the emulated anchor could be to protect consumers in the transition. For this reason, a requirement to provide the emulated service in that area upon deregulation of CGA (rather than wait for copper switch off) could be considered.

Specification of the emulated service

4.49 As with all forms of anchor price regulation, the exact terms (including the exact product chosen as the anchor and the corresponding price) will affect the strength of any constraint on the degree of pricing freedom for services provided over the new network.

4.50 The specification of the emulated FTTC-like service on the FTTH network involves a trade-off:

- specifying a very low speed (e.g. a 30Mbit/s service) is likely to be ineffective as a constraint on FTTH prices, in view of the significant additional value that could be achieved using higher-bandwidth FTTH services and the fact that this would represent a downgrade in service for many customers;
- specifying a very high speed (e.g. a 200Mbit/s service), which is beyond the capabilities of existing FTTC networks, would be likely to require forcing customers to pay considerably more than they currently do, unless the anchor product is regulated at a price similar to what customers pay for FTTC services. However, in that case, this could significantly affect FTTH operators' returns and investment incentives.

4.51 If ComReg were to adopt this option, the starting point for assessing the price and non-price terms of the emulated service should be that customers are no worse off compared to their current position (i.e. in line with the 'Pareto principle').

[34] Customers who value higher-speed FTTH services would still be able to upgrade to higher-bandwidth FTTH services at prices that would still be subject to a retail pricing constraint.

Ideally, the service provided on the FTTH network should match the quality and price of current FTTC services as closely as possible.

4.52 In Ireland, there is currently only one FTTC VUA service, which is marketed as providing speeds of 'up to' 100 Mbit/s. However, the speed of the FTTC service that end-users actually get will depend on how far they are from the cabinet.

4.53 One possibility would be to specify a range of emulated FTTC services—for example, depending on a customer's existing distance from the cabinet, the emulated service on FTTH could be specified at 30/60/90 Mbit/s at the current price of FTTC. This would reflect the reality of the current position and could encourage efficient decision-making for access seekers and their customers to shift to higher-bandwidth FTTH services. For example, someone with a 30Mbit/s FTTC service anchor at €19.12 may be willing to get a 300Mbit/s FTTH service for €23.50[35] because they see value in the significant performance increase; whereas someone who is currently getting the 90Mbit/s service for €19.12 may be less willing to pay the €4.38 to jump to a bandwidth that is not a significant improvement (depending on their needs).

4.54 In practice, multiple emulated FTTC services on the FTTH network would be extremely hard to implement and monitor, especially given that the criterion for establishing the availability of a given emulated speed would be based on a customer's distance from a cabinet, but the point when the emulated service would be available is precisely when the cabinet will be decommissioned (i.e. at FTTC switch off). For that reason, an emulated FTTC service is likely to need to be implemented as a single product, in which case the trade-offs discussed above regarding the benefits and costs of setting the anchor too low or too high would be particularly relevant.

4.55 While the exact balance would come down to a policy judgement weighing the different considerations in line with ComReg's policy objectives, we consider that an emulated FTTC-like anchor product set at 100Mbit/s would ensure that all customers are protected during the transition and that this is an anchor product that could provide a constraint on FTTH pricing. This is also consistent with the fact that Eircom currently offers only one FTTC service which provides speeds of up to 100Mbit/s and that is what consumers are currently paying for.

4.56 The price level at which this emulated 100Mbit/s FTTC-like product would be offered on the FTTH network could itself be based on a BU LRIC model (as described under Option 1a) or on a pricing continuity approach (as described under Option 1b). However, given that the emulated FTTC product would be provided on the FTTH network after the FTTC network has been switched, we consider that building a BU LRIC model would not

[35] This is the current price for FTTH VUA 150Mbps to 500Mbps services.

be justified at this point and recommend that a pricing continuity approach, as described in Option 1b, be adopted.

Price levels of the anchor product

4.57 If ComReg decides to take forward any of the anchor pricing approaches described above, a key question is whether the level at which the price of the anchor product is set will actually have the intended dual aims of protecting consumers from excessive prices while retaining incentives to invest in FTTH networks.

4.58 To determine this, the price of the FTTC anchor needs to be compared with the estimated costs of providing FTTH services. This will ensure that the anchor is not set so tightly as to undermine the viability of the FTTH investment, but also not too loosely such that consumers face excessive prices. A number of scenarios are possible, as set out below.

4.59 If the FTTC anchor price is significantly below the cost of providing an FTTH line, an anchor pricing approach may be overly restrictive and undermine the incentives to invest in FTTH. This could be especially problematic at FTTC switch off if an emulated service is required on the FTTH network. In this case, while adopting the FTTC price as the anchor would support the Pareto principle, if there is little scope to charge a premium for higher bandwidths above those on FTTC, the price of the emulated FTTC service may not cover the FTTH costs, making the investment non-viable.

4.60 If the FTTC anchor price is comfortably above the modelled FTTH costs, this approach would support the Pareto principle while also allowing pricing of the FTTH services to be above the costs of the modelled FTTH operator. This may be justified on the basis of allowing additional headroom for the costs of an FTTH entrant (to ensure the FTTH price control does not choke off entrant investments) and encourage investment from both Eircom and alternative providers, with a view to potential infrastructure competition in future. In this scenario, however, it would be important to ensure that the anchor price does not remain materially above the FTTH costs beyond a sufficient period of time that can be justified based on the riskiness of the investment. Otherwise, there is a risk that Eircom would be overcompensated, and consumers would be paying excessively high prices.

4.61 If the FTTC anchor price is close to (but still above) the modelled FTTH cost, this approach would satisfy the Pareto principle, aiding migration without customers being worse off, as well as allowing Eircom to earn a return on its FTTH services. Under this scenario, it would be important to ensure that there is still sufficient headroom for alternative network operators to invest and earn a return on their own FTTH roll-out plans.

4.62 The monthly prices for FTTC-based VUA are shown in Table 4.1.

Table 4.1 FTTC VUA regulated prices

Service	1 July 2022–30 June 2023	1 July 2023–30 June 2024
FTTC-based VUA	€18.54	€19.12

Source: ComReg D11/21, Table 3.

4.63 Therefore, if the FTTC anchor price is set at €19.12 (rising in line with an extension of the cost model—Option 1a; or in line with inflation CPI-0% in the pricing continuity approach—Option 1b), this should not be significantly below the (estimated) costs of providing an FTTH VUA service, for risk of undermining investment incentives.

4.64 As part of the market review exercises, ComReg has begun to develop a BU LRIC+ model to estimate the costs of providing FTTH services. Based on the preliminary outputs from the draft model, we consider that the BU LRIC+ costs of providing FTTH VUA services are such that an FTTC anchor product at the existing price of €19.12, rising with inflation, would be above the costs of providing an FTTH VUA line, and would therefore not undermine investment incentives in FTTH networks. Further, while it is hard to establish causality, there is no suggestion that the BU LRIC+ FTTC prices prevailing in the market since 2018 have prevented investment in fibre.

4.65 Furthermore, if ComReg were to adopt Option 1c (e.g. once FTTC is removed from sale), we note that an emulated FTTC-like 100Mbit/s service provided on FTTH at this price should also provide a constraint on higher-speed products in light of Eircom's current FTTH VUA price for 150Mbit/s to 500Mbit/s services of €23.50.

4C Option 2: Cost-based price controls on FTTC and FTTH

4.66 Option 2 would involve cost-based price controls on both FTTC and FTTH services based on the actual (or hypothetical) cost of providing access (e.g. informed by a bottom-up cost model or top-down cost estimate).

4.67 With a cost-based price control on all WLA products, in theory static efficiency might be achieved such that the incumbent does not receive any monopoly rents from providing access to its infrastructure. However, this would need to be balanced against the potential loss of dynamic efficiency benefits if a cost-based-price control reduces the incentives for both the SMP and non-SMP infrastructure operators to make efficient investments in the market.

4.68 In order not to undermine investment incentives, any decision to introduce direct regulation of wholesale prices for FTTH must give due consideration to the downside risks of an investment in FTTH and consider the allowable returns over the lifetime of an investment.

4.69 Under this approach, we set out an option where FTTC continues to be price-regulated with reference to a bottom-up model (for the reasons set out previously), but where FTTH prices are also cost-regulated. Specifically, FTTH wholesale prices would be regulated to cost (plus a reasonable return) with reference to the BU LRIC+ costs from the cost model. This would require the development of a bottom-up LRIC+ model for FTTH services, based on an HEO (using Eircom's demand, network architecture, geographic scope and coverage, etc.). The costs derived from this model could then be used as a basis for setting a charge control on FTTH services.

4.70 This approach would favour the protection of end-users from excessive pricing, but may come at the expense of discouraging investment in FTTH networks if:

- the prospect of downside risks is not taken into account such that the price control imposed could lead to expected returns below the WACC;
- regulated prices based on a cost model developed for an HEO are below the costs faced by alternative operators with smaller scale.

4.71 This approach to regulation may be more appropriate in areas where there is limited or no prospect of infrastructure competition and/or there is no FTTC charge control (and thus no/weak retail price constraints).

4.72 In assessing whether to impose cost-based price controls on FTTH in this market review, ComReg should consider:

- whether there is sufficient clarity on costs and volumes such that the results from a cost model could be used to control prices without the risk of undermining Eircom's investment incentives;
- whether setting prices at costs would allow an expected return equal to the project-specific cost of capital (and that this cost of capital should appropriately reflect the level of risk and uncertainty associated with fibre network deployment).

4.73 First, ComReg would need to be aware of the risk of capping prices too tightly/at the wrong level. Even though there may be more historical information about demand for FTTH-based VUA services than was available at the time of the last market review, there is still no certainty in forecast volumes associated with the provision of FTTH-based VUA. Given this uncertainty, and that the FTTH price is likely to be very sensitive to the penetration rate (such that an incorrect forecast could distort future market development), there is a risk that a cost-based price could be set at the wrong level. Indeed, incorrect forecasts could affect future market developments, and distort investment decisions—for example, if the wholesale price were set too high or too low.

4.74 Second, if ComReg were to introduce cost-based price controls on FTTH after a period of pricing flexibility, it should recognise the impact of the allowed price levels on Eircom's ability to achieve lifetime cost recovery, and the importance of honouring a 'fair bet'. For an investment to be a fair bet, the firm making the investment should be allowed to enjoy some of the upside benefit when demand turns out to be high or costs low (i.e. the investor should be allowed returns higher than the cost of capital) in order to balance the probability that it will earn returns below the cost of capital if demand turns out to be low or costs high. In other words, if a charge control is implemented, the upside benefit of an investment is capped, while the downside is left unchanged. The fair bet principle ensures that some upside benefit of an investment remains to balance against the downside risk faced by the investor.

4.75 It would not be recommended that ComReg simply uses the outputs of the cost model as its sole basis for the price cap without ensuring that this still allows lifetime recovery of its investment, and taking into account the level of risk and uncertainty associated with the fibre network deployment.

4.76 In reaching our recommended option presented in section 4F, we consider whether a move away from pricing flexibility on FTTH VUA to a price control based on a BU LRIC model for the next market review period would be appropriate.

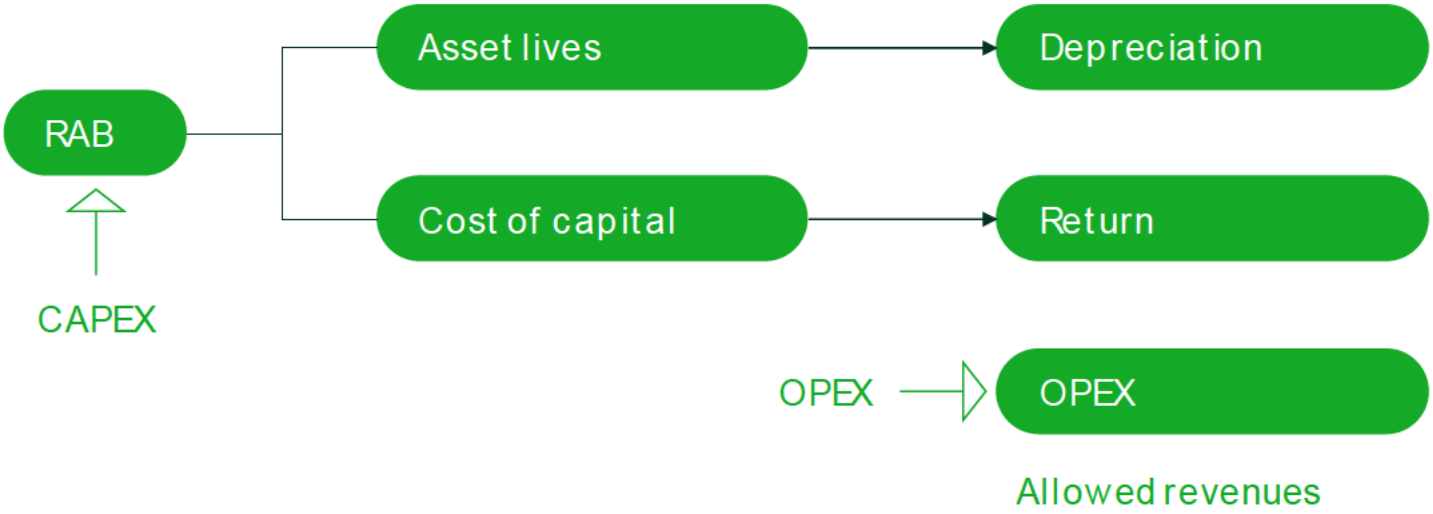
4D Option 3: A RAB-based approach

4.77 Rather than relying on cost-based price controls informed by a BU LRIC model, an alternative would be to follow a RAB approach. This option would involve pooling all the SMP operator's NGA assets into one RAB and estimating the allowed revenues that can be earned based on a top-down RAB–WACC model.

4.78 A key distinction between this option and Option 2 is that, whereas the latter would be based on a bottom-up estimate of the costs of an HEO, the RAB approach is built based on the actual capital and operating expenditure (CAPEX and OPEX) of the SMP operator.

4.79 As shown in Figure 4.2, the RAB captures the value of an investment that has been made, changing over time based on net CAPEX (CAPEX less depreciation) and inflation (thus allowing investors to be compensated for inflation). Under a RAB–WACC regulatory model, the investor can be allowed to earn revenues to compensate for the depreciation of the asset (dependent on the assumed asset lives of the investment), and to compensate for the cost of capital (calculated by multiplying the RAB by the estimated cost of capital).

Figure 4.2 The building blocks of a RAB-based price control



Source: Oxera.

4.80 When designing the RAB model, a key decision is which services to include in it; for example, ComReg could include only FTTH services, or FTTC and FTTH services.[36] This choice depends on the balance of objectives.

4.81 Setting a RAB including FTTH services only would allow ComReg to honour the fair bet principle on the new investment. However, without the ability to recover some of the costs of fibre investment from a wider range of services, this may not provide incentives to invest in FTTH in areas where the costs of provision are high and where demand (or willingness to pay) is expected to be low.[37] Furthermore, if FTTC services are omitted from the RAB, this option would still leave open the question of how to regulate FTTC services during the migration period to FTTH.

4.82 Setting a RAB including FTTC and FTTH would allow the SMP operator to recover some of the costs of its FTTH investment from FTTC services. This may be beneficial to promote investment as it allows a greater certainty of cost recovery, but might come at the risk of increasing the cost of FTTC services. This cross-subsidy may still provide a net welfare enhancement if there are significant (positive) externalities associated with the FTTH investment, and where the cost recovery of FTTH services might be a concern.

4.83 The RAB model has several properties that make it attractive for regulating the prices of NGA services in the market. First, given that the approach is based on the costs that the SMP

[36] This is an approach that Ofcom in the UK took in its 'area 3', where it determined there was no prospect for future infrastructure competition. Ofcom (2021), 'Promoting competition and investment in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26: Volume 4: Pricing remedies', para 2.25, p. 44.
[37] In principle, the fair bet parameters can be adjusted, but if the downside risk is very large such that the 'delta' required to the WACC in the upside case may also be very large, it may be more sensible to adopt a combined RAB and allow cost recovery also from FTTC services.

operator is expected to incur, this model can be more effective at ensuring that control wholesale prices do not result in excessive returns, while also allowing for cost recovery in line with the fair bet principle. Second, if the RAB approach is designed to include both FTTC and FTTH assets, this could allow the SMP operator to directly manage the transition from legacy to VHCN infrastructure, thereby possibly speeding up the adoption of FTTH.

4.84 At the same time, a significant concern with the RAB approach is that it is typically best suited to situations where the regulated assets have natural monopoly characteristics and, hence, where no or very limited competition is expected. In the Irish WLA market, however, Eircom is expected to face direct competition from SIRO in some areas, as well as indirect competitive constraints from Virgin Media.

4.85 As a result, in practice, all the purported benefits of the RAB model in relation to being able to provide more certainty around the level of returns that the regulated firm can earn, as well as more certainty about how to manage the transition from legacy to new infrastructure, are unlikely to be achieved.

4.86 Even if these issues could be overcome, there would remain significant practical challenges in implementing a RAB approach given that it would require significant informational and modelling demands to build an asset register, keep it up to date with ongoing CAPEX, monitor that revenues earned by Eircom are in line with the allowed revenues of the RAB–WACC model, and take remedial action if not. For all these reasons, we consider that a RAB approach would not be appropriate for setting NGA price controls in the Irish WLA market. This option is therefore not considered further in this report.

4E Option 4: Retail-minus approach

4.87 The approaches above can all be considered cost-based regulation; however, an alternative would be to adopt a **retail-minus approach.**

4.88 A retail-minus approach establishes the wholesale access price by considering what proportion of avoidable retail and other downstream costs and margins would need to be removed from the retail price so that just the wholesale components remain.

4.89 This approach seeks to achieve two objectives:

- to control the wholesale price (at a level that may or may not equal costs) with the constraint from retail markets transmitted to wholesale markets; and/or
- to protect downstream competition from the leverage of wholesale SMP into the retail market through a margin squeeze.

4.90 In the context of this report, we focus on the first objective, considering whether a retail-minus approach would provide a sufficient constraint on the wholesale access price. We note that considerations of margin squeeze are considered in detail in Oxera report: Part 3.

4.91 An important advantage of a retail-minus price control is that it is easier to implement than other controls as it does not require a detailed cost model (such as a BU LRIC network cost model). Setting the retail margin with reference to the SMP operator's retail costs requires significantly less data (i.e. wholesale costing data) than constructing a network cost model.

4.92 Under this approach, the level of the wholesale access price would mimic competitive outcomes and be cost-oriented only if retail prices are themselves set at competitive levels. In other words, the retail-minus approach seeks to transmit the retail pricing constraint onto wholesale prices.

4.93 In this regard, for this approach to be effective in constraining the price of wholesale access services, a sufficiently effective retail pricing constraint is needed in the relevant downstream market.

4.94 A retail pricing constraint on FTTH is likely to exist where the presence of many alternative retail operators relying on their own or third-party infrastructures is effective at constraining the SMP operator's pricing behaviour. Where this is the case, the SMP operator will be encouraged to set retail prices more keenly to ensure that it does not lose its customers to rivals.

4.95 However, consistent with the findings of the market analysis, a sufficiently effective indirect retail pricing constraint does not exist in the Commercial NG WLA market (in the absence of the anchor).

4.96 For all these reasons, we consider that a retail-minus approach would not be appropriate for setting price controls in the Commercial NG WLA Market. This option is therefore not considered further in this report.

4F Recommended option

4.97 For the reasons set out above, we consider that the case for implementing a retail-minus price control or RAB approach should not be considered further by ComReg.

4.98 This reduces the assessment to a choice between:

- Option 1—an anchor pricing approach, with a price cap on FTTC wholesale services and pricing flexibility on FTTH wholesale services; and
- Option 2—a cost-based price control on both FTTC and FTTH.

4.99 As noted above, ComReg's current approach to regulation is a form of anchor pricing approach whereby FTTC services are price-capped based on the outputs from a BU LRIC model, and

FTTH has pricing flexibility. In this regard, Option 2 would represent a shift away from the anchor product approach towards more intrusive price regulation. Such a shift could be warranted where there is no longer a valid rationale for favouring an anchor pricing approach, for example if all the following factors apply:

- price regulation of FTTC VUA services no longer provides an effective competitive constraint on FTTH VUA prices;
- the actual or potential competitive constraint from alternative infrastructures at the retail and/or wholesale level (i.e. SIRO, Virgin Media) is expected to be weak or ineffective during the entire market review period;
- the roll-out of FTTH networks is largely complete and/or the major risks associated with the investment programme have crystallised (i.e. take-up and other volume risks; cost risks; competition risks); and
- there are concerns that the SMP operator will earn returns over the investment's lifetime well in excess of the project-specific cost of capital, including an allowance for risk.

4.100 Based on the evidence we have reviewed, we consider that these criteria are not currently satisfied in the Irish WLA market.

4.101 With regard to FTTC VUA price caps acting as an effective constraint on FTTH VUA services, we note that since the 2018 WLA/WCA Market Review Decision, the prices for a number of Eircom's FTTH VUA services have decreased. In particular, Eircom's FTTH VUA 300Mbit/s, 500Mbit/s and 1Gbit/s services were reduced by €5 in 2020, and other FTTH VUA services have remained unchanged.[38] This contrasts with evidence from before the introduction of wholesale price regulation on FTTC services, where Eircom increased the price of its FTTH VUA 150Mbit/s service by €3 in 2016. This evidence is the opposite of what we would expect if FTTC VUA services no longer provided an effective constraint on FTTH services.

4.102 With regard to actual or potential competitive constraints from alternative infrastructures, we note that ComReg has provisionally concluded in this market review that such competitive constraints are likely to be insufficient during the next market review period.[39] However, this further supports the conclusion that the FTTC price anchor has been highly effective not only at capping, but also at exerting downward pressure

[38] Open eir (2022), 'Access Reference Offer Price List', 4 April, Table 1.2, p. 60, https://www.openeir.ie/wp-content/uploads/2022/04/ARO-Price-List-V21_0-Unmarked-04042022.pdf.

[39] Having considered the possibility of market entry or expansion by Virgin Media or SIRO in the Commercial NG WLA Market, ComReg considers that there is insufficient evidence to suggest that the potential competition from these sources would exert an effective competitive constraint on Eircom's provision of NG WLA, given the limited current and expected rollout by SIRO and insufficient data in respect of Virgin Media's entry into NG WLA (see ComReg (2023), 'Market Reviews; Wholesale Local Access (WLA) provided at a fixed location; Wholesale Central Access (WCA) provided at a fixed location for mass-market products; Consultation and Draft Decision', sections 6.5.2 and 6.5.3).

on, FTTH wholesale VUA prices, given the limited pricing constraints present from alternative network operators.

4.103 With regard to the risks associated with FTTH investments, we note that FTTH roll-out is still in the investment phase, with much of the investment still to take place. For example, while Eircom currently passes around 900,000 premises with FTTP,[40] it has plans to target 1.9m premises passed.[41] This shows that there is still significant investment to be undertaken over the market review period. As such, significant risks may remain in relation to the speed of take-up, which is one of the key drivers of financial benefits and payback in the FTTH business plan. In particular, we note that:

- the large majority of Irish broadband subscribers are still on FTTC or CGA services—as at Q2 2022, DSL and VDSL subscriptions made up approximately 47% of all fixed broadband subscriptions in Ireland, compared to approximately 29% on FTTP.[42] This implies that significant migration from legacy to VHCN services still needs to happen, the speed of which is uncertain, affecting returns and payback periods for the FTTH investment;
- uncertainty remains about the impact of infrastructure competition given the FTTH investment plans of other operators such as SIRO (which competes directly with Eircom at the wholesale level), and Virgin Media (which competes with Eircom at the retail level). The investment plans and pricing strategies of these alternative providers could still have a material impact on the level and speed of take-up of Eircom's FTTH services;
- there are other uncertainties and risks facing Eircom, including cost risk (given the high inflationary environment at this time, and potential fibre supply issues).[43]

4.104 Finally, while we do not have clear evidence at this stage to determine whether Eircom can be expected to earn returns over the lifetime of its FTTH investment that could be well in excess of the project-specific cost of capital, including an allowance for risk, this is in large part because many of the key risk factors of the investment have not yet crystallised, and it is therefore too early to assess with certainty what the trajectory of returns might be.

[40] eir '900,000 Homes and Businesses Now Passed by eir's High-Speed Fibre Network', https://m.eir.ie/pressroom/900000-Homes-and-Businesses-Now-Passed-by-eirs-High-Speed-Fibre-Network/.
[41] eir (2022), 'eir announces completion of significant infrastructure deal with Infravia', 30 June, https://www.eir.ie/pressroom/eir-announces-completion-of-significant-infrastructure-deal-with-Infravia/.
[42] ComReg Quarterly Key Data Reports: Data Portal: Broadband subscriber lines by platform (excluding mobile broadband subscriptions and FWA, but including: DSL, VDSL, Satellite, Cable, FTTP). Available at: https://www.comreg.ie/industry/electronic-communications/data-portal/graphic-info/, accessed 21 September.
[43] For example, fibre prices in Europe have increased significantly since January 2021 from €3 to €6.5. See *Financial Times* (2022), 'Europe needs a more robust optical fibre supply chain, says Corning chief', 11 September, https://www.ft.com/content/33197e36-b2c9-4c96-8dc7-60446f7abd6c.

4.105 For all these reasons, we consider that it would be too soon to impose cost orientation on FTTH services. ComReg imposing a cost-oriented price control on FTTH services with reference to a bottom-up cost model risks undermining investment incentives, especially where the outputs from the cost model may be sensitive to many assumptions that are still uncertain—in particular, volumes and costs. In this environment, regulation of FTTH through price caps could lead to regulated prices being set at the 'wrong' level (i.e. at a level that reduces the expected returns on the investment significantly below the WACC), which would have the significant risk of undermining the investment incentives for FTTH, contrary to ComReg's objectives.

4.106 Furthermore, we consider that continuing with an FTTC anchor pricing approach with pricing flexibility on FTTH is still warranted during the next five-year market review period. In particular, we consider that the anchor pricing approach will strike the most appropriate balance between:

- offering protection to customers from the risk of excessive prices (due to the fact that FTTC and FTTH services are in the same market and will be substitutable, and hence will act as a constraint on the pricing of FTTH services), and
- providing investors in FTTH networks with an opportunity to earn fair returns by not directly capping FTTH prices too early, which could undermine the investment incentives, especially if there remains uncertainty over the speed of transition from FTTC to FTTH.

4.107 Each of the anchor product options considered above would be supportive of ComReg's objectives to:

- ensure that wholesale prices do not lead to excessive end-user prices on FTTC services, as the wholesale prices would continue to be regulated at current levels;
- encourage investment in FTTH by the network operators, given pricing flexibility and assurances that the FTTC prices are not significantly below the costs of providing FTTH services;
- ensure that regulated FTTH access prices are not set so low as to choke off investment that would otherwise be commercially viable;
- provide protection against excessive end-user prices for FTTH services (particularly lower-bandwidth FTTH services).

4.108 As noted earlier in this section, of the two options considered for controlling FTTC prices under an anchor pricing approach, a flat, real pricing continuity approach (Option 1b) can be expected to produce a slightly higher price path for FTTC prices than under Option 1a (a charge control with reference to the existing FTTC cost model), given that no explicit efficiency assumptions would be built into the approach. As such, Option 1b would tilt the balance slightly towards incentivising investment between competing network infrastructures, while still providing protection for consumers by limiting the extent to

which prices can rise to general inflation levels. For similar reasons, a pricing continuity approach (Option 1b) may also incentivise a speedier migration towards FTTH services, provided that FTTH prices stay constant or grow at a lower rate than general inflation.

4.109 Furthermore, Option 1b is also a simpler approach than Option 1a, and would avoid the continued need for engaging in a detailed modelling exercise, whose core assumption is that a HEO would continue to invest in an FTTC network as a modern equivalent asset at a time when both Eircom and the alternative network operators are rolling out FTTH networks. Any potential benefits of doing so in terms of more precisely estimating the hypothetical BU LRIC costs of FTTC may not outweigh the significant resource costs involved in maintaining such a cost model.

4.110 While it is ultimately for ComReg to determine whether an approach that slightly tilts the balance towards providing investment incentives to invest in FTTH would be consistent with its policy objectives, **Oxera's recommendation is for ComReg to consider adopting Option 1b, with an anchor price based on flat, real prices (pricing continuity) for FTTC VUA services, taking the regulated FTTC VUA price at the end of the current price review period (2023) as the starting point.**

4.111 Furthermore, to ensure that FTTH services continue to be constrained by an anchor product at the point when the FTTC network is switched off, **Oxera also recommends that ComReg require Eircom to provide an emulated 100Mbit/s FTTC-like product on the FTTH network (Option 1c) at a price consistent with the FTTC anchor under Option 1b.**

4.112 This emulated FTTC-like product should be made available in advance of the implementation of copper switch off, such that the emulated product is available during the transition from CG of FTTC to FTTH services.

4.113 This approach will ensure that where the FTTC network is not present, the prices of FTTH continue to be constrained by the presence of an anchor. It also has the added benefit of providing protection to users who, at the point of the FTTC switch off, would have an equivalent service available on the FTTH network. They would therefore not face the prospect of being force-migrated onto a higher-priced, higher-speed FTTH product, which they may not wish to purchase.

4.114 This emulated service could also be made available now in areas where there are currently only CGA services in addition to FTTH. Given the absence of FTTC in these areas, and the proposals to deregulate CG services, the absence of an emulated service would mean there would be no anchor to constrain FTTH pricing in those areas. However, if there is national pricing on FTTH, the risk of FTTH prices rising in the few areas where FTTC is not present (currently) may be limited.

Further, in the absence of FTTC in the 'rural commercial area' and where the CG WLA Market is deregulated (as is proposed in the market review), there is a risk to consumers in these areas that they would be force-migrated onto a higher-priced, higher-speed FTTH service that they may not want. The role of the emulated anchor in these areas would be to protect consumers in the transition. For this reason, the requirement to provide the emulated service in that area at the point when CGA is deregulated (and not wait for the copper switch off) could be considered.

4.115 However, given the specific circumstances of the 'rural commercial area' in which CG prices are already higher than the existing entry-level FTTH 150 Mbit/s service, consumers can in fact already benefit from migrating to FTTH.

4.116 In this case, consumers would not be worse off (and could in fact benefit if they switch to FTTH) if the emulated anchor is not mandated now and is instead required at copper switch off, as will be the case in the rest of the country.

Box 4.1 Oxera recommmendations

In summary, following our above assessment, we recommend that price regulation of monthly rental prices for NGA VUA services, in the WLA market where Eircom has SMP, should comprise:

- pricing continuity of FTTC VUA services, taking as a starting point the current price from the BU LRIC+ model (which in July 2023 will be €19.12), with the price allowed to increase in future by no more than inflation (CPI-0%)—i.e. a flat, real price cap;
- pricing freedom on FTTH VUA services;
- a requirement on Eircom to make available a 100Mbit/s FTTC-like service on its FTTH network, and to provide this service at the regulated price of FTTC in line with the recommendation above. This service should be made available in advance of the implementation of copper switch off which means that new FTTC connections are no longer available.

4.117 If such an approach were taken forward, we consider that this would have positive outcomes for stakeholders and competition in line with ComReg's objectives as set out above. Specifically:

- Eircom would be allowed to continue to make returns on the FTTC network within the bounds of regulated prices and would still have some pricing freedom on FTTH to ensure that investment incentives are maintained;

- access seekers taking FTTC services would benefit from price stability and be protected from further price rises above inflation, thus providing certainty and predictability;
- access seekers would also be protected from any price increases coming from forced migration, as the emulated service will be available to ensure that they can continue to get an equivalent service for an equivalent price;
- access seekers would benefit from protection against significant wholesale FTTH price increases, given the constraints coming from the anchor;
- alternative FTTH wholesale providers and potential investors in FTTH would be protected from overly tight controls on FTTH VUA prices in the market, thus reducing the risk that investment incentives of alternative operators are choked off, and providing an encouraging investment environment.

5 Regulatory approach to wholesale offers including price reductions

5.1 In the sections above, we have focused on options to provide constraints on Eircom's ability to set excessive prices for wholesale NG VUA services. However, in the 2018 WLA/WCA Pricing Decision,[44] ComReg also imposed a ban on promotions and discounts, with wholesale price reductions permitted only in exceptional circumstances, and in any case, subject to a price floor.

5.2 We re-cap ComReg's 2018 decision below, including its justification for ex ante controls in line with its objectives and policy goals for the market. We then consider what changes, if any, can be made to the rules to best achieve ComReg's objectives.

5A Conditions in place from the 2018 Pricing Decision

5.3 Following the 2018 Pricing Decision, ComReg imposed a ban on wholesale promotions and discounts for WLA or WCA services. However, it noted that it may permit reductions in wholesale VUA prices in exceptional cases, provided the price reduction met a number of criteria and did not fall below a level consistent with Eircom's full deployment costs in the specific geographic area.

5.4 Specifically, ComReg would assess requests to lower wholesale prices for FTTC/H on a case-by-case basis and subject to pre-conditions, including that the reduction to the price for FTTC/H-based VUA:

- would be an exceptional measure and should not create any legitimate expectation or precedent;
- would not be a short-term measure;
- would not prevent new investment by alternative operators;
- should apply to a substantial geographic region and not just to a very select number of exchanges chosen by Eircom. Following an examination of a request from Eircom, ComReg would exercise its discretion to determine whether a proposed price reduction might be justified in such a specific geographic region.

5.5 Moreover, the price for FTTC/H-based VUA would not be any lower than the price floor. The price floor was set for FTTC VUA services and FTTH VUA services as shown in Figure 5.1.

[44] ComReg (2018), 'Pricing of wholesale broadband services Wholesale Local Access (WLA) market and the Wholesale Central Access (WCA) markets Response to Consultation Document 17/26 and Final Decision', ComReg 18/95, D11/18 (henceforth ComReg 18/95).

Figure 5.1 Price floor for FTTC VUA and FTTH VUA

FTTC VUA, provided that the price was not lower than

- Eircom's full deployment costs for FTTC-based VUA (including EVDSL) in the specific geographic area, calculated using a BU LRAIC+ costing methodology and with Eircom's indexed RAB applied to reusable assets; or
- an alternative operator's FTTC-based VUA price (or its retail price minus retail costs and relevant network costs)

FTTH VUA, provided that the price was not lower than

- Eircom's full deployment costs for FTTH-based VUA in the specific geographic area; or
- an alternative operator's FTTH-based VUA price (or its retail price minus retail costs and relevant network costs)

Source: Oxera based on ComReg 17/26 and D11/18.

5.6 The FTTC price could be assessed against the outputs of the BU LRIC+ model. However, given that there was pricing flexibility on FTTH VUA services and ComReg was not monitoring Eircom's costs for FTTH-based VUA (for example, with reference to a cost model), ComReg considered that the full FTTH-based VUA deployment costs, absent a cost orientation obligation, should be calculated with reference to Eircom's own business case, and checked against the NGA cost model to ensure that all the relevant cost categories are included.[45] ComReg noted that, in exceptional circumstances, Eircom may be permitted to reduce prices below the regulated FTTC/H-based VUA price level, but above the price floor, to align with lower levels set by an alternative operator's prices.[46]

5.7 ComReg outlined that the objective of a price floor was to:[47]

> prevent Eircom from setting prices too low where they could foreclose economically efficient alternative investment by other operators that are either investing or planning to invest

5.8 and that it would:[48]

> prevent the risk that Eircom could set wholesale access prices too low which could be detrimental to efficient infrastructure investment in networks by other operators.

5.9 It also justified the requirement of an assessment of any requests to lower prices against the pre-conditions set out

[45] ComReg (2017), 'Pricing of Wholesale Services in the Wholesale Local Access (WLA) market and in the Wholesale Central Access (WCA) Markets: Further specification of price control obligations in Market 3a (WLA) and Market 3b (WCA)', Consultation 17/26, 7 April, para. 12.61.
[46] ComReg (2017), 'Provision of Universal Service by Eircom 2015 Quality of Service Performance', Consultation 17/27, 7 April, para. 12.51.
[47] ComReg D11/18, para. 12.88.
[48] Ibid.

above (rather than relying on ex post competition law) on the basis that this would:[49]

ensure that the objectives of promoting competition and encouraging investment by other operators is not jeopardised.

5B Recommended adjustments

5.10 The reasons why ComReg introduced restrictions on the commercial freedom of Eircom back in 2018 remain valid; however, we consider that a total ban on promotions and discounts may be too restrictive in some situations.

5.11 Eircom's decision to lower wholesale prices could lead to good outcomes for consumers, and may be needed in some cases—for example, to allow Eircom to compete fairly with alternative wholesale operator pricing, where relevant. Therefore, there may not be justification for an outright ban subject to exceptional cases. On the other hand, handing Eircom complete freedom to make price reductions or offer targeted discounts, promotions and/or geographic pricing subject only to an ex post assessment under competition law would also not strike the right balance to achieve ComReg's objectives.

5.12 To provide safeguards against wholesale pricing practices that can adversely affect investment by alternative operators, we consider that it would be more proportionate to have an approach whereby changes to Eircom's wholesale pricing proposals must first be assessed and approved by ComReg on an ex ante case-by-case basis , in line with a number of key principles.

5.13 These principles should be informed by the objectives of promoting competition and encouraging investment, including by ensuring that existing and prospective investment by alternative network operators is not jeopardised. Specifically, ComReg must be satisfied that Eircom's wholesale pricing practices:

- are unlikely to have a material impact on economically efficient alternative investment by alternative network operators that are either investing or planning to invest in VHCNs; and
- will generate clear and demonstrable benefits, in terms of being a critical element of Eircom's investment plans, and/or the prices will deliver benefits for consumers.

5.14 These principles ensure that ComReg maintains conditions to prevent Eircom from engaging in pricing behaviour (including, for example, through price reductions, geographic differentiation of prices, or targeted discounts and promotions) that could have a material impact on existing and/or nascent competition—i.e. any pricing that could foreclose economically efficient alternative investment by other operators that are investing or planning to invest in VHCNs. This will support the

[49] Ibid.

objective of promoting competition and encouraging investment by alternative operators.

5.15 In assessing any reductions in prices or specific discounts and promotions offered on wholesale NG VUA prices, due regard should be given to:

- price levels—are prices below the costs of provision?
- the terms and conditions attached to the offer—is the promotion or discount offered on terms or conditions that can have loyalty-enhancing effects, such as applying retroactive rebates on all sales conditional on meeting a certain volume threshold; volume discounts targeted at specific operators; or discounts being conditional on exclusivity or quasi-exclusivity arrangements?
- geographic pricing—are discounts targeted at specific areas of the country?

5.16 For each of these factors, we consider how ComReg can identify and assess whether Eircom's pricing practices could be deemed as being incompatible with the principles set out above and have adverse effects on competition, particularly with regard to entry and expansion by alternative network operators.

5B.1 Price levels

5.17 Eircom could be permitted to lower its wholesale VUA prices, if doing so:

- reflects reductions in costs; or
- allows it to react to other commercial prices in the market such that it is not at a competitive disadvantage to any new offers emerging.

5.18 However, consistent with the principle of replicability, ComReg should ensure that Eircom cannot lower prices to levels that could foreclose economically efficient alternative investment by other operators that are either investing or planning to invest. This is particularly important for FTTH services, where we see alternative network operators entering the market and where infrastructure competition may emerge, undermining Eircom's SMP. For example, there could be circumstances where Eircom *may* have an incentive to price its FTTH-based VUA service below costs in order to discourage alternative operators (such as SIRO) from investing in or expanding their FTTH network.

5.19 We consider that the principles of the price floor set out by ComReg in the 2018 Decision are reasonable, and that a price floor set with reference to deployment costs based on the estimates from a bottom-up LRIC model could provide a reasonable benchmark.

5.20 In setting a price floor, we consider that:

- for FTTC VUA, prices should be assessed against the costs of provision from the bottom-up LRIC model (or, going forward, the regulated price based on pricing continuity, in line with the recommendations in section 4F above);
- for FTTH prices, ComReg would ideally assess price levels against the deployment costs indicated in a BU LRIC+ model for the provision of FTTH services. Having a price floor at this level would be effective in ensuring that an efficient operator would be capable of competing with Eircom at this price level, consistent with ComReg's policy objectives.

5.21 We understand that ComReg is in the early stages of developing a draft cost model for FTTH, but that this is not sufficiently developed at this stage to provide a reasonable reference point for the costs of FTTH deployment. Therefore, ComReg may wish to consider setting a reference point for FTTH VUA price floors against the FTTC anchor price point. This is because, absent any reliable benchmark of what the FTTH costs are, it would be reasonable to assume that these costs could not be (much) lower than the FTTC anchor price, which is itself derived from a FTTC BU LRIC model. In this sense, the FTTC anchor price point is taken as a proxy for the costs faced by Eircom in providing the FTTH wholesale service.

5.22 While the specification of these 'price floors' for FTTC and FTTH VUA services will provide a guide, we caution against having a rule whereby these become an absolute floor with price never allowed to fall under it. This is because there may be cases where pricing below this reference level (even in the case of a modelled BU LRIC) may be economically rational. For example, reductions in prices below these levels may be required to encourage take-up and increase demand for FTTH services, especially in the face of rival infrastructure operators adopting aggressive pricing strategies (i.e. if required for financial viability of the investment in the face of competitive threats).

5.23 Therefore, ComReg's review process should allow Eircom the opportunity to justify why prices below the floor may need to be specified.

5.24 In reviewing price reductions for FTTC/H VUA,[50] ComReg could consider adopting the following two-step process.

[50] In practice, these circumstances are more likely to arise in relation to FTTH VUA, as FTTH is expected to be the focus of competition going forward. However, to the extent that there are areas where an alternative network operator invests in FTTH and in which Eircom only has an FTTC network, these considerations also may also be relevant in respect of FTTC VUA.

Box 5.1 Two-step process for reviewing price reductions

Step 1: assess whether the proposed price is below the FTTC anchor price; if it is, proceed to step 2.

Step 2: allow prices below the floor only if Eircom provides evidence demonstrating that the FTTC/H VUA prices charged by other network operators (e.g. SIRO) are below the FTTC anchor price. However, there should be a strong presumption that Eircom should not be allowed to set prices below a proper measure of the cost of its own network, including all sunk costs. This presumption is rebuttable in some circumstances, as explained below.

Under Step 2, ComReg should consider the basis for rivals setting prices below the FTTC anchor price, when assessing whether Eircom should be allowed to match the lower price.

If the alternative network operator is setting prices below the FTTC anchor price because the operator faces costs which are lower than the FTTC anchor, then it should be allowed to take advantage of these efficiencies. If Eircom would have to price below its own costs to match the rival's price, this would negate the efficiency advantage of the alternative network operator and thus have an impact on the operator's investment case and its ability to establish itself in the market. Eircom's pricing below its own costs would not constitute competition on the merits and, in such a case, Eircom should not be allowed to match the rival's price. Hence, in this scenario, Eircom should only be allowed to match the rival's prices if it can provide evidence that its own costs are also lower than the FTTC anchor, as well as being lower or equal to the rival's prices.

If the alternative network operator does not have lower costs than Eircom but is pricing below the FTTC anchor and below Eircom's costs, then Eircom may be allowed to respond if it can be shown that this level of pricing is the efficient market-wide pricing in the short run due to demand conditions. In other words, it must be demonstrated that below cost pricing is economically efficient, rather than a strategy to enhance and maintain market power. In short, there should be a strong presumption that Eircom would not be allowed to set prices below a proper measure of the cost of its own network (including all sunk costs). This presumption is rebuttable in some circumstances (as explained above), but Eircom would need to have a strong body of evidence to support it.

5.25 If the prices being assessed by ComReg are above the floor (as assessed under Step 1), these may in general be allowable. However, if the prices being offered are subject to certain conditions, this should be considered in the round with an assessment of other loyalty-inducing conditions or geographic-

targeting strategies that could undermine alternative investment (as discussed further below).

5B.2 Conditional wholesale pricing offers

5.26 Irrespective of whether wholesale VUA prices are above or below cost, there may be cases where other elements of the wholesale offer have the effect of undermining actual or prospective competition. This may include conditions that have loyalty-enhancing effects, such as exclusivity requirements, volume discounts or loyalty rebates (paid in exchange for customers hitting a given volume target).

5.27 It would not be reasonable or helpful to attempt to codify all possible types of circumstance that might arise. As such, ComReg will have to assess requests for changes to wholesale prices on a case-by-case basis. It will need to take into account any particular circumstances identified by Eircom, and be guided by the overarching principles that, for such pricing practices to be allowed, they must not have a material impact on existing or nascent competition, and must generate clear benefits in terms of being a critical element of Eircom's fibre investment plans.

5.28 As set out above, while some wholesale pricing offers can have benefits—for example, lower wholesale prices for access seekers potentially leading to lower prices for consumers—certain pricing practices could undermine the investment case of alternative network operators, and may therefore be contrary to the consumers' interests in the long run. This is more likely with pricing strategies that have a loyalty-inducing effect.

5.29 For example, while **volume-related discounts** result in lower prices to customers and may have cost-based efficiency justifications, the conditions through which these discounts can be obtained should be carefully considered as there may be a risk that they impede effective competition. In particular, as the discount is linked to the volume purchased by the customer, it can have loyalty-enhancing effects—the larger the volumes required to achieve a given level of discount, the greater the loyalty-enhancing effect. This could strengthen Eircom's market power at the wholesale level by making it harder for alternative network operators to acquire wholesale customers to their networks.

5.30 Any Eircom wholesale discounts should be non-discriminatory and transparent (e.g. available to all retailers on its network) in line with other regulatory obligations. Therefore the volume thresholds at which the discounts apply should not be targeted such that, in practice, they can be met only by Eircom's downstream arm. If Eircom were able to favour its downstream arm (for example, by setting the volume threshold to obtain a discount at a level that only Eircom's retail arm is able to achieve), it could leverage its wholesale market power at the

retail level, which could adversely affect competition to the detriment of consumers.[51]

5.31 Similarly, **exclusivity discounts** (which are available only if the customer buys exclusively or quasi-exclusively from the dominant firm) would incentivise access seekers to avoid multi-supplier arrangements, with potentially significant detrimental effects on alternative wholesale network operator investment. Such discounts are harder to justify for cost reasons and raise stronger potential concerns about foreclosure of new/smaller competitors.

5.32 Furthermore, the strength of the loyalty-enhancing effects is linked to the **duration** of the wholesale offers. For example, if customers are offered **long-term discounts**, this can compound the loyalty-enhancing effects since customers are locked-in to purchasing the specific volume from that supplier for a long time period (e.g. multiple years). Therefore, long-term discounts that are conditional on volumes or exclusivity may be of particular concern for the investment case of alternative network operators.

5.33 When considering the type of discounts that could be offered, there are two main types:

- **retroactive rebates,** granted on all purchases ('back to unit one');
- **incremental rebates,** granted only on purchases over a given volume threshold level.

5.34 Retroactive rebates have greater potential to harm competition, as they make it less attractive for customers to switch incremental amounts of demand to alternative sellers given that the customers would 'lose' the discount on all other volumes. The alternative operator would therefore need to offer a much larger discount on the incremental demand, which may not be sustainable, particularly if the level of discount required is below the costs of provision.

5.35 Careful consideration of conditional wholesale pricing offers in relation to **FTTH services** is of particular importance, given that FTTH is expected to be the focus of competition going forward. If Eircom were to introduce conditional offers which deter efficient investment by alternative network operators in FTTH networks this could enable Eircom to secure an entrenched position of market power at the wholesale level in relation to FTTH services in the long run.

5B.3 Geographically differentiated pricing

5.36 Where there is variation in the costs of provision across different geographic areas, it would not be unreasonable for Eircom to set geographically different prices for FTTC VUA or FTTH VUA services in those different areas. We recognise that

[51] In the Oxera report: Part 3, we outline how wholesale pricing discounts should be considered in the context of the margin squeeze obligations.

where the costs of provision differ, it would be legitimate to have different prices. Pricing in this way could be efficient and could lead to good outcomes for consumers if lower costs lead to lower prices.

5.37 However, there is a concern that if Eircom targets price reductions in specific areas to a level that may deter alternative network roll-out, it will face reduced competition and benefit from a higher market share in that area over the long term. This could lead to worse outcomes for consumers in terms of choice, innovation and price.

5.38 Therefore, there should be conditions in place to ensure that Eircom cannot target discounts only in low-cost areas where there may also be the prospect of competition, while leaving prices higher elsewhere. Not only could this result in disincentives to investment from alternative operators in areas targeted by the discounts, but it could result in significant price disparities across Ireland, with customers not living in areas with infrastructure competition being charged significantly higher prices.

5.39 For this reason, we recommend that the rules and conditions on geographic pricing be strengthened to ensure that any **price differentials have to reflect cost differentials** across different geographic areas.

5.40 That is, we propose that Eircom be allowed to set different prices in different geographic areas **provided it can justify that the price differences are not larger than the difference in the costs of provision between the two areas**. In the absence of a fully specified and agreed BU LRIC cost model, Eircom would need to justify its strategy with reference to the costs it is facing.

5.41 We note that this would be a necessary (but not sufficient) condition for the approval of any such geographically differentiated wholesale offer by Eircom.

5.42 This condition would need to be considered alongside the other conditions outlined above—for example, in respect of how price levels compare to a price floor, or whether the geographically differentiated wholesale offer contains additional conditions that could weaken the prospect of infrastructure competition in the WLA market.

5B.4 Summary of recommendations

5.43 We recommend that rather than imposing a ban on wholesale offers by Eircom in the WLA market, as is currently the case (subject to an exceptional circumstances review), Eircom be allowed to make wholesale offers subject to a case-by-case approval process from ComReg, in line with a number of key principles. These principles should be informed by the dual objectives of promoting competition and encouraging

investment, including by ensuring that existing and prospective investment by alternative operators is not jeopardised.

5.44 Specifically, ComReg must be satisfied that Eircom's wholesale pricing practices:

- are unlikely to have a material impact on economically efficient alternative investment by other operators that are investing or planning to invest in very high capacity networks; and
- will generate clear and demonstrable benefits, in terms of being a critical element of Eircom's investment plans and/or that the prices will deliver benefits for consumers.

5.45 When undertaking its case-by-case assessment, ComReg could consider the following factors:

- FTTC and FTTH VUA prices should not, in general, be lower than a 'price floor', determined by the FTTC anchor price. A two-step process could be followed in this regard:
  - Step 1: assess whether the proposed price is below the FTTC anchor price; if it is, proceed to step 2.
  - Step 2: allow prices below the floor only if Eircom provides evidence demonstrating that the FTTC/H VUA prices charged by other network operators (e.g. SIRO) are below the FTTC anchor price. However, there should be a strong (but rebuttable) presumption that Eircom should not be allowed to set prices below a proper measure of the cost of its own network, including all sunk costs.
- The wholesale offers for FTTC/H-based VUA do not prevent new investment by alternative operators or undermine competition through any conditional or loyalty-enhancing offers that would undermine an equally efficient operator's incentive to compete. Long-term discounts that are conditional on volumes or exclusivity may be of particular concern in this regard.
- Any proposals to set different prices for FTTC/H-based VUA services in different geographies can be justified only on the basis of clear and material cost differences between regions. The difference between prices for VUA services in different areas can be only as large as the difference between those areas in the costs of providing the VUA service.

5.46 We recommend that ComReg assesses all of these issues in the round, taking into account the particular circumstances and evidence identified by Eircom. ComReg would exercise its discretion following an examination of a request from Eircom in line with the principles set out above.

6 FTTH connection and migration charges

6.1 The discussions and recommendations set out above have focused on the need for price controls on the monthly rental charges for NG VUA services. However, in the 2018 WLA/WCA Pricing Decision, ComReg also set conditions on the prices that Eircom could charge for FTTH connections and migrations.

6.2 In this section we consider whether the approach currently in place remains appropriate, or whether the rules need to be amended in view of ComReg's objectives.

6A Conditions in place from the 2018 market review

6.3 In the 2018 WLA/WCA Pricing Decision, ComReg set out its position:[52]

For FTTH connection charges ComReg is of the view that Eircom should have the flexibility to recover the customer specific costs of the connection related investments from a combination of an initial upfront connection charge, a charge for migration to another service provider and a recurring rental charge, but that the new connection charge and the charge for migration to another service provider should be subject to two conditions:

(i) The charges for new connections and migrations to another service provider should be the same;

(ii) The combination of a new connection charge and a charge for migration to another service provider should not exceed the level that would allow Eircom to recover its customer specific connection related investment over the lifetime of the underlying assets

6.4 In reaching its decision, ComReg was seeking to address its concerns that if connection costs were high and migration costs low:

- the high connection costs would disincentivise take-up of FTTH services:[53]

potential distortions to competition arising from having a first time connection charge that was so high that it would be inconsistent with the objective to encourage access to the internet at a reasonable cost to end users.

- the differential in price would distort incentives on retailers to target already connected customers over unconnected customers:[54]

ComReg raised concerns that having a new connection cost that is significantly higher than the cost incurred by the RSP [retail service provider] to migrate an existing customer to another RSP could

[52] ComReg D11/18, para. 2.37.
[53] Ibid., para. 3.19.
[54] Ibid., para. 13.22.

incentivise RSPs to develop a discriminatory pricing measure, differentiating between those end users in premises that already have connection and those that who have no connection

6.5 Specifically, at the time, ComReg considered:

having a charge for connecting a new customer that is significantly higher than the charge for migrating an existing customer to another service provider could be a deterrent to encouraging take-up of NGA services by new end users and there is an obvious reluctance by service providers other than Eircom retail to connect customers to Eircom's FTTH network. There is growing evidence that the existing regime, where a service provider is charged €270 for a new connections but only €2.50 for a migration to another service provider, does not promote competition and is leading to a slower uptake for NGA services to the detriment of end users.[55]

6.6 Given its concerns, ComReg proposed a single fee across the two on the basis that this would avoid the 'distortions' outlined above and that:[56]

ComReg's decision to allow migration charges to contribute to the recovery of FTTH connection specific costs …recognises that the RSP that acquires a new customer through a migration is benefitting from the original connection

6B Assessing the need for continuation of this approach

6.7 We consider that the approach adopted by ComReg in 2018 (and considered again in 2021 – ComReg D11/21) is likely to have been appropriate, given the conditions of the market at the time. In particular, the nascent stage of FTTH roll-out, low migration fees, and high connection fees that could have the effect of discouraging operators from taking up FTTH services, could have been a barrier to deployment and take-up of FTTH services. Such an outcome would not have been aligned with ComReg's policy objectives to encourage the roll-out and take-up of FTTH.

6.8 With ComReg's objectives in mind, we consider that the steps it took to equalise FTTH connection and migration costs—and thereby encourage lower connection charges—were appropriate, such that this could encourage the take-up of FTTH services.

6.9 While ComReg's approach had the impact of increasing migration significantly above cost (to facilitate some cross-subsidisation of connection charges), given the balance of objectives and the desire to encourage take-up of services and get more customers onto FTTH services, any potential distortions to competition caused by setting migration charges significantly above cost are likely to have been minimal.

[55] ComReg D11/18, para. 13.23.
[56] ComReg D11/21, para. 8.70.

6.10 However, there could be a concern that as the number of customers connected to the FTTH network increases, any migration charges significantly above cost could result in a reduction in migrations to competitors if the end-user were to face higher switching costs as a result (i.e. if the RSP were to pass on the migration costs to customers).

6.11 During the early stages of FTTH deployment, the majority of customer acquisitions would require Eircom to incur the cost of a new physical connection, and policy decisions to encourage competition for new customers (new connections) could be justified in line with ComReg's objectives. While the overall connected base remains small, a limited number of customers would have been affected by above-cost migration charges.

6.12 ComReg has stated that since the Decision in 2018 to equalise prices between connections and migrations, wholesale volumes on Eircom's platform have grown significantly and that this has been a positive impact of the proposals.[57] In this regard, ComReg's approach may have had the desired effect.

6.13 In assessing whether changes to the existing policy might be necessary, it is important to consider what the observed pricing practices in the market are today (under the existing regulations) and the degree to which current or revised controls on FTTH connection and migration charges could protect consumers while supporting other ComReg objectives with regard to promoting competition and the take-up of FTTH services.

6B.1 What is happening in the market today?

6.14 Market evidence suggests that charging behaviour at present is that connection and migration charges have been waived by RSPs.

- At the retail level, several operators are waiving the connection fees entirely. In particular, we understand that Eircom retail and Vodafone did not charge customers an upfront connection charge at various points over the last number of years, and Sky has been charging significantly below the wholesale connection fees set by Eircom at the time.
- We also understand Eircom has set the wholesale connection charges to zero at the wholesale level for a period of time starting on 1 October 2022, reducing connection/migration charges to €0.[58]

6.15 This shows that the current cap is not binding—i.e. providers have made a commercial decision to set very low or zero

[57] ComReg D11/21, para. 8.39.
[58] Eircom proposes a Standalone NGA (FTTH) Service Connection and Migration Charge of €0 between 1 October 2022 and 31 March 2023. See Eircom's Reference Access Offer, p. 57, https://www.openeir.ie/wp-content/uploads/2022/09/ARO-Price-List-V23_0-Marked-01102022.pdf.

connection charges and, given the equalisation requirement, low or zero migration charges.

6.16 If this commercial pricing behaviour were to continue and become the norm during the market review period, concerns about the level of connection charges affecting customers' decisions to take up FTTH, and any potential distortions to competition that would come from above-cost migration charges, would also be unwarranted.

6B.2 Options for regulation

6.17 In this market context, we consider that there are two alternatives in with regards to connection and migration charges:

- Option 1: continue with the existing approach of requiring connections and migrations to be equalised and not (together) increase to levels that would lead to over-recovery of connection costs;
- Option 2: take steps to limit migration charges above cost, to avoid distortions to the migration decision as a larger number of customers are already connected to the network, and place limits on connection charges to ensure that new connections remain affordable and are not adversely affecting the take-up of FTTH services.

Option 1

6.18 If the currently observed pricing behaviour (of Eircom lowering connection and migration charges to zero) is repeated after 31 March 2023, the current caps could remain in place, simply as a safety cap, to ensure that, should prices rise in future, they cannot (together) increase to levels that would lead to over-recovery of connection costs.

6.19 While this could mean that migration costs could increase above the costs of migration, the implications of this may be of less concern where the number of migrations remains small (and where RSPs continue to opt not to recover these charges from customers through an upfront charge), such that the distortions considered above may be limited.

6.20 Given that there were around 431,000 FTTH subscribers as at Q2 2022,[59] of which approximately [✂ ✂]k are on Eircom's network,[60] there are still a large number of new connections to be made, and migrations may continue to be a small share of total connections and migrations in the coming years.

Option 2

6.21 If, for example, one thinks prices may increase (above zero) in future (as may well be the case after 31 March 2023, given

[59] ComReg (2022), 'Quarterly Key Data Reports: Data Portal: Internet Statistics', https://www.comreg.ie/industry/electronic-communications/data-portal/tabular-information/, accessed 21 September 2022.
[60] ComReg (2022), 'FTTP Retail Operators'.

Eircom's current Reference Offer[61]), and if there is concern that the current approach, which would allow migration charges significantly above costs, could distort migration incentives, an alternative would be to set migration charges to cost.

6.22 This could be important in the case where:

- RSPs pass through any increases in wholesale migration costs to end-users;
- the number of customers connected to Eircom's FTTH network increases such that the large majority of customers changing RSP would face migration charges;

6.23 In this setting, the distortion to competition that could be caused by continuing to have migration charges set at levels substantially above cost would be materially higher than at the time of the 2018 WLA/WCA Pricing Decision.

6.24 In this case, as the share of migrations continues to increase, ComReg may wish to place more weight on the dampening effect on competition that could arise from continuing with the current approach, particularly with regard to migration charges set significantly above cost. Where this is the case, ComReg could require migration charges to be set in line with their incremental costs, to avoid this dampening effect.

6.25 With migration costs capped at incremental costs, this leaves the question about what price control (if any) should apply on connection charges, particularly taking into account ComReg's previously stated concerns that too high a connection charge could lead to lower take-up of FTTH services.

6.26 Despite current pricing practices (of zero wholesale connection charges), we cannot take this as a signal that connection charges will not increase in future, particularly if controls on migration charges are changed to ensure that those prices are no higher than cost.

6.27 One option available to ComReg would be to cap wholesale connection charges at their most recent levels before Eircom reduced the price to zero (€100—in place between 1 Jan 2019 and 30 Sept 2022).[62] We understand from ComReg that there have been reductions in average customer-specific connection costs over time,[63] such that the incremental costs of connection may be falling closer to this level. In any case, even if this may be below the incremental cost of delivering a new connection, we consider that the regulatory framework affords a sufficient degree of flexibility for Eircom to seek to recover costs through other charges—for example, in the monthly rental charge that we recommend should continue to be

[61] See Eircom's Reference Access Offer, p. 57, https://www.openeir.ie/wp-content/uploads/2022/09/ARO-Price-List-V23_0-Marked-01102022.pdf.
[62] Ibid.
[63] As part of its separated accounting obligations, Eircom is required to provide ComReg with additional financial information pertaining to the costs and volumes of FTTH connections.

subject to pricing flexibility. The recovery of costs from alternative sources is the approach that Eircom must be taking currently, given its observed commercial behaviour and previous behaviour whereby the connection charge was set below the costs of the connection.

6.28 Capped at this level, even if Eircom were to increase its connection charges above the zero level currently observed in the market, we consider that connection charges at or below a €100 cap would not be set at a level that would significantly undermine the take-up of FTTH services by new customers. This level would be below prices observed in the market since the 2018 WLA/WCA Pricing Decision (e.g. between January 2019 and June 2020, Eircom set connection and migration charges to €170[64]), under which ComReg has noted that FTTH connections have increased. Furthermore, as observed by commercial behaviour in the market, access seekers choose to seek to recover the costs through the monthly rentals, such that customers may not face a large upfront cost.

[64] Eircom's Reference Access Offer, p. 57.

7 Conclusions and recommendations

7.1 Following the assessment presented in this report, we make a number of recommendations for ComReg to consider in the context of its policy objectives.

7.2 We recommend that price regulation of monthly rental prices for NGA VUA services, in the Commercial NG WLA Market where Eircom has SMP, should comprise:

- pricing continuity of FTTC VUA services, taking as a starting point the current price from the BU LRIC+ model (which in July 2023 will be €19.12), with the price allowed to increase in future by no more than inflation (CPI-0%)—i.e. a flat, real price cap;
- pricing freedom on FTTH VUA services;
- a requirement on Eircom to make available a 100Mbit/s FTTC-like service on its FTTH network wherever there is no parallel FTTC network, and to provide this service at the regulated price of FTTC in line with the recommendation above.

7.3 We recommend that rather than imposing a ban on wholesale offers by Eircom in the WLA market, as is currently the case (subject to an exceptional circumstances review), Eircom be allowed to make wholesale offers subject to a case-by-case approval process ComReg, in line with a number of key principles. These principles should be informed by the dual objectives of promoting competition and encouraging investment, including by ensuring that existing and prospective investment by alternative operators is not jeopardised.

7.4 Specifically, ComReg must be satisfied that Eircom's wholesale pricing practices:

- are unlikely to have a material impact on economically efficient alternative investment by other operators that are investing or planning to invest in very high capacity networks; and
- will generate clear and demonstrable benefits, in terms of being a critical element of Eircom's investment plans, and/or the prices will deliver benefits for consumers.

7.5 When undertaking its case-by-case assessment, ComReg could consider the following factors.

- FTTC and FTTH VUA prices should not, in general, be lower than a 'price floor', determined by the FTTC anchor price. A two-step process could be followed in this regard:
  - Step 1: assess whether the proposed price is below the FTTC anchor price; if it is, proceed to step 2.
  - Step 2: allow prices below the floor only if Eircom provides evidence demonstrating that the FTTC/H VUA prices charged by other network operators are below the FTTC anchor price. However, there should be a strong (but rebuttable) presumption that Eircom should not be allowed

to set prices below a proper measure of the cost of its own network, including all sunk costs.

- The wholesale offers for FTTC/H-based VUA do not prevent new investment by alternative operators or undermine competition through any conditional or loyalty-enhancing offers that would undermine an equally efficient operator's incentive to compete. Long-term discounts that are conditional on volumes or exclusivity may be of particular concern in this regard.
- Any proposals to set different prices for FTTC/H-based VUA services in different geographies can be justified only on the basis of clear and material cost differences between regions. The difference between prices for VUA services in different areas can only be as large as the difference between those areas in the costs of providing the VUA service.

7.6 We recommend that ComReg assesses all these issues in the round, taking into account particular circumstances and evidence identified by Eircom. ComReg would exercise its discretion following an examination of a request from Eircom in line with the principles set out above.

7.7 With regard to FTTH connection and migration charges, we consider that ComReg's approach to date may have had the desired effect at a time when the majority of new customer acquisitions would have required new connections. We also observe that there is evidence that Eircom has lowered its connection (and migration) charges to zero. If this charging behaviour were to continue and become the norm during the market review period, concerns about the level of connection charges affecting customers' decision to take up FTTH, and any potential distortions to competition that would come from above-cost migration charges, may continue to be unwarranted, and ComReg may choose not to make any changes to its current regulatory approach to FTTH connection and migration costs.

7.8 If, however, the number of customers connected to Eircom's FTTH network increases over time such that the large majority of customers changing RSP would face migration charges (and if the wholesale charges increase above zero and these are passed onto end-users), there could be a distortion to competition whereby customers face a higher cost to switching through high migration charges being passed through at the retail level. In this case, ComReg could consider requiring migration charges to be set in line with their incremental costs. Where controls on migration charges are changed to ensure that those prices are no higher than cost, and where there is a concern that Eircom might move away from non-zero connection charges, ComReg could cap wholesale connection charges at their most recent levels before Eircom reduced the price to zero. This will ensure that prices cannot increase significantly to a level that could disincentivise new connections. While this may be below the incremental cost of delivering a new connection, we consider that the regulatory

framework affords a sufficient degree of flexibility for Eircom to seek to recover costs through other charges—for example, in the monthly line rental charge.

A1 Summary of ComReg's 2018 Decisions

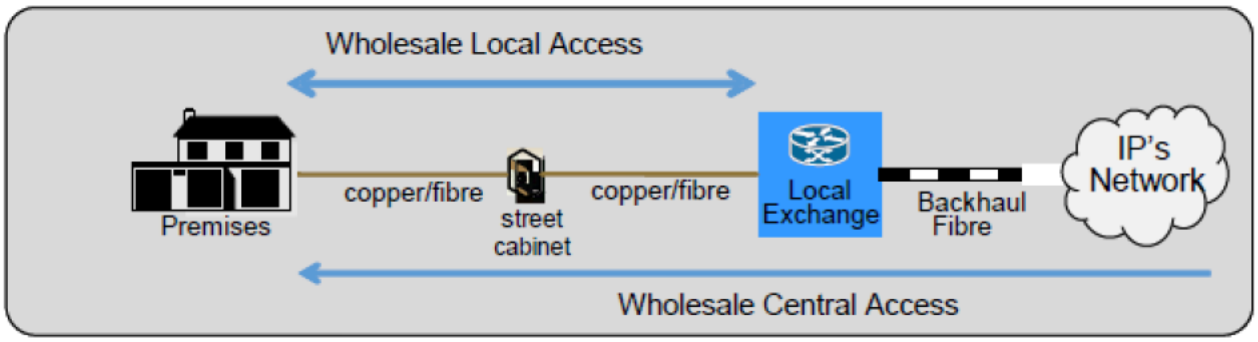
A1.1 The 2018 WLA/WCA Market Review Decision sets out three distinct markets in Ireland:[65]

- **WLA (national),** which includes current generation WLA products (LLU and line share products provided over copper network) and next generation WLA products (VULA[66] products provided over FTTx networks);[67]
- **Urban WCA,** which includes mass-market Bitstream products provided over a copper-only network, over FTTC networks and over FTTH networks, in the urban sub-geographic market comprising 154 Exchange Areas;[68]
- **Regional WCA,** which includes mass-market Bitstream products provided over a copper-only network, over FTTC networks and over FTTH networks, in the regional sub-geographic market comprising 1,049 Exchange Areas.[69]

A1.2 These services are summarised in Figure A1.1.

[65] We recognise that the number of exchanges categorised as being in the Urban WCA and Regional WCA market was updated following a mid-term review by ComReg in 2021. ComReg moved 81 exchange areas from the 2018 Regional WCA market to the Urban WCA market. See ComReg (2021), 'Mid-term Assessment; Regional Wholesale Central Access (WCA) Market; Re-application of geographic assessment criteria set out in ComReg Decision D10/1; Response to Consultation and Final Decision', ComReg 21/120, Decision D10/21, 25 November, p. 58 (henceforth referred to as 'ComReg 21/120').
[66] In its Pricing Decision, ComReg refers to 'VULA' products as 'VUA', since VUA is the wholesale product that is Eircom's implementation of VULA. See ComReg 18/94, pp. 7 and 407.
[67] ComReg 18/94, p. 143.
[68] ComReg also included the self-supply of retail broadband products provided over a cable access television network, as well as retail broadband products supplied by certain service providers that use upstream WLA inputs. ComReg 18/94, p. 20.
[69] ComReg also included retail broadband products supplied by certain service providers using upstream WLA inputs..

Figure A1.1 Summary of WLA and WCA services



Wholesale local access market

- LLU
- Line share
- VUA products

- relevant NGA services in this market are:
  - FTTC VUA
  - FTTH VUA

- defined as a **single National market** in which Eircom has SMP

Downstream

Wholesale central access market

- Bitstream (over copper)
- Bitstream FTTC
- Bitstream FTTH

- relevant NGA services in this market are:
  - Bitstream FTTC
  - Bitstream FTTH

- separate markets for 'Urban WCA' and 'Regional WCA', with Eircom having SMP in the Regional WCA market

Note: IP refers to internet provider.
Source: Oxera based on Figure 1 of ComReg 18/94.

A1.3 In its 2018 Market Review Decision, ComReg designated Eircom, the incumbent operator, as having SMP in WLA Market and Regional WCA Market and imposed regulatory obligations that sought to remedy competition problems that would arise absent regulatory intervention;[70] in particular, Eircom's ability and incentive to behave in an anti-competitive manner.

A1.4 Specifically, for WLA, ComReg noted:[71]

> In particular, absent regulation in the Relevant WLA Market, ComReg considers that Eircom would have the ability and incentive to influence competition through effects on prices, innovation, output and the variety or quality of goods and services provided. A number of competition problems may arise whereby Eircom could:
>
> - Exploit customers or End Users by virtue of its SMP position;
> - Leverage its market power into adjacent vertically or horizontally-related markets with a view to foreclosing or excluding competitors in downstream and/or upstream markets; and
> - Delay or deter investment and market entry into the Relevant WLA Market (and, ultimately, downstream markets).

[70] ComReg 18/94, p. 20.
[71] ComReg 18/94, paras 6.110–6.111

Overall, ComReg does not consider that Eircom would be sufficiently constrained in the Relevant WLA Market, such that it would prevent it from behaving, to an appreciable extent, independently of competitors, customers and End Users. To this end, ComReg considers that the identified competition problems would likely arise in the Relevant WLA Market in the absence of competition.

A1.5 For Regional WCA, ComReg noted:[72]

In the absence of regulation in the Regional WCA Market, ComReg considered that Eircom would have the ability and incentive to influence competition through effects on prices, innovation, output and the variety or quality of goods and services provided. These competition problems include, but are not limited to:

- Exploitation of customers or consumers by virtue of its SMP position;
- Leveraging its market power into adjacent vertically or horizontally related markets through price and non-price means with a view to foreclosing or excluding competitors in downstream retail and/or upstream wholesale markets; and
- Excluding or delaying investment and market entry into the Regional WCA Market, aimed at defending its position and/or foreclosing the market.

[…] ComReg remains of the view that, absent regulation, Eircom, as the SMP undertaking in the Regional WCA Market, has the ability and incentive to engage in actions which could negatively impact on competition and customers in related retail and/or wholesale markets, as well as having the potential to reinforce its SMP position in the Regional WCA Market over time

A1.6 ComReg did not find Eircom as having SMP in the Urban WCA Market, based on its view that existing and potential competition in this market, within the lifetime of the review, were likely to prevent any operator from behaving in a manner consistent with SMP.[73]

A1.7 Table A1.1 provides a high-level summary of the regulatory obligations imposed by ComReg to remedy the competition concerns identified in its market analysis. Given that ComReg found that no operator held SMP in the Urban WCA market, there was no basis for imposing regulatory obligations in that market.

A1.8 In the WLA Market and Regional WCA Market, where Eircom was found to have SMP, ComReg did impose regulatory obligations. Ultimately, the regulatory obligations are designed to promote the development of retail and wholesale competition.

A1.9 We note that the specific obligations imposed were differentiated across the individual products within each

[72] ComReg 18/94, paras 11.45–11.46.
[73] ComReg 18/94, p. 32.

market (e.g. different obligations for FTTC VUA and FTTH VUA in the WLA market).

Table A1.1 Summary of obligations imposed in the relevant markets

Regulatory obligation	WLA	Regional WCA	Urban WCA
Access	✓	✓	×
Non-discrimination	✓	✓	×
Transparency	✓	✓	×
Price control and cost accounting	✓[1]	✓[2]	×
Accounting separation	✓	✓	×

Note: [1] FTTH-based VUA is not subject to cost-orientation obligations, but is subject to margin squeeze obligations, as described below.[2] FTTH-based Bitstream is not subject to cost-orientation obligations, but is subject to margin squeeze obligations, as described below.
Source: Oxera based on ComReg 18/94, pp. 27, 32–34.

A1.10 Concurrently with the 2018 Market Review Decision, ComReg published its Decision on Pricing of Wholesale Broadband Services in the WLA and WCA Markets ('2018 WLA/WCA Pricing Decision' [74]) and the Decision on price control obligations relating to retail bundles ('2018 Bundles Decision').[75]

A1.11 As shown in Table A1.1, ComReg introduced price control obligations in the WLA and Regional WCA markets as part of the package of regulatory obligations. In setting these controls, having had regard to its regulatory objectives and the European Commission's 2013 NDCM, ComReg considered that the prices it imposed would:[76]

> achieve the appropriate balance between ensuring on the one hand that Eircom can **recover costs that are efficiently incurred** (including an appropriate return on invested capital) and that **prices are not excessive**, while on the other hand the appropriate **investment signals are provided to the market place** — in terms of efficient market entry and sufficient incentives to invest especially in the relevant areas of the country [emphasis added]

A1.12 ComReg reflected these considerations in the design of its price control obligations. In particular, for assets that can be reused for the provision of NGA services, such as Eircom's ducts and poles, ComReg used a top-down historical-cost accounting (TD HCA) approach.[77] For other assets, a bottom-up long-run average incremental cost plus (BU LRAIC+) approach is used.[78] This helps send appropriate efficient investment signals since access seekers are charged an access price in line with the cost of deploying its own network, since the costs are linked to the current market value of the assets, while the HCA is applied

[74] ComReg 18/95.
[75] ComReg 18/96.
[76] ComReg 18/95, p. 12.
[77] ComReg 18/95, pp. 12–13.
[78] The LRAIC+ approach includes the long-run average incremental costs plus a mark-up for apportioned joint and common costs. ComReg 18/95, pp. 12–13.

to assets that can be reused for deploying NGA services. We also note that this approach is in line with the Commission's 2013 Recommendation on Non-discrimination and Costing methodologies.

A1.13 Across the WLA and Regional WCA markets, the wholesale prices specified in the 2016 Pricing Decision were re-imposed for LLU, SLU, line share, duct access, pole access and dark fibre, and for ancillary services,[79] in the WLA and WCA markets.

A1.14 ComReg did, however, specify new price control obligations for NGA products, namely FTTC and FTTH products, in the WLA and Regional WCA markets. This included a mix of cost-orientation/price control, price floor and MST obligations.

A1.15 Table A1.2 gives an overview of the obligations on the **standalone** FTTC and FTTH products.

Table A1.2 Summary of price control obligations imposed on NGA services

Service	Cost orientation/ price control	Exceptional price floor	Retail MST[1]	Wholesale MST[2]
Bitstream FTTC	✓	✓	×	×
VUA FTTC	✓	✓	×	×
Bitstream FTTH	×	×	✓	×
VUA FTTH	×	✓	✓	✓

Note: Products considered on a standalone basis. [1] This regulates the difference between retail and wholesale prices, although we note that this remedy is imposed in the wholesale market where SMP is found, with the intention of preventing the SMP operator from leveraging its market power into the retail market. [2] This regulates the difference between Bitstream access and VUA access prices.
Source: Oxera based on ComReg 18/95, p. 14.

A1A Price controls for FTTC services

A1.16 For NGA Bitstream FTTC (in the regional WCA market), ComReg imposed a cost-orientation obligation based on the costs of a hypothetical operator that does not benefit from the same scale efficiencies as Eircom (i.e. a similarly efficient operator).[80]

A1.17 ComReg also calculated a set of monthly rental prices for FTTC Bitstream (including exchange launched very-high-bit-rate digital subscriber line, EVDSL) for each year of the control period. It also imposed exceptional price floor obligations on this product. These meant that, in the exceptional case where Eircom is allowed to reduce the price of FTTC-based Bitstream, any such reductions should be reflected in the FTTC-based VUA product to maintain a sufficient space between these services,

[79] With regard to ancillary services, ComReg did, however, review the pricing options for the recovery of FTTH connection costs, and further specified the obligations related to interconnection and wholesale ethernet interconnection links. See ComReg 18/95, Chapter 13.
[80] ComReg 18/95, p. 14.

and that Eircom complies with the price floor approval mechanisms and requirements.[81]

A1.18 For FTTC-based VUA (in the WLA market), ComReg imposed a cost-orientation obligation, based on the estimated BU LRAIC+ of FTTC VUA (including EVDSL). ComReg also calculated a set of monthly rental prices for FTTC VUA (including EVDSL) for each year of the control period.[82] It also imposed exceptional price floor obligations on this product. These meant that Eircom cannot charge a price below the lowest of either: (i) alternative operators' FTTC VUA prices; or (ii) the full deployment costs for FTTC VUA in a specific area. It also requires Eircom to comply with the regulatory approval mechanism.[83] Moreover, any reduction in the FTTC VUA price should be reflected in the price for NGA Bitstream FTTC.[84]

A1.19 ComReg determined that it was not necessary to impose standalone retail MSTs on FTTC-based services sold singly in the WLA market and the WCA markets; it instead included these services in the retail MST for bundles.[85] The retail MSTs are detailed further under Oxera report: Part 3.

A1B Price controls for FTTH services

A1.20 In relation to FTTH-based services, as stated in the consultation, penetration levels were considered to be low and ComReg noted there were difficulties with the ability to forecast the future penetration rate. In light of this cost and demand uncertainty, ComReg considered there was a risk of setting prices at the incorrect level, which could affect investment decisions.[86] It reached a similar conclusion in relation to FTTH-based Bitstream.[87] In light of this, ComReg considered that a combination of retail and wholesale MSTs might be a more practical way of preventing excessive prices from being charged, thus avoiding the risk of setting prices caps incorrectly.

A1.21 In the WLA market, ComReg decided to allow Eircom pricing flexibility on FTTH-based VUA subject to margin squeeze obligations.[88] In particular, ComReg considered that, given the uncertainty over costs and demand, the FTTH price was likely to be sensitive to the penetration rate.[89] ComReg considered that incorrect forecasts could affect future market developments, and distort investment decision—for example if the wholesale

[81] Ibid., pp. 153–157.
[82] Ibid., p. 15.
[83] Ibid., p. 14.
[84] Ibid., p. 138.
[85] Ibid., pp. 14, 17–18.
[86] ComReg said this was to ensure that operators using WLA inputs to offer retail services in this footprint were protected given the withdrawal of SMP in the urban WCA market. ComReg 18/94, p. 446.
[87] ComReg (2016), 'Market Reviews: Wholesale Local Access (WLA) provided at a Fixed Location; Wholesale Central Access (WCA) provided at a Fixed Location for Mass Market Products', 11 November, p. 659–570.
[88] ComReg 18/94, para. 7.1313.
[89] Ibid.

price were set too high or too low.[90] However, ComReg considered that, without regulation, Eircom had the ability and incentive to cause a margin squeeze in relation to FTTH VUA and downstream retail services using this input.[91] ComReg also noted that, in the absence of cost-orientation obligations, a margin squeeze acted as the main control against excessive pricing.[92]

A1.22 In the regional WCA market, ComReg considered that Eircom should be allowed pricing flexibility on FTTH-based Bitstream, subject to margin squeeze obligations, for the same reasons as in the WLA market.[93] However, ComReg considered that margin squeeze obligations were required in respect of FTTH-based Bitstream and retail services to address its concerns that Eircom had the ability and incentive to set prices so as to squeeze the margins of access seekers at the retail level.[94] In respect of standalone retail products using WCA inputs in the regional WCA market, ComReg considered that margin squeeze obligations should be applied to FTTH-based Bitstream and standalone retail services that use this wholesale input.[95] This is to ensure that access seekers can effectively compete in the retail market.[96]

A1.23 For NGA Bitstream FTTH (in the regional WCA market) and FTTH-based VUA (in the WLA market), ComReg relied on a set of wholesale and retail margin squeeze obligations for the standalone services, in particular:

- a wholesale MST between the FTTH-based VUA service (in the WLA market) and the FTTH-based Bitstream service (in the WCA markets);[97]
- in the footprint area corresponding to the urban WCA market, a retail MST between FTTH-based VUA services and retail broadband delivered by FTTH-based VUA sold singly (i.e. on a standalone basis);[98]
- a retail MST between FTTH-based Bitstream services and retail broadband services delivered by FTTH based Bitstream and sold singly (i.e. on a standalone basis) in the regional WCA market.[99]

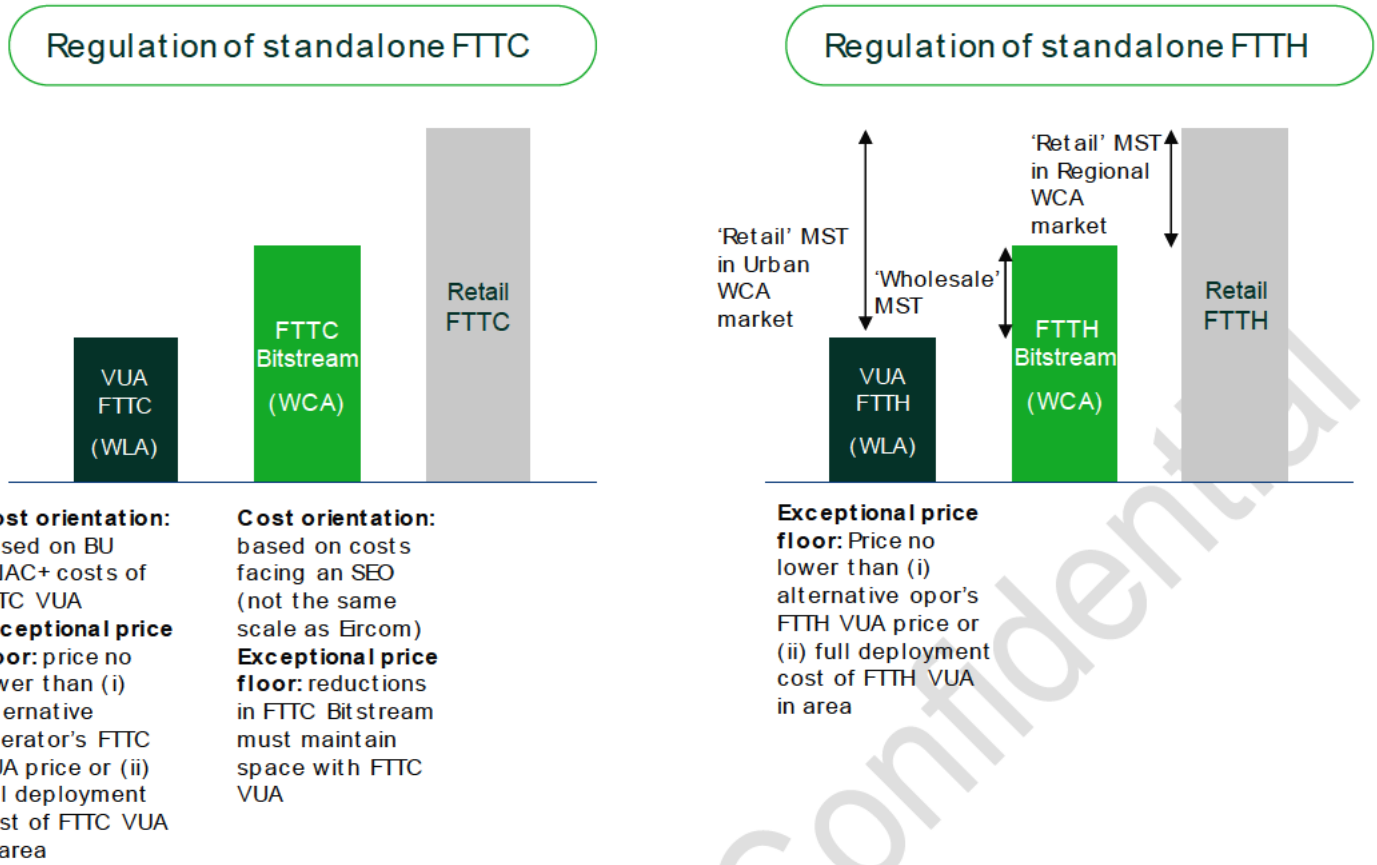
A1.24 ComReg also applied exceptional price floor obligations on FTTH VUA services. These meant that Eircom cannot charge a price below the lowest of either: (i) alternative operators' VUA

[90] ComReg 18/94, para. 7.1313.
[91] Ibid.
[92] ComReg 18/94, para. 7.1379.
[93] Ibid., para. 12.310.
[94] Ibid.
[95] ComReg 18/94, para. 12.351.
[96] Ibid.
[97] ComReg 18/94, p. 484.
[98] ComReg said this was to ensure that operators using WLA inputs to offer retail services in this footprint were protected given the withdrawal of SMP in the urban WCA market. ComReg 18/94, pp. 483–484.
[99] ComReg 18/94, p. 715.

FTTH price; or (ii) the full deployment costs for FTTH VUA in a specific area.[100]

A1.25 The existing price control regulation on standalone FTTC and FTTH services is summarised in Figure A1.2.

Figure A1.2 Summary of 2018 Decision price control regulation



Source: Based on ComReg's 2018 Decision Documents.

[100] ComReg 18/95, p. 14.

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