

Market Review - Wholesale Dedicated Capacity (WDC) Market

Consultation and Draft Decision

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Chapter 1

1. Executive Summary

- 1.1 This Consultation presents ComReg's analysis of the Wholesale Dedicated Capacity ('**WDC**') market with a view to determining whether any Service Provider ('**SP**') has significant market power ('**SMP**') and, if so, imposing appropriate remedies on that SP to address identified competition problems.
- 1.2 WDC, also known as wholesale leased lines ('**LL(s)**'), is a symmetric, dedicated and high quality connectivity service between two or more locations, typically with very high quality service level agreements ('**SLAs**') governing service availability and repair time guarantees. The European Commission's 2020 Recommendation¹ identifies the WDC market as being susceptible to *ex ante* regulation.
- 1.3 Retail LLs are used by businesses to provide a wide variety of retail services such as connectivity between business sites and company headquarters via a Wide Area Network ('**WAN**'). Retail LL services play a vital role in enabling the provision of Information and Communications technology ('**ICT**') services to medium and large sized businesses and public service organisations. LLs are also used by SPs to carry data traffic between aggregation points on their networks or to connect to other services.
- 1.4 With continued digitalisation and technological advancements, access to high quality, dedicated connectivity is particularly important for medium to large businesses and public service organisations, as residential broadband connectivity is unlikely to meet their requirements. The regulatory approach proposed in this Consultation will continue to ensure access to and take up of high capacity connectivity, in line with the objectives of the regulatory framework established by the European Electronic Communications Code ('**EECC**')² and associated national legislation.

¹ European Commission Recommendation of 18 December 2020 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (the '**2020 Recommendation**').

² Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code.

1.1 The Relevant Markets and SMP

- 1.5 At the retail level, ComReg has assessed the boundaries of the retail LL market to inform its subsequent analysis of the WDC market. ComReg is of the view that the relevant retail market consists of all wired retail LLs carried over a modern interface ('MI') on a nationwide basis, including fibre-based Ethernet LLs, Wavelength Division Multiplexing ('WDM') LLs and other MI LLs (the "**Retail MI LL Market**").
- 1.6 One important feature of the retail market is the multi-site nature of the demand. Multi-site customers account for the majority of all retail MI LL demand. These customers often have offices/business sites throughout the country. They usually tender for LL services on a nationwide basis for the entire contract and generally require a single vendor to meet their total connectivity requirements. This means that a retail LL SP would require wholesale access in places where it doesn't have its own network in order to bid for these customers.
- 1.7 At the wholesale level, ComReg has defined the relevant WDC product market as consisting of the provision of wholesale dedicated capacity over fibre (including point-to-point and Passive Optical Network ('PON') network configurations) using modern interfaces, which include Ethernet, WDM and dark fibre ('DF') (the "**MI WDC Product Market**"). ComReg further considers that there is no bandwidth break in this market, i.e., MI WDC LLs of all bandwidths belong in the same product market.
- 1.8 ComReg notes that demand for low bandwidth traditional interface ('LB TI') leased lines³ has been declining since the **2020 Decision**⁴ (see section 3.4.1), falling from 1,238 in 2020 to 918 in 2023, a decline of 25.8%. The majority of demand for LB TI LLs is legacy in nature, with new demand in single digits since 2020, and there being very little wholesale demand for these services. Therefore, given current and expected trends, ComReg considers that regulation of this LB TI LL market is no longer justified.
- 1.9 In respect of the geographic scope of the MI WDC Product Market, ComReg begins by adopting workplace zones ('WPZs')⁵ as the geographic unit of

³ LB TI LLs are provided over wired analogue, digital and TDM interfaces with bandwidths of ≤2Mbit/s.

⁴ "Market Review – Wholesale High Quality Access at a Fixed Location, Response to 2018 Further Consultation and Decision, ComReg Document 20/06, 24 January 2020" (the "**2020 Decision**").

⁵ Currently there are 7,219 WPZs in Ireland. Further details on the CSO construct of WPZs are available [here](#) - WPZs are designed to capture 'daytime population' of areas. The daytime population

assessment (consistent with the 2020 Decision). ComReg then applies the following criteria (the “Criteria”) for assessing whether the conditions of competition differ sufficiently across WPZs such that the definition of subnational geographic markets is warranted:

- (a) **Criterion 1:** A WPZ has two or more alternative networks (‘**ANs**’) present (3 networks including Eircom);
- (b) **Criterion 2:** at least 60% of the connected premises (‘**CP(s)**’)⁶ within a WPZ must be within 50 metres of two or more ANs⁷;
- (c) **Business Parks Test:** A WPZ overlaps with a business park which is intersected or passed by two or more ANs;, then all premises within a business park are deemed to be passed by such networks; and
- (d) **Island Test:** A WPZ which fails the above criteria but is surrounded by WPZs that have met the above criteria, then this WPZ is deemed to pass the Criteria.

1.10 Then, aggregating WPZs that exhibit sufficiently similar competitive conditions, ComReg identifies 4 sub-national MI WDC geographic markets:

- (a) **MI WDC Market 1:** which is sub-national in its geographic scope, and equates to a unique and separately distinguishable set of 2,565 WPZs, each containing CPs and considered to meet the Criteria described above;
- (b) **MI WDC Market 2:** which is sub-national in its geographic scope, and equates to a unique and separately distinguishable set of 2,455 WPZs, each containing CPs but considered not to meet the Criteria above;
- (c) **MI WDC Market 3:** which is sub-national in its geographic scope, and equates to a unique and separately distinguishable set of 1,079 WPZs, each containing no CPs and considered to meet the Criteria above; and
- (d) **MI WDC Market 4:** which is sub-national in its geographic scope, and equates to a unique and separately distinguishable set of 1,120 WPZs, each containing no CPs and considered not to meet the Criteria above.

includes everybody who indicated they worked or studied in the area, along with persons in that area who do not work or study (and so are there during the day). Note CSO may publish new WPZs in the near future based on its 2022 census. If it does so prior to ComReg adopting its final decision, ComReg may update its analysis to reflect the new WPZs.

⁶ Connected Premises mean premises that are serviced by active LLs as of H2 2023, also referred to as ‘**CP(s)**’.

⁷ This criterion does not apply to WPZs that contain no CPs.

- 1.11 Having conducted a competition and SMP assessment within each of the above MI WDC Markets, ComReg's position is that:
- (a) No Undertaking is likely to have SMP in MI WDC Market 1;
 - (b) Eircom is likely to have SMP in MI WDC Market 2;
 - (c) No Undertaking is likely to have SMP in MI WDC Market 3; and
 - (d) Eircom is likely to have SMP in MI WDC Market 4.
- 1.12 For the purpose of assessing competition concerns and imposing remedies, ComReg has amalgamated the MI WDC Markets as follows (they are identical from a product perspective):
- (a) Zone A MI WDC Markets: consist of MI WDC Market 1 and MI WDC Market 3 (**'Zone A MI WDC Markets'**); and
 - (b) Zone B MI WDC Markets: consist of MI WDC Market 2 and MI WDC Market 4 (**'Zone B MI WDC Markets'**).
- 1.13 There have been some notable changes since the 2020 Decision. First, on a national basis, there are a total of 14,811 premises connected with LLs (**'Connected Premises'** or **'CP's'**) as of the end of 2023, a sizeable change from the 8,473 CPs at the time of the 2020 Decision. There are a combination of contributing factors to this, including growth in LL demand, more accurate provision of geolocation data by SPs compared to the 2020 Decision (arising from statutory requirements to do so), the continued migration from legacy interfaces to MI and the now inclusion of DF in the MI WDC Markets in this market review.
- 1.14 Further, relative to the 2020 Decision, an additional net 909 WPZs now fall within Zone A. These WPZs will be de-regulated, meaning 50.5% of overall WPZs will not be subject to SMP based regulation.
- 1.15 ComReg has considered, in the absence of any regulation, what competition concerns could arise in the Zone B MI WDC Markets (and related markets). Having regard to Eircom's SMP position, including other factors such as it being a vertically-integrated SP that competes at both the retail and wholesale level, ComReg is the view that Eircom has the ability and incentive to potentially engage in anti-competitive behaviours, ultimately to the detriment of retail competition. These behaviours include the ability and incentive for Eircom to deny or delay other SPs access to its network and to engage in pricing and other behaviours which could restrict or distort competition by actual or potential competitors.

1.2 Proposed Remedies

- 1.16 To address the above competition concerns, ComReg proposes that a suite of obligations be imposed on Eircom to ensure effective competition in the Zone B MI WDC market and the downstream retail LL market. These include:
- (a) Access obligations;
 - (b) Non-discrimination obligations;
 - (c) Transparency obligations;
 - (d) Price Control and Cost Accounting obligations;
 - (e) Accounting Separation obligations; and
 - (f) Statement of Compliance (**'SoC'**) obligations.
- 1.17 The non-pricing obligations are largely maintained from the 2020 Decision. Details of the obligations can be found in Section 7. The non-pricing obligations in Zone B WPZs apply uniformly throughout the Zone B MI WDC Markets including for premises in the National Broadband Plan (**'NBP'**) Intervention Area (**'IA'**).
- 1.18 With respect to pricing obligations, ComReg proposes to maintain the obligation of cost orientation for MI WDC products, services and associated facilities, in the Zone B MI WDC Markets. This is in line with the approach adopted in the 2020 Decision. ComReg proposes a pricing continuity approach is applied whereby Eircom will continue to charge its existing MI WDC rental prices, including WDM, as fixed price points. In other words, Eircom charges the prices for MI WDC products and services, including WDM services in the Zone B MI WDC Markets according to the current Zone B prices listed in Eircom's published Leased Lines Reference Offer (**'LLRO'**) price list. For interconnection services, Eircom will charge the current prices in its published LLRO price list in the Zone B MI WDC Markets.
- 1.19 However, for NBP IA premises falling within the Zone B MI WDC Markets, ComReg proposes to differentiate the price control remedy on Eircom given the potential greater competitive constraints exerted by NBI at such premises. In essence, in the IA in Zone B MI WDC Markets, ComReg proposes to not subject Eircom to a price control obligation at such premises, noting, however, that other obligations (including transparency and non-discrimination) would continue to apply. This is discussed in Section 7.5.
- 1.20 ComReg also proposes to maintain the obligations of cost accounting and accounting separation on Eircom with regard to MI WDC products, services and associated facilities. This is discussed in Section 7.5.5 and Section 7.6.

- 1.21 Further, to facilitate a smooth transitional period to deregulation, ComReg proposes the following:
- (a) a sunset period of six months for existing LB TI WDC services with access at existing prices maintained during the sunset period. Eircom is not required to provide access to new orders for LB TI WDC services;
 - (b) a sunset period of nine months for existing MI WDC services in WPZs moving from the Zone B MI WDC Markets to the Zone A MI WDC Markets, with access at existing prices to be maintained during the sunset period. During the first three months of this sunset period, Eircom is required to provide access to new orders for MI WDC LLs.

1.3 Next Steps

- 1.22 ComReg invites all interested parties to respond to the questions set out in this Consultation. The consultation period will run until 5.00pm, 31 January 2025, providing a nine week consultation period.
- 1.23 ComReg will then review and assess the responses to this Consultation and prepare a final decision having regard to any other developments. ComReg is aware that developments in the Irish market such as the change in the ownership of SPs could impact the assessment of the MI WDC Market and the trunk market. ComReg will monitor the situation closely and reflect any relevant developments in its final decision.
- 1.24 After the decision, ComReg also intends to continue to closely monitor developments in the MI WDC markets over the market review period and if market outcomes appear to be materially different ComReg may, at its sole discretion, decide whether to commence a fresh market review earlier than planned.

Chapter 2

2. Introduction

2.1 Introduction

- 2.1 The Commission for Communications Regulation (**'ComReg'**) is the National Regulatory Authority (**'NRA'**) responsible for the regulation of the electronic communications sector (telecommunications, radio communications and broadcasting transmission) and the postal sector in the State.
- 2.2 This Consultation and Draft Decision (**'Consultation'**) sets out ComReg's analysis of the Wholesale Dedicated Capacity (**'WDC'**) market, or wholesale leased line (**'LL'**) market.⁸ WDC is a symmetric, dedicated and high quality connectivity service between two or more locations, usually businesses. The European Commission's 2020 Recommendation⁹ identifies the WDC market as being susceptible to *ex ante* regulation.
- 2.3 Consistent with ComReg's statutory role to review certain electronic communications markets, the objective of this market review is to examine the extent of competition within the WDC market(s). In circumstances where such markets are not found to be effectively competitive due to one or more Service Providers (**'SPs'**) having Significant Market Power (**'SMP'**), the imposition of appropriate regulatory obligations on that/those SPs is necessary in order to address identified competition problems that could arise in the WDC market(s) or related markets. Similarly, if any such markets are found to be sufficiently competitive (or trending towards effective competition), then regulatory intervention may not be justified (or no longer justified in cases where they have been imposed to date).
- 2.4 This introductory section of the Consultation describes the following:
- (a) an overview of the WDC market(s) and what WDC is used for at the wholesale and retail level (discussed in Section 2.2 below);
 - (b) the legal basis and the regulatory framework under which this Consultation is being undertaken (discussed in Section 2.3 below);

⁸ The Consultation refers to either Wholesale Dedicated Capacity or Leased Lines interchangeably throughout this document.

⁹ European Commission Recommendation of 18 December 2020 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (the **'2020 Recommendation'**).

- (c) the background to the previous review of the leased line markets (discussed in Section 2.4 below);
- (d) the reasons for undertaking the current market review and an outline of the information sources relied upon for the analysis set out in the Consultation (discussed in Section 2.5 below);
- (e) the procedure for the Consultation process including the timeframes within which Respondents should submit their views (Section 2.6 below); and
- (f) an overview of the structure of the Consultation document (discussed in Section 2.7 below).

2.2 What is WDC?

2.5 WDC is a wholesale service that involves the supply of dedicated transmission capacity between fixed locations. As noted in the Explanatory Note to the 2020 Recommendation ¹⁰ “...the distinguishing product characteristics of LLs are their ability to provide dedicated and uncontended connections and symmetrical speed”. The Explanatory Note to the 2020 recommendation also notes that “The precise definition of the market should however be determined by the characteristics of the service delivered rather than by technological details.” ¹¹ In addition, LLs are usually provided with high quality of service metrics (including low latency, jitter¹² and packet loss¹³, short repair times, etc.), high levels of reliability and in some instances, redundant connections to ensure alternatives are available in case of failure. Overall, a Class of Service (**‘CoS’**) determines the quality of service for different types of data or for different customers. Currently there are many SPs supplying wholesale LL services in Ireland, including BT, Eircom, Enet, SIRO and Virgin Media.

2.6 Wholesale LL services allow SPs to provide retail LL services (and other associated services) that they would not otherwise be capable of providing through the use of their own network. For example, a SP may wish to provide retail LL services to a customer’s premises, but if this premises is not

¹⁰ Section 4.1.5, EU Explanatory Note accompanying the Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation, dated 18.12.20 (the [‘Explanatory Note to the 2020 Recommendation’](#)).

¹¹ *Ibid.*

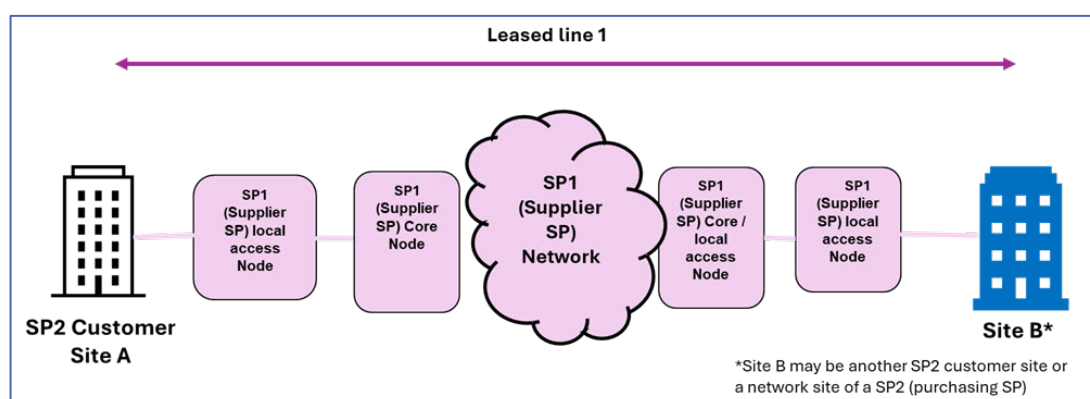
¹² Latency refers to the time it takes for data to pass from one point on a network to another and jitter refer to the delay variation.

¹³ Packet loss refer to data not reaching their destination after being transmitted across a network.

connected to its network and the cost of building out its network to this location is too expensive, this SP may elect to purchase a wholesale LL from another SP in order to provide its own retail LL services at this premises.

- 2.7 WDC services also allow an SP to extend its network by establishing a new network point of presence ('POP') in an area and using third party LLs to connect this POP to its closest pre-existing nodes or network. It may subsequently build out its own network to directly connect this POP when it has established sufficient concentrations of customers in this area to commercially justify this network expansion.
- 2.8 Similarly, wholesale LLs are used by Mobile Network Operators ('MNO') to facilitate connection between their base stations (or high-sites) and their core networks.
- 2.9 WDC services are also commonly resold at the wholesale level whereby SP 'A' purchases a LL input from SP 'B' and sells this onto SP 'C'. Such a resale could also be augmented by SP 'A' providing additional connectivity to the purchased LL before selling it on. For example, if SP 'A' owns a network to Cork, it can buy a local "tail" in Cork to connect to a local customer premises and then sell the entire end-to-end LL connection to SP 'C'.
- 2.10 Retail LLs are used by businesses to provide a wide variety of retail services such as connectivity between business sites and company headquarters via a Wide Area Network ('WAN'). Retail LL services play a vital role in enabling the provision of Information and Communications technology ('ICT') services to medium and large sized businesses and public service organisations. Such businesses include multi-national corporations, data centres, financial and other retail branch networks, as well as public sector institutions (e.g., hospitals, Government departments, educational facilities).

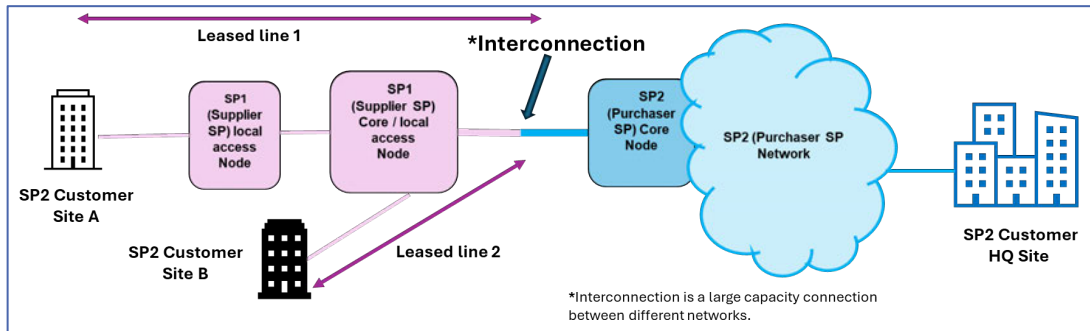
Figure 1: Point to Point Based WDC LL Configuration



- 2.11 In general, there are 2 basic types of LL services, namely point-to-point LLs (see Figure 1 above) and interconnection based LLs (see Figure 2 below). The point-to-point service is the most basic arrangement, where the LL is

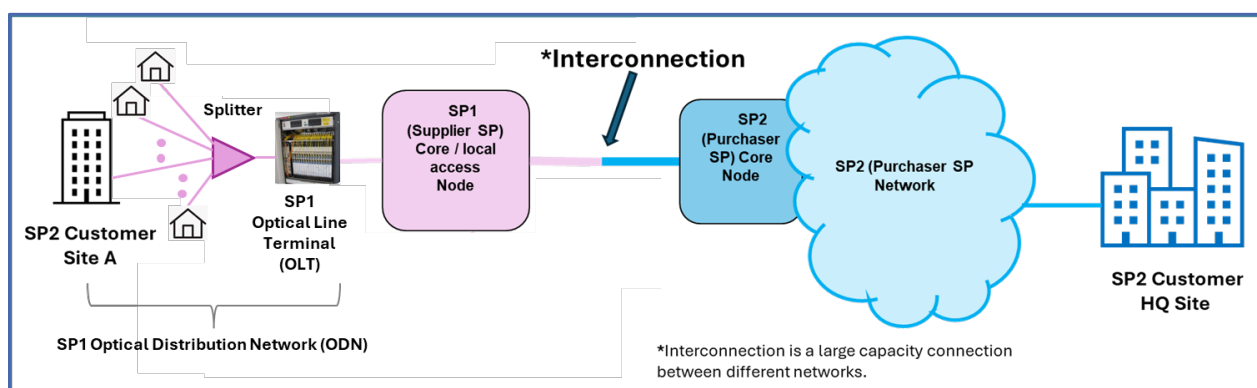
delivered entirely on the network of the supplying SP, (SP1). It connects the 2 sites of the customer of a purchasing SP, (SP2). In some cases, one site may be a network site of SP2. The retail equivalent is where a retail customer purchases such a connection directly from a SP.

Figure 2: Interconnection based WDC leased lines configuration



- 2.12 With the interconnection based service set out in Figure 2 above, a purchasing SP (SP2) purchases an access wholesale LL (including a logical service where applicable) and an interconnection service from the supplying SP (SP1), that it uses, in combination with its own network infrastructure, to deliver the end-to-end LL service to its retail customer. Figure 2 above illustrates the example where the two LLs are provided by SP1 to SP2. These LLs are used to connect to 2 retail customer sites, namely Customer Site A and Customer Site B. For the Customer Site A, the connection also incorporates a backhaul element, between the local access nodes and the core network nodes. For Customer Site B, no backhaul element is required. Both wholesale LLs are provided by SP1, but these are handed over to SP2 at a point of interconnection between their two networks, rather than the final location of the end-to-end service. For this reason, interconnection based LLs are often referred to as “half-circuits”. The interconnection links where the LLs are handed over are usually of very large bandwidth/capacity and so can convey multiple LLs.
- 2.13 It should be noted that in both scenarios, the customer could be either a retail or wholesale customer i.e., a SP is purchasing a wholesale input from a supplier and providing a service to a downstream third party SP, or to a retail customer. Additionally, these examples are for illustrative purposes only and there are other configurations possible where SPs use a combination of both service types from multiple suppliers. Some SPs also rent dark fibre from an upstream provider to connect into a premises and then “light” this fibre using its own active equipment to provide a LL service.

Figure 3: Interconnection based WDC delivered using a PON



- 2.14 Additionally, with the deployment of Passive Optical Networks ('**PONs**'), a number of network providers offer a symmetrical logical service delivered on a PON to enable SPs to combine their own network in order to deliver LL services to business premises. These LLs are point to multipoint LLs.
- 2.15 An example of an Interconnection based WDC leased line delivered using a PON is depicted in Figure 3. The fibre connection to the end-user's premises (Site A) is terminated on an Optical Network Terminal ('**ONT**') and connected to a port on the splitter. A logical connection consisting of a layer 2 ethernet Virtual Local Area Network ('**VLAN**') transparent service is provisioned between the ONT and the Interconnection where the service is presented to the SP (SP2) at the Point of Handover ('**PoH**'). The logical service is symmetrical and available with various CoS options to enable traffic prioritisation. SP2 can use this logical service delivered on the SP1's PON and combine it with its own network to deliver LL services to its end-users.
- 2.16 Such services over a PON network, delivering bandwidth symmetry, CoS, guaranteed high-quality service availability (based on active network management, where required) and business class SLAs, meet the product characteristics of a Leased Line.
- 2.17 A network provider who offers a symmetrical logical service delivered on its PON also has the ability to easily offer point-to-point MI WDC services on its Optical Distribution Network ('**ODN**') by utilising the available spare fibre strands not connected to the PON, or to reallocate unused fibres.

2.2.1. Fee Structure and Uses of Leased Lines

- 2.18 SPs purchasing wholesale LL services typically pay a once-off connection or installation fee which typically depends on the location and bandwidth of the connection from the end-user location to the serving network node of the purchasing SP. Connections costs can be substantial, especially where new network build is required. SPs purchasing wholesale LL services also pay recurring rental charges which generally depend on product characteristics

as described in paragraph 2.5 above. There are other scenarios where SPs purchase an overall network solution from another SP, rather than individual LL connections. Such arrangements provide connectivity to a large number of sites and with the price calculated based on inputs such as the number of connected premises, the length of contract and bandwidths required.

- 2.19 Typically, retail LL services are demanded by medium to large businesses in order to support a wide variety of ICT applications, such as access to the internet, private voice and data networks, cloud based services, backup and disaster recovery, and remote monitoring and telemetry applications. For multi-site¹⁴ customers retail LL services are also typically used to build WANs connecting each of their premises. These are used to support Virtual Private Networks ('**VPNs**') that allow organisations to link business premises together, including data centres to support the provision of data services, so that business sites can exchange data and access various corporate applications and internet access. Such networks can also support broader connectivity solutions which may include remote and nomadic working, using retail or wholesale broadband and mobile data access, where required.

2.3 Legal Basis and Regulatory Framework

- 2.20 The European regulatory framework for electronic communications, recast and set out in the 2018 European Electronic Communications Code ('**EECC**'), provides for the regulation of markets identified to be susceptible to ex ante regulation and which are not effectively competitive.
- 2.21 The EECC was transposed into Irish law by the European Union (Electronic Communications Code) Regulations 2022, SI No. 444 of 2022 (the '**ECC Regulations**')¹⁵.
- 2.22 This market review is being undertaken by ComReg in accordance with the obligation under Regulation 46 and Regulation 49 of the ECC Regulations, which requires that ComReg, taking the utmost account of the 2020 Recommendation¹⁶ (including the Explanatory Note to the 2020

¹⁴ Organisations with more than one premises such as retail multiples, banks etc.

¹⁵ European Union (Electronic Communications Code) Regulations 2022 (S.I. No. 444 of 2022) (the '**ECC Regulations**'). The ECC Regulations transpose the EECC.

¹⁶ European Commission Recommendation 2020/2245 of 18 December 2020 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council establishing the European Electronic Communications Code (the '[2020 Recommendation](#)'), (OJ L 439, 29.12.20, p. 23).

Recommendation)¹⁷ and the SMP Guidelines¹⁸, should analyse and define relevant market(s) appropriate to national circumstances, in accordance with the principles of competition law.

- 2.23 The European Commission ('EC') refers in the 2020 Recommendation to the WDC market as follows:

*"Wholesale Dedicated Capacity"*¹⁹

- 2.24 The Explanatory Note to the 2020 Recommendation provides further information about the nature of the WDC market and in this respect notes that:

*".... large and/or technologically advanced accounts cannot be satisfied by shared media technologies or infrastructures and will need dedicated capacity..... High-quality users have typically demanded a number of features that were not available to end-users of mass-market broadband connectivity..... The distinguishing product characteristics of leased lines are their ability to provide dedicated and uncontended connections and symmetrical speeds. Moreover, certain advanced quality characteristics are relevant at the wholesale level, such as (i) guaranteed availability and high quality of service in all circumstances (including SLAs, uninterrupted customer support, short repair times and redundancy), (ii) high-quality network management resulting in upload speeds appropriate for business use and in very low contention and (iii) the possibility to access the network at points which have been defined according to the geographic density and distribution of business rather than mass-market users."*²⁰.

- 2.25 The 2020 Explanatory Note further notes that:

¹⁷ Explanatory Note accompanying the Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation, dated 18.12.2020 (see [Commission updated the Recommendation on Relevant Markets | Shaping Europe's digital future](#)) ('**Explanatory Note to the 2020 Recommendation**')

¹⁸ European Commission guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services, OJ 2018 C 159/1 (the '[SMP Guidelines](#)')

¹⁹ Market 2 in the annex to the 2020 Recommendation

²⁰ See pages 38 and 58 of the Explanatory Note to the 2020 Recommendation.

“The precise definition of the market should however be determined by the characteristics of the service delivered rather than by technological details. Depending on the network topology in a given Member State, there may be a dedicated connection all the way between the exchange and the customer or traffic can be collected already at an aggregation switch and transmitted to the exchange over an interconnection link, which provides scope for overbooking. In these cases, the physical link may not be “dedicated” across the whole path, but may still be distinguished from residential offers, when the service provider is offering “guaranteed” bandwidth, with very stringent quality of service parameters and service level guarantees. Especially when there is limited or no overbooking provided for, point-to-aggregate leased lines may constitute substitutes for PtP leased lines.”²¹

- 2.26 It should be noted that prior to the adoption of the 2020 Recommendation, the WDC market was broadly identified in the 2014 Recommendation²² as the market for wholesale high-quality access provided at a fixed location. The 2014 Wholesale High Quality Access Recommended Market was identified by ComReg as being susceptible to *ex ante* regulation and was thus regulated by ComReg pursuant to the 2020 Decision.²³ Given the 2014 Recommendation has been replaced by the 2020 Recommendation, it is the latter which is now applicable for this current market review.
- 2.27 In line with the “Modified Greenfield Approach” (**MGA**) set out in the Explanatory Note to the 2020 Recommendation²⁴, ComReg’s analysis of the WDC market examines competition in the relevant market(s), assuming the absence of SMP based regulation, i.e. no *ex ante* regulation exists in the specific WDC market under consideration. However, under the MGA, ComReg should take into account existing market conditions, including other type of regulation affecting the market, as well as expected or foreseeable market developments over the course of the next review period in the absence of regulation.

²¹ See page 57 of the Explanatory Note to the 2020 Recommendation.

²² European Commission Recommendation 2014/710/EU of 09 October 2014 on relevant product and services markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (the ‘[2014 Recommendation](#)’), (OJ L 295, 11.10.2014, p. 79).

²³ “Market Review – Wholesale High Quality Access at a Fixed Location, Response to 2018 Further Consultation and Decision, ComReg Document 20/06, 24 January 2020” (the “**2020 Decision**”).

²⁴ See page 11 of Explanatory Note to the 2020 Recommendation.

- 2.28 This approach is used in order to avoid drawing conclusions regarding the competitive structure of a particular market which may be influenced by, or indeed premised on, existing SMP based regulation on that market. Considering how a market may function absent regulation helps to ensure that SMP based regulation is only applied (or withdrawn) in those circumstances where it is truly justified and proportionate.
- 2.29 Where a SP is ultimately designated as having SMP in a market, ComReg is obliged, under Regulation 50 of the ECC Regulations, to impose on such an operator (or maintain where they already exist) such of the obligations set out in Regulations 51 to 56, 58 and 62 of the ECC Regulations as it considers appropriate. Obligations imposed must:
- (a) be based on the nature of the problem identified;
 - (b) be proportionate and justified in the light of the objectives laid down in section 4 of the ECC Regulations; and
 - (c) only be imposed following consultation in accordance with Regulations 17 and 101 of the ECC Regulations.
- 2.30 Section 12(1)(a) of the Communications Regulation Act 2002²⁵ sets out ComReg's objectives in exercising its functions in relation to the provision of electronic communications networks, electronic communications services and associated facilities, namely:
- (a) to promote competition;
 - (b) to contribute to the development of the internal market; and
 - (c) to promote the interests of users within the European Union.
- 2.31 In addition, Regulation 4(3) of the ECC Regulations sets out the general objectives of ComReg which it must pursue in the context of its tasks specified in the ECC Regulations, which in summary are to:
- (a) Promote connectivity and access to, and take up of very-high-capacity networks;
 - (b) Promote competition in the provision of electronic communications networks and associated facilities;

²⁵ Communications Regulation Act 2002 (No. 20 of 2002), as amended (the '**Communications Regulation Act 2002**').

- (c) Contribute to the development of the internal market by removing remaining obstacles to, and facilitating convergent conditions for, investment in, and the provision of, electronic communications networks, services and associated facilities and services throughout the European Union; and
 - (d) Promote the interests of the consumers and businesses in the State, by ensuring connectivity and the widespread availability and take-up of very-high-capacity networks.
- 2.32 Regulation 4(5) of the ECC Regulations requires that, in pursuit of its objectives under that regulation and under Section 12 of the 2002 Act, ComReg must apply objective, transparent, non-discriminatory, and proportionate regulatory principles by, inter alia;
- (a) Promoting regulatory predictability;
 - (b) Ensuring there is no discrimination in the treatment of undertakings;
 - (c) Safeguarding competition and promoting, where appropriate, infrastructure-based competition, (Regulation 4(5)(c) of the ECC Regulations requires the application of EU law in a technologically neutral fashion);
 - (d) Promoting efficient investment and innovation in new and enhanced infrastructures;
 - (e) Taking due account of the variety of conditions relating to competition and consumers that exist in the various geographic areas within the State; and
 - (f) Imposing ex ante regulatory obligations only where there is no effective and sustainable competition and relaxing or lifting such obligations as soon as that condition is fulfilled.
- 2.33 ComReg is also required to make certain draft measures accessible to the EC, **BEREC**²⁶ and NRAs in other Member States (collectively referred to as the '**European Notification Requirements**') pursuant to Article 32 of the EECC and Regulation 17(4) of the ECC Regulations and to take utmost account of any comments received.
- 2.34 In addition to conducting a public consultation in accordance with Regulation 101 of the ECC Regulations 2022, pursuant to Regulation 49(1) of the ECC Regulations, ComReg is required to carry out an analysis of relevant

²⁶ Body of European Regulators for Electronic Communications ('**BEREC**') as established by Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 the Body of European Regulators for Electronic Communications (BEREC) and the Office.

markets, where appropriate, in collaboration with the Competition and Consumer Protection Commission ('**CCPC**'). ComReg will keep the CCPC informed throughout the conduct of this market analysis process.

- 2.35 Overall, in preparing this Consultation, ComReg has taken account of its functions and objectives under the ECC Regulations.

2.4 Previous Review

- 2.36 The previous review of the WDC market (then known as the market for Wholesale High Quality Access ('**WHQA**') at a Fixed Location) was completed by ComReg in 2020²⁷ (the '**2020 Decision**'). The 2020 Decision defined the following market(s) for wholesale high quality access (together the '**2020 Leased Lines Wholesale Market(s)**')

- (a) a national **Low Bandwidth ('LB') Traditional Interface ('TI') WHQA Market** consisting of wired analogue, digital and Time Division Multiplexing ('**TDM**') wholesale LLs with bandwidths ≤ 2 Mbit/s;
- (b) a national **High Bandwidth ('HB') TI WHQA Market** consisting of wired TDM wholesale LLs with bandwidths > 2 Mbit/s; and
- (c) four separate geographically differentiated Modern Interface ('**MI**') **WHQA Markets**' consisting of all wired Ethernet First Mile ('**EFM**'), Ethernet, Wavelength Division Multiplexing ('**xWDM**') (and other modern interfaces) LLs of any bandwidth, in particular:
 - (i) an '**Area 1 MI WHQA Market**' consisting of all wired EFM, Ethernet, xWDM (and other modern interfaces) LLs of any bandwidth, with this market corresponding to an identified specific set of 1,582 Work Place Zones ('**WPZs**')²⁸ which covered approximately 58.4% (4,950) of wired MI WHQA connected premises in the State;

²⁷ See "Market Review – Wholesale High Quality Access at a Fixed Location, ComReg Document 20/06, Decision D03/20", dated 24 January 2020 ('**2020 Decision**').

²⁸ WPZs are an administrative unit created by Ireland's Central Statistics Office ('**CSO**') and are designed to capture 'daytime population' of areas. The daytime population includes everybody who indicated they worked or studied in the area, along with persons in that area who do not work or study (and so are there during the day). There are 7,219 WPZs in Ireland. Further details on the CSO construct of WPZs are available [HERE](#).

- (ii) an '**Area 2 MI WHQA Market**' consisting of all wired EFM, Ethernet, xWDM (and other modern interfaces) LLs of any bandwidth, with this market corresponding to an identified specific set of 1,998 WPZs which cover approximately 41.6% (3,523) of wired MI WHQA connected premises in the State;
- (iii) an '**Area 3 MI WHQA Market**' consisting of all wired EFM, Ethernet, xWDM (and other modern interfaces) LLs of any bandwidth, with this market corresponding to an identified specific set of 1,153 WPZs;²⁹ and
- (iv) an '**Area 4 MI WHQA Market**' consisting of all wired EFM, Ethernet, xWDM (and other modern interfaces) LLs of any bandwidth, with this market corresponding to an identified specific set of 2,486 WPZs.³⁰

2.37 ComReg found that:

- (a) Eircom had SMP in the Low Bandwidth TI WHQA Market;
- (b) No SP had SMP in the High Bandwidth TI WHQA Market;
- (c) No SP had SMP in the Area 1 MI WHQA Market;
- (d) Eircom had SMP in the Area 2 MI WHQA Market;
- (e) No SP had SMP in the Area 3 MI WHQA Market; and
- (f) Eircom had SMP in the Area 4 MI WHQA Market.

2.38 In the 2020 Decision, ComReg found that Eircom has SMP in the Area 2 MI WHQA and Area 4 MI WHQA Markets (together referred to collectively as the '**Zone B MI WHQA Markets**'). ComReg imposed on Eircom a range of access, non-discrimination, transparency, price control/cost accounting and accounting separation obligations on Eircom in those Markets.

2.39 A similar set of obligations were imposed on Eircom in the LB TI WHQA Market where Eircom was also found to have SMP.

2.40 In the 2020 Decision, ComReg found that no undertaking had SMP in the Area 1 MI WHQA and Area 3 MI WHQA Markets (together referred to

²⁹ There were no connected premises in the Area 3 MI WHQA Market. This market is comprised of the relevant geographic areas that have at least 2 alternative networks (other than Eircom) present or were completely surrounded by Zone A geographic areas.

³⁰ There were no connected premises in the Area 4 MI WHQA Market. There were, however, less than 2 alternative networks (other than Eircom) present in the relevant geographic areas that comprised this market.

collectively as the '**Zone A MI WHQA Markets**') and the then existing SMP obligations imposed on Eircom were withdrawn in those markets.

2.5 Current Review

- 2.41 Given the time that has elapsed since ComReg's previous analysis under the 2020 Decision and, having regard to market developments, including the publication of the 2020 Recommendation, it is now considered appropriate to carry out a further market review.
- 2.42 For this current market review, ComReg has obtained information from various sources, listed in Section 2.5.1 below. ComReg has also examined the reviews of wholesale LL markets conducted by other European NRAs and has taken account of guidance available from the EC, BEREC and others before arriving at the views set out in this Consultation.

2.5.1. Information Sources Relied Upon

- 2.43 In conducting its analysis ComReg has drawn on data from a number of sources, including:
- (a) Information provided by SPs in response to detailed statutory information requests³¹ issued by ComReg in which both quantitative and factual information on the retail leased lines market and the WDC market was sought. This included statutory information requests issued on 19 June 2020³², 30 April 2021³³, 10 February 2022³⁴, 25 July 2022³⁵, 29 June 2023³⁶ (together referred to as the '**Statutory Information Requests**' or '**SIRs**');
 - (b) Information provided to ComReg in subsequent follow-up correspondence and discussions with SPs in relation to (a) above;
 - (c) Information provided to ComReg by SPs for the purpose of its Quarterly Key Data Report ('**QKDR**');

³¹ Statutory information requests are issued by ComReg pursuant to its powers under section 13D(1) of the Communications Regulation Act 2002, as amended, the ("Act"), under which ComReg may at any time, by notice in writing, require an undertaking to provide it with such written information as it considers necessary to enable it to carry out its functions.

³² Leased Line data collection for the period October to December 2019.

³³ Leased Line data collection for the year 2020.

³⁴ Leased Line data collection for the period October to December 2021.

³⁵ Leased Line data collection for the periods January to June 2022 and July to December 2022.

³⁶ Leased Line data collection for the year 2023.

- (d) Information provided by SPs to ComReg through a non-statutory based qualitative questionnaire ('**QQ**')³⁷;
- (e) Meetings with SPs³⁸;
- (f) Meetings with major public sector customers of retail leased line services³⁹; and
- (g) Other information in the public domain.

2.44 ComReg encountered substantial difficulties in gathering complete and accurate information from SPs via the SIRs, with this delaying the market review process, and in turn, the publication of this Consultation. Details on this has been set out in an Information Notice, namely [ComReg Document 24/36](#). Examples of such difficulties encountered included providing incorrect or partially incorrect information, no information, or information in erroneous formats, all of which contributed to delays in finalising an accurate and reliable data set necessary to conduct the market analysis.

2.45 ComReg intends to re-fresh some of the data sources identified above in parallel with this Consultation process and will take such updated data into account when issuing its final decision.

2.6 Consultation Process

2.46 As noted above, the purpose of this Consultation is to set out ComReg's preliminary views on its analysis and assessment of competition within the WDC market(s).

2.47 ComReg invites all interested parties to respond to the questions set out in this Consultation, and/or to comment on any other aspect of the Consultation. When doing so, Respondents are requested to clearly explain the reasoning supporting their views, indicating the relevant paragraph number(s) within the Consultation to which their response refers, along with all the relevant factual evidence supporting their presented views.

2.48 Respondents should submit their views in accordance with the instructions set out below. Respondents should also be aware that all non-confidential responses to this Consultation will be published, subject to the provisions of

³⁷ ComReg Wholesale Dedicated Capacity (WDC) Market Review: Service Provider Questionnaire (issued September 2022).

³⁸ Including BT, Eircom, Enet, ESBT, Host, NBI, Three, and Virgin Media.

³⁹ HEAnet and Office of the Government Chief Information Officer ('**OGCIO**').

ComReg’s guidelines on the treatment of confidential information.⁴⁰ **Respondents must ensure that a non-confidential version of their response is provided by the closing date set out below. Confidential elements of responses must be clearly marked as such and be set out in a separate document which must also be provided to ComReg by the closing date set out below.**

- 2.49 All responses should be clearly marked with “**Response to ComReg Consultation Document 24/92**” and sent by email to tommy.burke@comreg.ie to arrive on or before 5.00pm on 31 January 2025.
- 2.50 In submitting comments, Respondents are requested to provide a copy of their submissions in an unprotected electronic format in order to facilitate their subsequent publication by ComReg.
- 2.51 This is a non-confidential version of the Consultation. Certain information within the Consultation has been redacted for reasons of confidentiality, with such redactions indicated by the symbol ✂. Should an individual SP wish to review **its own** redacted information⁴¹, it should make a request for such in writing to ComReg (to the email address above) and indicate the specific paragraph numbers within which the redacted information being requested is contained. ComReg will consider requests for redacted information and would, subject to the protection of confidential information, respond accordingly.

2.7 Structure of this Consultation

- 2.52 The Regulatory Impact Assessment (‘**RIA**’) is an analysis of the likely effect of proposed new regulation or regulatory change. The purpose of a RIA is to establish whether regulation is necessary, to identify any possible negative effects which might result from imposing a regulatory obligation and to consider any alternatives. The RIA will help identify regulatory options and establish whether proposed regulation is likely to have the desired impact.
- 2.53 This entire document constitutes a RIA in respect of each type of remedy e.g., access obligations, non-discrimination obligations, transparency obligations, accounting separation obligations the price control and cost accounting obligations and the Statement of Compliance (‘**SoC**’) obligations. Hence, in this document and in the process of preparing this document,

⁴⁰ See “[Guidelines on the treatment of confidential information, ComReg document 05/24](#)” ComReg Document 05/24, “Guidelines on the treatment of confidential information”, dated 22 March 2005.

⁴¹ Information may not be made available where its provision would lead to a reasonable expectation that it could undermine the confidentiality of another SP’s information.

ComReg has carried out a RIA and concluded that the measures set out in this document are necessary.

- 2.54 In carrying out the RIA, ComReg has taken into account the following:
- (a) ComReg's RIA Guidelines ([ComReg Document 07/56a](#));
 - (b) Policy Directions issued by the Minister for Communications, Marine and Natural Resources to ComReg under Section 13 of the Communications Regulation Act 2002, as amended, on 21 February 2003;
 - (c) [RIA Guidelines](#) issued by the Department of An Taoiseach in June 2009;
 - (d) [Guidance from the European Commission](#) and [Best Practice Principles for Regulatory Policy](#) from the Organisation for Economic Co-operation and Development ('OECD').
- 2.55 The checklist for ComReg in respect of the RIA is:
- (a) Describe the policy issue to be addressed and identify the objectives;
 - (b) Identify and describe the regulatory options (i.e. prepare a list of policy options including to make no change to the current policy);
 - (c) Determine the impacts on stakeholders (i.e. identify the costs, benefits and impacts of each of the regulatory options);
 - (d) Determine the impact on competition (i.e. consider the impact of each option on competition in the market); and
 - (e) Assess the impacts and select the best option.
- 2.56 Hence, the 5 steps of the RIA (above) are reflected for each type of remedy in Section 7.
- 2.57 The remainder of this Consultation is structured as follows:
- (a) Section 3 provides an overview of ComReg's assessment of the retail leased line market(s) in terms of both their product and geographic scope;
 - (b) Section 4 provides a market definition, defining the proposed scope of the WDC market(s);
 - (c) Section 5 assesses competition within each of the defined WDC LL market(s), outlining the assessment framework and assessing whether any undertaking operating within such market(s) holds a position of SMP;

- (d) Section 6 outlines the main competition problems which may, absent regulation, occur within the WDC market(s) where ComReg has identified SMP (and related markets);
- (e) Section 7 proposes regulatory remedies to address competition problems in markets where ComReg has identified SMP, namely, in the form of obligations that would be imposed on an undertaking with SMP;
- (f) Section 8 outlines the various sunset periods applicable for the LB TI WDC Market and WPZs transferring from the 2020 Zone B MI WDC Markets to the Zone A MI WDC Markets; and
- (g) Section 9 sets out the next steps that will follow the publication of this Consultation;

2.58 A number of Annexes to this Decision give additional supporting analysis and, in some cases, outline the approach and findings in more detail, where they have been condensed for reasons of brevity in the main text. Of particular note is Annex: 1 which contains the Decision Instrument which specifies, in legal form, the decisions arising from this Decision.

Chapter 3

3. Retail Market Review and Assessment

3.1 Introduction

- 3.1 The starting point for the identification of wholesale markets susceptible to ex ante regulation is the analysis of corresponding retail market(s)⁴². This approach stems from the fact that demand for the wholesale products is usually derived from downstream end-user demand for retail services (although ComReg notes that, in the case of WDC, wholesale demand can also be derived from SPs' own network use cases such as backhaul).
- 3.2 In this Section, we firstly give a brief overview of the assessment of the retail markets in the 2020 Decision, followed by setting out the main trends and developments identified in the supply of, and demand for, retail dedicated capacity or leased line services since then. We then assess the relevant retail market(s), taking into account demand-side and supply-side substitutability from the end-user's⁴³ perspective, based on existing market conditions and the likely trends and developments.

3.2 Overview of Retail Markets in 2020 Decision

- 3.3 In the analysis supporting ComReg's 2020 Decision, it was found that there were sixteen active retail SPs in the retail leased lines markets, with these of varying size, with variations also in the locations within which they provided services. The access media used to provide LLs were wireless⁴⁴, copper and fibre. Many retail SPs used third party wholesale SPs in order to deliver elements of the retail solutions to their customers, while some were acting purely as entirely resellers of wholesale services, having no network of their own. Five retail SPs were primarily active in just the greater Dublin area, with the remaining SPs having national or quasi-national coverage.
- 3.4 In the 2020 Decision ComReg found that there were three separate retail leased line product markets:

⁴² Para 15, SMP Guidelines.

⁴³ The term 'end-user' includes enterprises and public administrations, unless otherwise specified.

⁴⁴ Point to point microwave wireless links.

- (a) a Low Bandwidth ('**LB**') Traditional Interface ('**TI**') Retail Market consisting of all wired retail LLs carried over analogue, digital and TDM interfaces with bandwidths of ≤ 2 Mbit/s (the '**Retail LB TI High Quality Access ('HQA') Market**');
 - (b) a High Bandwidth ('**HB**') TI Retail Market consisting of all wired retail LLs provided over a TDM Interface with bandwidths of > 2 Mbit/s (the '**Retail HB TI HQA Market**'); and
 - (c) a Modern Interface ('**MI**') Retail Market consisting of all wired retail LLs carried over modern interfaces such as Ethernet, EFM, xWDM and other modern interfaces (the '**Retail MI HQA Market**').
- 3.5 ComReg also found that each market was comprised of LL products delivered solely over fixed media, with point-to-point wireless LLs, broadband and dark fibre excluded from the retail markets. Additionally, the geographic scope of each of the three product markets was national.

3.3 Providers of Retail Leased Line Services

3.3.1. Introduction

- 3.6 Below ComReg explores the main trends and developments in the supply of retail LLs. The competitive pressure from the supply side of the market is influenced by existing retail LL SPs, entry and exit of LL SPs, and the expansion of existing SPs' LL networks. We look at the retail LL SPs, their infrastructure and network presence in the markets, their market shares as measured in terms of LL connected premises, as well as the overall level of retail market concentration.

3.3.2. Providers of Retail LL Services

- 3.7 At the time of the 2020 Decision, ComReg collected data on retail LLs from 16 retail LL SPs. This figure has since increased to 18 as listed in Table 1 below. These SPs provide services using own-network ('**on-net**') infrastructure (i.e. own local access infrastructure and/or use of upstream third party physical infrastructure) and/or services based on other SPs' managed inputs ('**off-net**') (i.e. where SPs use a wholesale leased line provided by a third party supplier to connect between the customer premises and the SP's network) and/or based on use of other SPs' dark fibre.
- 3.8 As can be seen from Table 1, the majority of SPs active in the retail LL market(s) in Ireland are also active in a relevant upstream wholesale WDC

market(s). In addition, other operators such as SIRO, Enet⁴⁵ and NBI are active on a wholesale only basis and are not included in the table below, however their services are often used in the downstream retail market by retail providers.

Table 1: Retail LL SPs

Service Provider	Technologies Used	Presence in a wholesale market	Geographic coverage
AT&T	Ethernet and xWDM/TDM	Yes	Mainly Dublin area
BT Ireland	Ethernet and xWDM/TDM	Yes	Quasi-national
CenturyLink Communications	Ethernet and xWDM/TDM	No	Mainly Dublin
Colt	Ethernet and xWDM/TDM	Yes	Mainly Dublin area
Viatel (Digiweb)	Ethernet	Yes	National
Eircom ⁴⁶	Ethernet and xWDM/TDM	Yes	National
EUNetworks	Ethernet and xWDM	Yes	Mainly Dublin area
Fulnett	Ethernet	Yes	National Reseller
Hibernia Atlantic (EXA)	Ethernet and xWDM	Yes	Mainly Dublin area
Host Ireland	Ethernet	Yes	Mainly Dublin area
Magnet	Ethernet and xWDM	No	National
Orange	Ethernet	No	National Reseller
Pure Telecom	Ethernet	No	National Reseller
Three	Ethernet	Yes	National
Verizon	Ethernet and TDM	Yes	Mainly Dublin area

⁴⁵ Note that Enet and Magnet are part of the Speed Fibre Group

⁴⁶ Eircom's network is taken as being near ubiquitous for the purpose of this market review given the national footprint of its under and over-ground infrastructure, as well as its fibre network presence. Other networks are assessed as national where they have established POPs and presence in all provinces and many regional centres e.g. BT and Magnet/Enet etc (this does not however mean they can provide LL services nationally).

Virgin Media	Ethernet and TDM	Yes	Quasi-national
Vodafone	Ethernet and TDM	Yes	National
Zayo	Ethernet and xWDM	Yes	Mainly Dublin area

3.9 For the purpose of the analysis, LL SPs can be broadly categorised into three types. These categories are based on the extent of the coverage of their own networks and the degree to which they depend on the use of wholesale services provided by other SPs (each scenario may incorporate the use of upstream dark fibre provided by another SP), to deliver their retail and/or wholesale LL services:

- (a) **Own network SPs:**⁴⁷ these SPs provide retail and/or WDC LLs predominantly using their own network and associated infrastructure and, hence, are not heavily reliant on the use of wholesale inputs provided by other SPs when offering retail and/or wholesale LL services. Examples of such SPs currently include Eircom Ltd. t/a Eir or Open Eir ('**Eircom**')⁴⁸ and Virgin Media Ireland Ltd. ('**Virgin Media**')⁴⁹.
- (b) **Wholesale LL purchasers:** these are SPs that, in addition to using their own networks, also purchase wholesale inputs in the upstream WDC market from other wholesale LL SPs and use these inputs, in conjunction with their own network inputs, to provide LL services in the retail and/or wholesale markets. Examples of such operators currently include BT Ireland Ltd. ('**BT**')⁵⁰ and Vodafone Ireland Ltd. ('**Vodafone**')⁵¹.

⁴⁷ It should be noted that there is no truly independent retail LL SP as all SPs purchase wholesale circuits from other SPs. As such, this list includes those SPs whose retail circuits are predominantly on-net.

⁴⁸ Further information is available at <https://www.eir.ie>.

⁴⁹ Further information is available at <https://www.virginmedia.ie/>.

⁵⁰ Further information is available at <https://www.btireland.com/>.

⁵¹ Further information is available at <https://www.vodafone.ie/>.

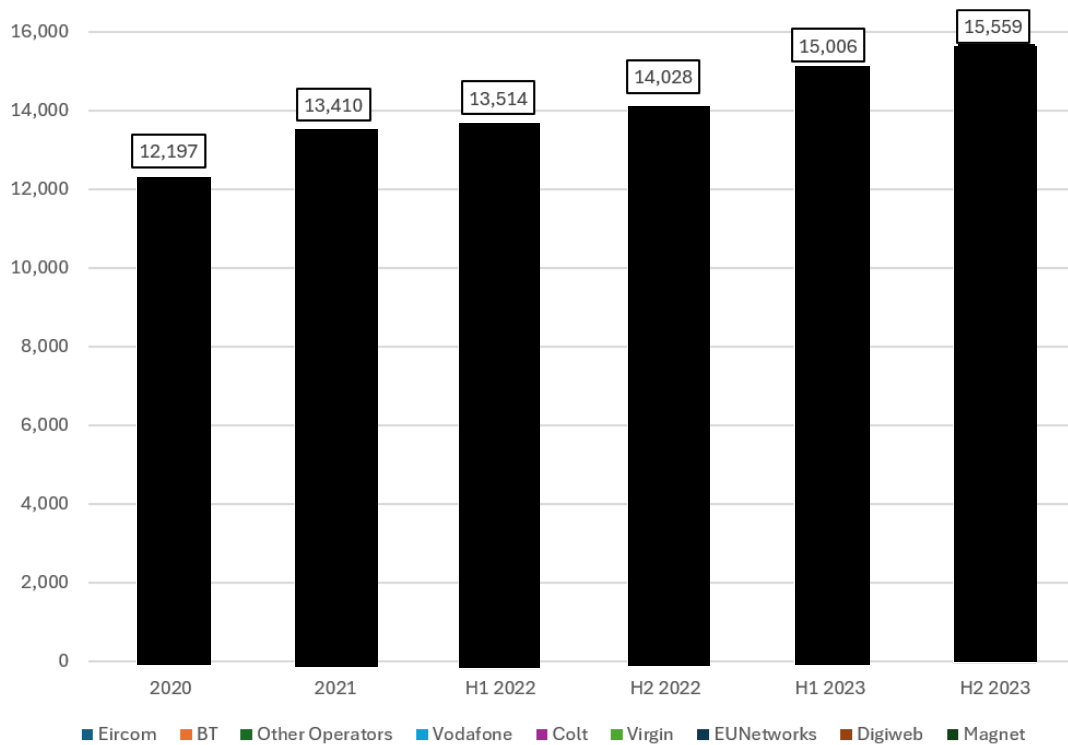
- (c) **Resale retail LL SPs:** these are SPs whose supply of retail LL services does not involve any use of self-owned physical networks. These SPs purchase wholesale access from a third party provider and then resell LLs under their own brand. Such operators include AT&T Global Network Services Ireland Ltd. ('**AT&T**')⁵² and Fulnett Ltd. ('**Fulnett**')⁵³.
- 3.10 Below ComReg examines the retail LL market, taking account all the different technologies utilised (such as analogue, TDM, Ethernet and xWDM) to provide retail LLs, along with the trends in the supply of these lines. These trends highlight relevant developments when considering whether to define separate retail LL markets.
- 3.11 It should however be noted that with the exception of the discussion on the 'Demand side substitution' (see section 3.5.3 below), data presented only includes retail LLs provided over a wired media (fibre) and excludes retail LLs using the wireless medium. This is due to their exclusion from each of the retail markets defined later in this section. The data below are based solely on observations in the retail market. Many of these retail LLs are provided by SPs through the use of wholesale inputs purchased from Eircom, both regulated (as a result of regulatory obligations under the 2020 Decision) and non-regulated.
- 3.12 Figure 4 and Figure 5 below set out the number of wired (fibre only) LLs sold by SPs and their corresponding market shares, respectively. The seven SPs with the highest volume of retail LLs are individually identified for each year, with all other SPs outside of the top seven being grouped together under the heading 'Other Operators' ('**OOs**')⁵⁴.

⁵² Further information is available at [AT&T in Ireland](#).

⁵³ Further information is available at [Fulnett in Ireland](#).

⁵⁴ OOs include the following SPs: AT&T, CenturyLink, Fulnett, GTT, Host, Magnet, Orange, Pure Telecom, Verizon, Weltell and Zayo.

Figure 4: Number of Wired (fibre only) Active Retail LLs by SP⁵⁵ [PARTIALLY REDACTED]



3.13 Figure 4 shows an increase of 3,362 in the total number of wired, fibre only, retail LLs sold between 2020 and H2 2023, an increase of 27.5% over the period. This trend of the total number of fibre retail LLs increasing is a continuation of the trend identified in the 2020 Decision, with this continuation likely being due in part to continued network roll-out from operators and increased retail demand for higher capacity.

⁵⁵ The LLs of Airspeed and Magnet are combined in this graph to correctly reflect the volume of LLs and market share associated with Magnet, following their acquisition by the Speed Fibre Group which combined Magnet with Airspeed [Magnet Networks acquired by state-backed investment fund | Irish Independent](#).

Figure 5: Market Share Percentages of Wired (fibre only) Active Retail LLs by SP (2020 TO 2023) [REDACTED]



3.14 Over the period, we can see that Eircom remained the largest retail supplier of wired LLs, increasing its total LL retail base by [REDACTED], an increase of [REDACTED]⁵⁶. OOs have also seen an increase in the volume of retail LLs sold over the 2020 to H2 2023 period, with an increase of [REDACTED]⁵⁷ sold. Of the other major SPs, Virgin Media had an increase of [REDACTED] in its retail LLs sold, [REDACTED]⁵⁸ over the period.

3.15 Magnet also shows a significant increase in its retail LLs with its total number of lines growing from [REDACTED] in 2020 to [REDACTED] in H2 2023, an increase of [REDACTED]⁵⁹. This large increase in retail LLs came after Magnet was acquired in December 2020, combining its retail LL services with those of Airspeed⁶⁰ and becoming part of the Speed Fibre Group, with this group also owning the wholesale-only operator Enet.

⁵⁶ Between 20% and 30%.

⁵⁷ Between 50% and 60%.

⁵⁸ Between 20% and 30%.

⁵⁹ Over 100% increase.

⁶⁰ [Magnet Networks acquired by state-backed investment fund | Irish Independent.](#)

As a result, Magnet's volume of LLs saw a significant increase since the 2020 Decision, following it becoming part of the Speed Fibre Group.

- 3.16 Despite the increases outlined above, the number of retail LLs sold decreased for Vodafone and BT, Vodafone dropping by [X ██████████] ██████████ %⁶¹, while BT saw a decline of [X ██████████] ██████████ %⁶² in their total number of retail LLs since 2020. Colt's retail LL base saw an increase over this period, with its total number of leased lines increasing [X ██████████] ██████████ %⁶³ increase in their total number of lines). Colt's increased volume of LLs is predominantly due to their acquisition of Lumen Technologies in 2022⁶⁴, with the Lumen LLs accounting for approximately [X ██████████] ██████████ % of Colt's volume of retail LLs for H2 2023.⁶⁵
- 3.17 This period has also seen the growth of Digiweb in the market, with the operator selling [X ██████████] ██████████ retail LLs in H2 2023, a [X ██████████] ██████████ %⁶⁶ increase on their total of [X ██████████] ██████████ leased lines in 2020. Alongside Digiweb's significant growth in the market, this period also saw the slight decline of EUNetworks' wired leased line sales, falling from [X ██████████] ██████████ by H2 2023, a [X ██████████] ██████████ %⁶⁷ decrease in the total number of lines since 2020.
- 3.18 Figure 5 shows that Eircom's market share over the period 2020 to H2 2023 relatively remained stable, moving from [X ██████████] ██████████ %⁶⁸. Magnet experienced the largest increase in market share over this period, increasing by [X ██████████] ██████████ %⁶⁹. Digiweb also experienced an increase in market share over this period, increasing by [X ██████████] ██████████ %⁷⁰. OOs also experienced an increase in their market share, rising by [X ██████████] ██████████ %.

⁶¹ Between 20% and 30%.

⁶² Between 10% and 20%.

⁶³ Between 20% and 30%.

⁶⁴ 'Lumen Enters into Agreement Regarding Divestiture of EMEA Business to Colt Technology Services' [Lumen Enters into Agreement Regarding Divestiture of EMEA Business to Colt Technology Services for \\$1.8B - Colt Technology Services](#). Under the 2020 Decision, Lumen data was accounted for in the OO category.

⁶⁵ Note that Lumen was not included in OOs' figures prior to the acquisition.

⁶⁶ Over 100% increase.

⁶⁷ Between 0% and 10%.

⁶⁸ Between 20% and 30%.

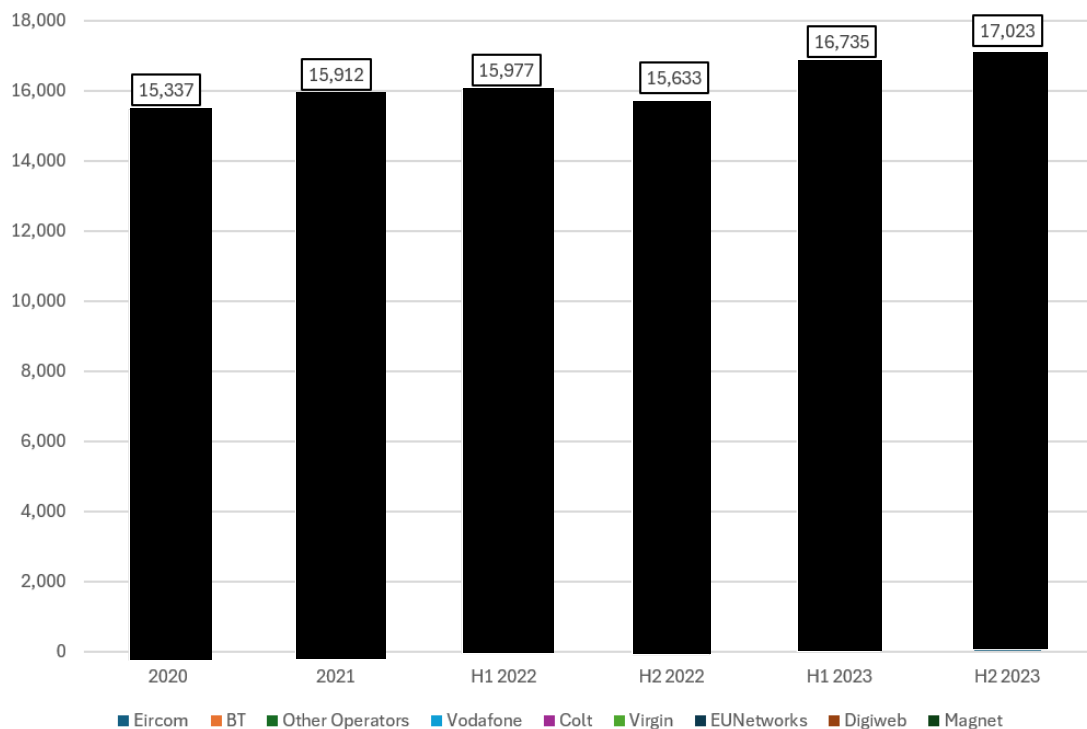
⁶⁹ Between 0% and 10%.

⁷⁰ Between 0% and 10%.

██████████] ⁷¹ during this period. This increase in OOs' market share was partly due to Orange and Pure Telecom entering the market.

3.19 Figure 6 and Figure 7 below ⁷² are comprised of retail LLs which are provided over a wired medium, that is to say, all LLs which are delivered to retail customers over a copper or fibre medium.

Figure 6: Number of Wired Active Retail LLs by SP – including copper based (2020 to 2023) ⁷³ [PARTIALLY REDACTED]



⁷¹ Between 0% and 10%.

⁷² The LLs of Airspeed and Magnet are combined in these graphs to correctly reflect the volume of LLs and market share associated with Magnet, following their acquisition by the Speed Fibre Group which combined Magnet with Airspeed [Magnet Networks acquired by state-backed investment fund | Irish Independent](#)

⁷³ It should be noted that during the 2020-2021 period, different SPs reported the data slightly different which may have an effect on the number of retail LLs reported for that period.

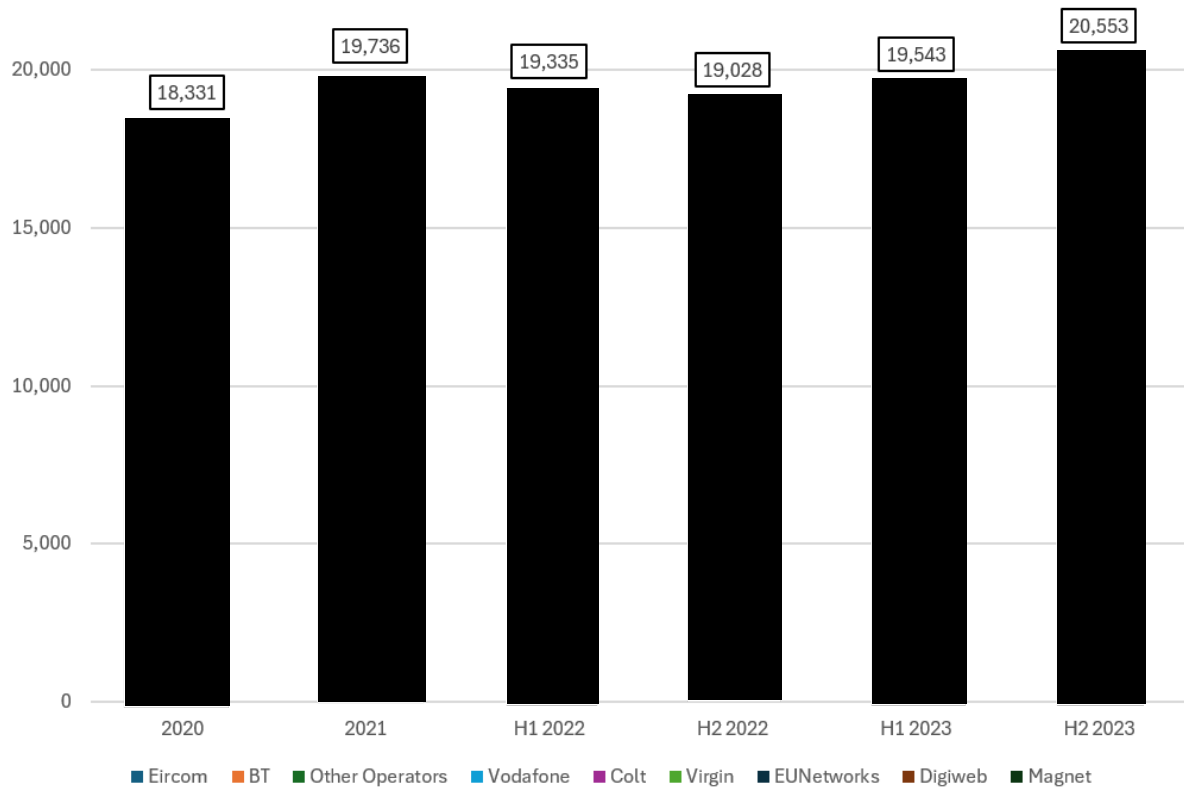
Figure 7: Retail Market Shares of Wired Active Retail LLs by SP (2020 to 2023) [REDACTED]



- 3.20 Comparing Figure 4 to Figure 6, it can be seen that when copper LLs are included in the retail market figures, there is a far greater number of LLs in 2023 than in 2020. However, the difference in volumes has reduced by H2 2023. This reduction is predominantly due to the reduction of copper and other TI based LLs, as discussed in subsection 3.4.1, alongside the continued rollout of fibre by SPs and take-up of fibre based LL retail services.
- 3.21 Looking at SPs' market shares when all wired LLs are included (Figure 7), it can be seen that Eircom's market share, although higher in comparison to fibre only, has decreased over the period. This difference is due to a decline in demand for copper LLs given the availability and increasing take-up of fibre LLs. As a result, Eircom's market share in the wired fibre and copper based retail LLs market has fallen over this period. Apart from Eircom, the inclusion of all wired (fibre and copper) LLs does not overly impact the market shares of the other SPs, mainly given the tendency for such networks to have a lower number of copper LLs.

3.22 Figure 8 and Figure 9 below⁷⁴ are comprised of retail LLs which are provided over both wired and wireless media, that is to say, all LLs which are delivered to retail customers over a copper, fibre or wireless medium.

Figure 8: Number of Wired and Wireless Active Retail LLs by SP (2020 to 2023)⁷⁵ [⌘ PARTIALLY REDACTED ⌘]



⁷⁴ The LLs of Airspeed and Magnet are combined in these figures to correctly reflect the volume of LLs and market share associated with Magnet, following their acquisition by the Speed Fibre Group which combined Magnet with Airspeed [Magnet Networks acquired by state-backed investment fund | Irish Independent](#)

⁷⁵ It should be noted that during the 2020-2021 period, different SPs reported the data slightly different which may have an effect on the number of retail LLs reported for that period.

Figure 9: Retail Market Shares of Wired and Wireless Active Retail LLs by SP (2020 to 2023) [% REDACTED %]



- 3.23 Finally, looking at Figure 8, with the inclusion of wireless, we can see that the volume of LLs increases (20,553 wired and wireless LLs in H2 2023 versus 18,331 in H2 2020). However, it should be noted that the percentage increase for fibre LLs between 2020 and 2023 is 27.5% whereas for all LLs it is 12%.
- 3.24 It is worth noting that a larger proportion of wireless LLs are provided by the smaller retail service providers, and this is reflected in the increase of the OOs' market share in Figure 9. Comparing Figure 8 to Figure 9, it can be seen that OOs' market share, when wireless is included, is between 4% and 9% greater over the three year period, indeed in 2023, approximately 30% of wireless LLs are provided by smaller retail SPs.

3.3.3. Conclusion

- 3.25 The retail LLs market in Ireland is characterised by a large number of LL SPs that vary in size, with ComReg having collected data from 18 different SPs in this market. These SPs can be broken down into different infrastructure categories:

- (a) **Own network SPs** who predominantly use their own network such as Eircom;
- (b) **Wholesale LL purchasing SPs** who purchase wholesale inputs in conjunction with their own network such as BT, Verizon and Vodafone; and
- (c) **Resale retail LL SPs** who do not involve the use of their own physical network such as Fulnett.

3.26 Figure 9 above provides an illustration of the volumes and market shares in the retail LLs market when various local access technologies are included. In Subsections 3.4.1 and 3.5.7 below, ComReg outlines the reasoning behind not including TI (copper) and wireless LLs in the retail LL market. Despite this, these figures are still informative in illustrating the dynamics within the retail LLs market.

3.27 The retail LLs market data (wired fibre only retail market) shows that:

- (a) The market share of LLs of the incumbent, Eircom, has been relatively stable over the period, [~~]~~ [redacted] ⁷⁶ in 2020 to [~~]~~ [redacted] ⁷⁷ in H2 2023; and
- (b) The largest increase in market share was for Magnet, rising from [~~]~~ [redacted] ⁷⁸ over the period following the 2020 Decision; and
- (c) There was an increase in the market share of the OOs, whose combined market share increased from [~~]~~ [redacted] ⁷⁹ over the years following the 2020 Decision; and
- (d) Digiweb also had a significant increase in its market share, moving from [~~]~~ [redacted] ⁸⁰ in 2020, to [~~]~~ [redacted] ⁸¹ in H2 2023.

3.4 Retail Market Trends and Developments

3.28 This Section examines both demand-side and supply-side trends in the retail LLs market. We find that developments identified in the 2020 Market Review

⁷⁶ Between 20% and 30%.

⁷⁷ Between 20% and 30%.

⁷⁸ Market share moving from 0% to 10% to 10% to 20%.

⁷⁹ Between 10% and 20%.

⁸⁰ Between 0% and 10%.

⁸¹ Between 0% and 10%.

are continuing and are likely to continue in the foreseeable future. The most notable trends and developments, which are discussed in sections 3.4.1 to 3.4.4 below, include the:

- (a) Continued decline in TI LL products, such as TDM and Analogue copper LLs, and the continued increase in the use of MI fibre based LL products;
- (b) Continued increase in bandwidth requirements of MI services;
- (c) Increasing adoption of software-defined wide area network ('**SD-WAN**') solutions; and
- (d) Continued ongoing and planned rollouts and/or network upgrades, by several Network Operators ('**NO(s)**'), including Eircom, SIRO, NBI and Virgin Media.

3.4.1. TI to MI Migration

TI versus MI retail LLs

- 3.29 One notable trend identified in the 2020 Decision was an overall increase in demand for MI retail LL services and a steady decline in TI retail LL services. This trend has continued since the 2020 review, as illustrated in Figure 10 below⁸², and is likely to continue into the future. This suggests asymmetric substitution between MI and TI LLs, with retail end-users moving from TI retail LLs to MI retail LLs, but not vice versa.
- 3.30 The medium over which TI LLs are delivered is copper, while MI LLs are delivered over fibre. In addition, for MI LL products the bandwidths which it can deliver range from 1 Mbit/s to 10Gbit/s. In comparison, the bandwidths which can be delivered by TI LL products range from 64Kbit/s to over 100Mbit/s.
- 3.31 Eircom has published a white paper regarding a programme to facilitate the transition of retail end-users from copper to its fibre network⁸³ (the copper switch off). In November 2023, ComReg issued its Decision on the Framework for the Migration from Legacy Infrastructure to Modern Infrastructure, D09/23. ComReg Decision D09/23⁸⁴ outlines in detail the framework that will apply throughout Eircom's transition from Legacy

⁸² Figure 10 only includes physical circuits.

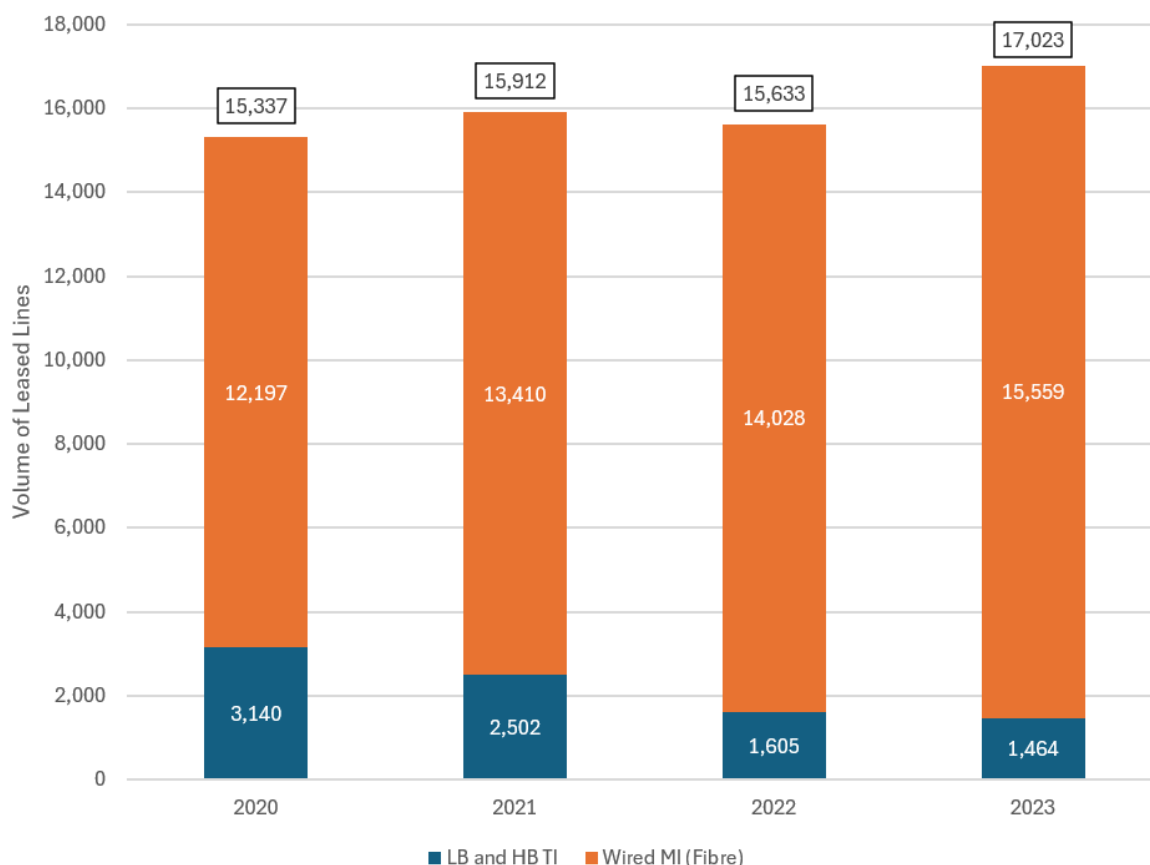
⁸³ [Copper Switch Off | Open Eir](#).

⁸⁴ See "Framework for the Migration from Legacy Infrastructure to Modern Infrastructure – Response to Consultation and Decision, ComReg Document 23/102, Decision D09/23", dated 01 November 2023.

Infrastructure to Modern Infrastructure for so long as it is designated with SMP on relevant markets. At this point in time, ComReg has not received any notifications from Eircom as required under ComReg Decision D09/23.

- 3.32 There has also been an increase in deployment of Machine to Machine ('M2M') mobile SIMs which are increasingly being used for telemetry and monitoring, such as smart electricity metres, intruder and fire alarms. These can often be used to replace both analogue and low bandwidth TI LLs.

Figure 10: Volumes of Retail TI and MI wired LLs



- 3.33 As shown in Figure 10 above, the number of retail LB and HB TI LLs has declined steadily between 2020 and 2023, while wired MI LLs has continued to dominate retail demand, increasing from 12,197 in 2020 to 15,559 in 2023, a 28.5% increase. The significant year-on-year increase in the number of wired LLs between 2020 and 2023 (11.9%) may be related to the impact caused by Covid-19. Over this period, there was a significant increase in the demand for Fibre to the Home ('FTTH') connectivity due to people working from home, and as a result, SPs increased their rollout of fibre. This rollout enabled SPs to supply more LLs, using both point-to-point fibre and PON networks, as well as FTTH broadband access, and as a result there was a

significant year-on-year increase in wired LLs. Overall, MI retail LLs account for 91.4% of all retail fixed LLs in 2023, compared to 79.5% in 2020.

- 3.34 Within TI LL segments, the markets for HB TI and analogue LLs were deregulated by ComReg in the 2020 Decision. These types of LLs have continued to diminish in volume since then, with only 13 HB TI LLs in place at the end of 2023. Since the 2020 Decision, both HB and LB TI LLs have seen a steady decline in their numbers, falling from 3,140 in 2020 to 1,464 in 2023, a decline of 53.4%.
- 3.35 ComReg's meetings with LL SPs and their responses to our QQ have confirmed the trends identified above, including asymmetric substitution from TI retail LLs to MI retail LLs. The vast majority of the QQ respondents agreed that TI LL demand has continued to decline, with Eircom, BT, Enet, Colt, EU Networks, AT&T and Hibernia all stating that TI LLs will be phased out in the near future. Eircom, BT, Enet, ESBT and Virgin Media have confirmed they will discontinue their use of TDM/SDH TI LL products in the next few years.⁸⁵

Declining demand for new TI LLs

- 3.36 Table 2 below lists the number of new TI LLs installed in the last 5 years. It is apparent that new demand for TI LLs has been negligible since 2020, with demand falling to single digits since then, thus indicating that demand has effectively collapsed. In 2018, there were 49 new TI retail LLs installed; in 2023 there were only 5 new TI LLs delivered with over 80% of the installed base being in-situ for over 10 years. Approximately 80% of TDM lines are used by utility companies, Local Authorities and other public service organisations.

Table 2: New TI LLs Installed 2018-2023

	2018	2019	2020	2021	2022	2023
New on-net TI LLs	32	36	6	8	2	5
New off-net TI LLs	17	7	0	1	0	0
Total New TI LLs	49	43	6	9	2	5

Conclusions on LB TDM market

- 3.37 ComReg considers that the LB TDM market is unlikely to be worthy of monopolising in light of the trends in demand. In this respect, ComReg notes:

⁸⁵ From Response to QQ, questions 5 and 7.

- (a) The volume of retail LB TI LLs has been declining and is very low, with 918 LLs remaining in H2 2023. We expect this trend to continue over the lifetime of this market review, with asymmetric substitution to MI LLs continuing;
- (b) Almost [redacted] of this demand consists of self-supply by Eircom to its retail arm, with merchant market supply by Eircom to Access Seekers very low;
- (c) New demand for LB TDM LLs has collapsed since 2020. The provision of new orders in each of the years 2020, 2021, 2022 and 2023 are in single digits, while the demand for new retail off-net LB TDM LLs is negligible.

3.38 In light of the above, ComReg is the view that continued regulation of the LB TI market is no longer justified and ComReg does not consider that Eircom has SMP as the market is in decline and is no longer worthy of monopolisation.

3.39 Furthermore, we do not consider that it is necessary to definitively conclude on a definition of a relevant LB TI market as the market definition will not alter the view that this market is in terminal decline and is not worthy of monopolisation so as to warrant continued regulation.

3.4.2. Increase in LL Bandwidths

3.40 Another trend identified in the 2020 Market Review⁸⁷ was the continuous growth in the demand for higher bandwidth LL services. This trend has continued, with all LL SPs confirming in their QQ responses that there has been a continued increase in bandwidth requirements.

3.41 Eircom noted that [redacted]

[redacted] ⁸⁸. BT noted [redacted]

[redacted] ⁸⁹.

⁸⁶ Between 80% and 90%.

⁸⁷ See para 3.91 - 3.103 of the 2020 Decision, [ComReg Document 20/06](#).

⁸⁸ From Eircom Response to QQ, question 5.

⁸⁹ From BT Response to QQ, question 5.

- 3.42 This is not unexpected as the general trend is for continuous growth in the bandwidth requirements of LL customers, alongside the continued growth of data traffic in electronic markets, and communications in general.
- 3.43 The Kantar⁹⁰ report on business services commissioned by BEREC, published in December 2022, noted the increased digitalisation of businesses. This development incorporated the migration of IT services towards the cloud, including the adoption of on-demand access services such as, Software as a Service ('**SaaS**'), computing power, storage capacity etc. This has accelerated due to the Covid-19 crisis, with the resultant increase in the demand for bandwidth.
- 3.44 Additionally, Enet stated that it has [REDACTED]
[REDACTED]
[REDACTED] [REDACTED]⁹¹, while EUNetworks said that [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED]⁹². These responses from SPs, combined with the findings of the Kantar report, indicate that there is a continuous growth in the demand for higher bandwidth LL services.

3.4.3. Adoption of SD-WAN

- 3.45 With the development of technology, in particular the move to cloud computing and remote working, SPs⁹³ are reporting a growing trend of SD-WAN adoption over the last few years.
- 3.46 SD-WAN is an advanced software layer 3 network management tool that uses software-defined networking ('**SDN**') technology to automatically manage and prioritise traffic in real time across WANs. It can incorporate various types of connectivity over different media, which can include LLs, broadband, and wireless connectivity, and importantly incorporates connectivity routed via the public internet.
- 3.47 SD-WAN operates a centralised control over the user's network connectivity and connection to services. This could for instance include a business's data centre and various business sites such as retail, manufacturing and

⁹⁰ Kantar Report: A study prepared for the BEREC, Study on Communications Services for Businesses in Europe: Status Quo and Future Trends. Published December 2022, Pages 12 and 57.

⁹¹ From Enet Response to QQ, question 5.

⁹² From EUNetworks Response to QQ, question 5.

⁹³ Including Verizon, BT, Eircom.

distribution outlets, partner⁹⁴ sites and remote home and nomadic workers. These various locations and individuals may be connected in the manner of a traditional WAN using LL and closed broadband connections⁹⁵, or via tunnelled connections across the public internet.

- 3.48 SD-WAN increasingly uses these tunnelled public internet connections, so specialised connectivity of LL and closed broadband connections are not essential. The internet connectivity can vary from large symmetrical LL to retail broadband and 4 and 5G mobile services.
- 3.49 However, the size of the bandwidth required at sites is still driven by the nature of the business, and the demand for particular services and applications used by the business. The larger demand sites will still require high bandwidth services, offering corresponding high service levels such as 24-hour response times with fast repair targets and high availability; these being product characteristics usually met by LL services. Also, other smaller sources of demand that provide key services to businesses also require such high performance levels for their connectivity services. The majority of Respondents to the QQ agreed that SD-WAN is one of the main developments in the retail sector in recent years (e.g., Eircom, BT, Viatel, Vodafone and AT&T). Eircom and Vodafone noted that the adoption of SD-WAN may be most significant in large retail networks. Overall, the adoption of SD-WAN has impacted the nature of the design and sale of connectivity solutions at the retail level. This adoption has also continued the trend of the provision of bundled retail solutions by SPs and aggregators, and the shift away from the sale and purchase of discrete LLs or other connectivity by retail users. The overall volume of retail MI LLs has increased since 2020 Decision⁹⁶ as has wholesale demand.

3.4.4. Network rollout and upgrade

Commercial network roll-out

- 3.50 The growth in infrastructure identified in the 2020 Decision, primarily being in fibre based networks, has continued, as evidenced by the fibre deployments of various operators. The deployment of fibre based networks impacts the WDC market as it results in SPs having greater levels of fibre based infrastructure, in some cases providing SPs with the option to provide LL

⁹⁴ These partners could provide such services as booking, ticket sales and shipping services etc.

⁹⁵ Business oriented SPs have typically offered broadband connectivity which is part of a closed network i.e. where the users are not connected to the internet but are connected to a private network.

⁹⁶ See Figure 4 above.

services to a greater range of premises. It should, however, be noted that much of the Fibre to the premises ('FTTP') rollout has occurred primarily in residential areas rather than commercial areas. It should be noted that the network expansion by wholesale only operators can be used as inputs into the downstream retail market.

- 3.51 Eircom is currently upgrading its network to FTTP, having passed just over 1.25 million premises as of end of Q2 2024. Eircom's FTTP rollout is increasing by around 210,000 premises per annum. If Eircom continues to roll out FTTP at this rate, it would likely achieve or be close to achieving its announced target of 1.9 million premises and businesses passed with FTTP by 2026⁹⁷. It has the largest FTTP network in the State and, on a forward-looking basis, will continue to have the largest FTTP network in the State if Eircom and the other SPs meet their announced rollout targets.
- 3.52 SIRO⁹⁸, a wholesale only open access wholesale network, is expanding its FTTP network. As of the end of Q2 2024, SIRO has passed 589,080 premises with FTTP, and ultimately plans to pass 700,000 premises. ComReg considers, based on SIRO's rollout rates to date, that this may potentially be completed by the end of 2027.
- 3.53 In November 2021, Virgin Media announced plans to upgrade its network to FTTP, with a goal to pass 1 million premises nationwide by the end of 2025.⁹⁹ As of the end of Q2 2024, Virgin Media has passed just over 297,000 homes and businesses with FTTP.

National Broadband Plan

- 3.54 The National Broadband Plan ('NBP') Contract¹⁰⁰ was signed between the Government and National Broadband Ireland ('NBI') in November 2019. Pursuant to the contract, over a seven-year rollout period, NBI is scheduled to pass approximately 560,000 premises in what is known as the Intervention Area ('IA'). The IA focuses on areas where there is no existing or planned commercial NG network. Although predominantly rural, the IA covers areas

⁹⁷ "We are currently well underway investing €500 million to roll-out fibre to the home ("FTTH") to 1.9 million premises across urban and suburban Ireland". <https://www.eir.ie/investorrelations/about/>. Accessed on 28 February 2024.

⁹⁸ SIRO is a 50:50 joint venture between ESB and Vodafone Ireland.

⁹⁹ <https://www.virginmedia.ie/about-us/press/2021/virgin-media-ireland-announces-national-fibre-network-upgrade/>, article dated 4th November 2021

¹⁰⁰ The full details of which, including the contract document are available at [gov - National Broadband Plan Contract \(www.gov.ie\)](http://gov-national-broadband-plan-contract/www.gov.ie) ('NBP Contract'). The contract is subject to a change control procedure and elements may be updated over the project lifetime.

in all 26 counties, and all but four metropolitan Dublin constituencies. The IA covers 1.1 million people living and working in over 560,000 premises, including almost 100,000 businesses and farms along with some 679 schools.

- 3.55 The NBP was established to support the provision of broadband access to households and businesses that currently fall outside the reach of existing broadband networks. Under the NBP Contract, NBI is also permitted to provide wholesale LL services.
- 3.56 NBI's rollout commenced in late 2020, passing its first premises in January 2021, with 266,983 premises being passed at the end of Q2 2024¹⁰¹.
- 3.57 NBI is a wholesale-only operator that does not compete in retail markets. There are 3 categories of products catered for in the NBI contract, as follows:
- (a) **Category A:** Minimum Required Wholesale Products ('**MRWP**');
 - (b) **Category B:** Additional Required Wholesale Products ('**ARWP**'); and
 - (c) **Category C:** Other Permitted Wholesale Products ('**OPWP**').
- 3.58 Schedules 3.1 and 3.2, alongside Appendix 1 of the NBP Contract¹⁰², capture the details of the NBI products which fall within Category A and Category B. ComReg understands that all Category A and Category B products must be provided in the IA under the NBP Contract¹⁰³. Meanwhile, all Category C products must be funded entirely by NBI, meaning that NBI will fund the delivery of all OPWP products through revenues generated from them. Category A and Category B products are obligated to be made available under the terms of the NBP Contract and NBI must design products, SLAs etc. with corresponding Reference Offers, Product and Technical documentation, alongside submitting pricing to the Department of the Environment, Climate and Communications ('**DECC**') for approval prior to launch. Schedule 5.2 of the NBP Contract sets out detailed rules regarding the prices that may be charged and the benchmarking of Wholesale Products against wholesale products outside the Intervention Area.
- 3.59 NBI's LL offering is classed as a Symmetrical Ethernet Service ('**SES**'), a Category B product under the NBP Contract. ComReg understands that

¹⁰¹ ComReg QKDR data.

¹⁰² The details of the contract document are available at [gov - National Broadband Plan Contract \(www.gov.ie\)](http://www.gov.ie) ('NBP Contract'). The contract is subject to a change control procedure and elements may be updated over the project lifetime. It should be noted that Schedules 3.1 and 3.2 are not publicly available due to them being deemed commercially sensitive.

¹⁰³ Meeting with DECC on 19 January 2024.

there are two LL SES based products. The first product is a 'local' SES product, which will provide local access to a premises falling within the IA. The local SES product is an ARWP¹⁰⁴. The second type is a 'national' SES product is a national backhaul product that can run outside of the IA, and is a Category C product, meaning that it is not subsidised and must be funded by NBI.¹⁰⁵

- 3.60 The local SES product, which was launched in Q1 2020, is available in various bandwidths, 1Gbit/s, 2Gbit/s and 5Gbit/s, using XGS-PON technology with a point-to-point version planned for launch in 2024.¹⁰⁶ This product provides a Layer 2 ethernet Virtual Local Area Network ('**VLAN**') transparent service with CoS options (0%, 10%, 20%, 50% Expedited Forwarding ('**EF**'))¹⁰⁷ options available).
- 3.61 The NBI SES product utilises NBI's PON network to provide leased lines with the characteristics of symmetric bandwidth, guaranteed high-quality service availability (based on active network management) and traffic-based CoS options.
- 3.62 NBI also plans to launch further leased lines services (Transmission services) and enhancements to the SES product, in addition to dark fibre access, as required under the NBP Contract, and as laid out in its published product roadmap.¹⁰⁸

Q. 1 Do you agree that the main developments identified in the provision of retail LL market are those which are most relevant in informing the assessment of the Relevant Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual/empirical evidence supporting your views.

¹⁰⁴ *Ibid.*

¹⁰⁵ *Ibid.*

¹⁰⁶ NBI ['Standard Access Agreement relating to Wholesale InterConnect and Symmetric Ethernet Products and Services and the National Broadband Plan'](#)

¹⁰⁷ Also referred to as 'Real-time'.

¹⁰⁸ <https://nbi.ie/service-provider-portal/>

3.5 Retail Market Assessment

3.5.1. Introduction

- 3.63 In this Section, ComReg outlines some of the main structural and behavioural characteristics associated with the provision of retail services supplied using upstream WDC inputs.
- 3.64 The European Commission defines a relevant product market as:
- “...all those products and/or services which are regarded as interchangeable or substitutable by the end user, by reason of the products’ characteristics, their prices and their intended use.”¹⁰⁹*
- 3.65 ComReg is not required to conclude on a precise definition of the retail market(s) in this market review. Rather, the purpose of the retail market assessment is to inform the subsequent assessment of the WDC market in respect of both market definition and the strength of any indirect retail constraints from the related downstream retail leased lines market(s).
- 3.66 The 2020 Explanatory Note explains that *“...the starting point for the identification of wholesale markets susceptible to ex ante regulation is the analysis of the corresponding retail markets”¹¹⁰*, indicating that any analysis of a wholesale market must be preceded by an assessment of the competitive conditions in the related retail market, absent regulation, following the Modified Greenfield Approach (**‘MGA’**).
- 3.67 In considering the relevant upstream wholesale markets, ComReg must assess whether any effective direct demand-side substitutes, direct supply-side substitutes or indirect retail constraints exist which would effectively constrain the price setting behaviour of a hypothetical monopolist (**‘HM’**) supplier of WDC services.
- 3.68 For the purpose of examining the retail market(s), as per the MGA, ComReg’s assessment is conducted assuming no regulation of the WDC market, as appropriate¹¹¹. In this regard, ComReg assumes the presence of upstream

¹⁰⁹ Notice on Market Definition, paragraph 7.

¹¹⁰ At pp. 8-9 of the 2020 Explanatory Note.

¹¹¹ When considering the WDC market, in accordance with the MGA, ComReg takes into account any regulation which lies upstream of the WDC market.

regulation of the Physical Infrastructure Access ('PIA') market, on the basis of the analysis set out in the 2024 PIA Decision¹¹².

- 3.69 The retail product market assessment considers the following factors:
- (a) An outline of the Hypothetical Monopolist Test and its implementation through the assessment of demand and supply side substitution (discussed in Sections 3.5.2 to 3.5.4 below);
 - (b) An outline of the reasons for selecting retail LLs provided over an Ethernet interface as the retail focal product (discussed in Section 3.5.5 below);
 - (c) An assessment of the substitutability of xWDM based retail LLs with the fibre Ethernet based retail LLs (discussed in Section 3.5.6 below);
 - (d) An assessment of the substitutability of P2P Wireless based retail LLs with the fibre Ethernet and xWDM based retail LLs (discussed in Section 3.5.7 below);
 - (e) An assessment of the substitutability of Business Broadband with the fibre Ethernet and xWDM based retail LLs (discussed in Section 3.5.8 below);
 - (f) An assessment of the substitutability of Dark Fibre with the fibre Ethernet, xWDM based retail LLs (discussed in Section 3.5.9 below);
 - (g) An assessment of whether products of all bandwidths fall within the same or separate product markets (a bandwidth breaks assessment) (discussed in Section 3.5.10 below); and
 - (h) Impact from Deployment of SDN (discussed in Section 3.5.11 below).

3.5.2. Hypothetical Monopolist Test

- 3.70 In line with the methodology recommended by the European Commission in its **Notice on Market Definition**¹¹³, ComReg begins its analysis by

¹¹² Market Review – Physical Infrastructure Access (PIA) Market Review. Response to Consultation and Decision. ComReg 24/05 (the '2024 PIA Decision').

¹¹³ As noted in paragraph 23 of the European Commission's Notice on Market Definition (C(2023) 6789 final), demand substitution constitutes the most effective and immediate disciplinary force on the suppliers of a given product. Paragraph 23 also notes further that "*an undertaking's influence over prevailing conditions of sale – such as prices, the level of innovation or the quality offered – depends on the extent to which its customers can easily switch to available products that the customers consider as substitutes*". As noted in paragraph 23 of the Commission's Notice on Market Definition,

considering the narrowest ‘Candidate Product’ or ‘Focal Product’ and examines whether this initial narrow product (the ‘Focal Product’) should be broadened to include other products or services, taking account of demand-side and supply-side substitutability considerations at the retail level.

- 3.71 The European Commission in its 2018 SMP Guidelines suggests a potential approach to assessing supply-side substitution in defining markets:

*“One possible way of assessing the existence of any demand and supply-side substitution is to apply a so-called “hypothetical monopolist” or SSNIP test.”*¹¹⁴

- 3.72 This economic analytical framework for defining a relevant product through demand-side substitution analysis consists of an examination of end-user behaviour in response to permanent price increases and is known as the SSNIP Test or Hypothetical Monopolist Test (**‘HMT’**). The SSNIP test consists of observing whether a Small but Significant Non-transitory Increase in Price above the competitive level - taken to be in the range of 5% to 10% - of a Candidate Product supplied by a HM would provoke a sufficient number of end-users to switch to an alternative (substitute) product, such that it would make the original price increase unprofitable.
- 3.73 If a sufficient number of subscribers switching to the alternative product makes the price increase unprofitable, then the alternative product is considered an effective substitute product for the focal product and is included in the relevant product market. The SSNIP Test is carried out for any given number of alternative products, which, by their characteristics, prices and intended use, may constitute an effective substitute to the focal product. If switching to these alternative products is sufficient to also render the SSNIP (above the competitive level) of the focal product (and any included substitute products) unprofitable, then these alternatives are also included in the relevant product market.
- 3.74 Having regard to the above, ComReg first considers whether, from the end-user demand-side perspective, there are any products which might act as an effective substitute for Ethernet LLs over a fibre medium (**‘fibre Ethernet LLs’**), with this being ComReg’s focal product choice as discussed below. ComReg examines this from two perspectives:

supply-side substitution “can also be relevant for the definition of the relevant market in some cases, namely when it is as effective and immediate as demand substitution and when it leads to similar competitive conditions across the products concerned”. When these conditions are met, the market may be broadened to include the products that those suppliers are already producing.

¹¹⁴ SMP Guidelines Paragraph 29.

- (a) Firstly, ComReg considers whether the product characteristics, prices and intended use of potential substitute products are sufficiently interchangeable with those attributes associated with a fibre Ethernet LLs product.
- (b) Secondly, having examined the product characteristics, prices and intended use of any such potential substitutes, ComReg also assesses the likelihood that a sufficient number of end-users might switch to using these potential substitutes in circumstances where the focal product was subject to a small but significant price increase.

3.75 It should be noted that ComReg's primary focus in relation to this market analysis is the local access component, with the 2020 Explanatory Note noting that the cost of deploying point-to-point ('PtP') dedicated capacity fibre is still very high, especially in rural areas so it is unlikely that deployments of alternative infrastructures in those areas will occur, given the high sunk costs involved¹¹⁵. Given that the local access component is the point where potential barriers to entry are high due to the significant fixed upfront (and sunk) costs referenced in the 2020 Explanatory Note, ComReg will primarily focus on this local access component in this market analysis.

3.5.3. Demand Side Substitution

3.76 Due to a lack of data on the elasticities of demand for various retail LL products, an empirical SSNIP test cannot be carried out. However, it is noted in the Notice on Market Definition that there is no obligation to apply the SSNIP test empirically, with other types of evidence being equally as valid in informing the market definition¹¹⁶. Such other types of evidence include product characteristics, prices, functionalities, and intended use¹¹⁷. Given this, ComReg will carry out the demand side substitutability tests by examining the following factors:

- (a) **Product Characteristics:** Insight into the substitutability of two products can be gained by comparing the:

¹¹⁵ 2020 Explanatory Note, at p.10.

¹¹⁶ Notice on Market Definition, paragraph 31.

¹¹⁷ Notice on Market Definition, paragraph 25.

- (i) key product features/characteristics that constitute a retail LL. These include a dedicated symmetric bandwidth/connectivity with low contention¹¹⁸, jitter¹¹⁹ and latency¹²⁰, along with high quality SLAs.
 - (ii) Consumers' stated preferences on the importance of these features/characteristics.
- (b) **Pricing:** The comparability of prices between LL products is challenging, especially when these products have numerous dimensions to them. The following are a number of price related factors that have an impact on retail consumers of LLs:
- (i) Retail Pricing Structures: Retail LL pricing structures can influence the way in which retail LL purchasers select their SP. ComReg notes that in general, LL services are sold on a price-on-application ('PoA') basis and thus retail prices are not typically publicly available, with any published pricing being indicative only. Typically, charges will involve both connection/installation fees and reoccurring charges. The connection/installation may be influenced by the geographic location and the distance from the end-user premises to the serving network node of the LL supplier. Reoccurring charges would depend on the LL access technology, bandwidth, and the SLA requested. Finally, discounts from bundling LLs with other services, the number of lines purchased, and the duration of the contract can influence the retail price.
 - (ii) End-user awareness of cost: Retail customers are more likely to be sensitive to price changes if they are aware of the retail costs they will incur with their purchasing decisions, than those who are not. ComReg notes that end-users are likely to be more aware of specific costs at the time when they choose a LL SP, typically through a procurement process that involves tendering, which allows them to compare the service costs.

¹¹⁸ 'Low contention' means that more bandwidth is available to the end-user on the network at any given time. A standard low contention ratio for a LLs product would be 1:1, with a standard broadband connection ranging from 5:1 to 50:1.

¹¹⁹ 'Jitter' means the variation in the time, generally measured in milliseconds (ms), between packets arriving at a destination, which can be caused by network congestion, timing drift, or route changes.

¹²⁰ 'Latency' means the time it takes, generally measured in milliseconds (ms), for a source to send a packet of data to a receiver. The key causes of latency tend to be propagation delay, serialisation, data protocols, routing and switching, and queuing and buffering.

- (iii) **End-user sensitivity to price changes:** End-user sensitivity to changes in prices is important when assessing the propensity of businesses to switch to alternative services, in particular, in responses to an increase in the price of retail LLs. Such considerations are of relevance to ComReg's assessment of potential retail market substitutes for retail LLs and the assessment of the strength of any indirect constraints imposed from the retail LL market on the wholesale LL market. Retail LLs are often purchased as part of a bundle, namely alongside various applications and services, and the cost of the LL may therefore be a relatively smaller component of the overall telecoms solution and this may make users less sensitive to the cost of the LL component.
- (c) **Intended Use:** The use that different LL products are put to by consumers provides another type of insight into the comparability and substitutability of different products. If two products are used for the same or similar purposes, then it is possible that consumers will consider them to be substitutes. If on the other hand, consumers do not perceive a particular product as equivalent to another, then they are unlikely to switch between them in the event of a SSNIP.

3.5.4. Supply Side Substitution

- 3.77 ComReg also considers supply-side substitution, which the European Commission's Notice on Market Definition sees as being relevant for market definition where suppliers use the same assets and processes to produce related products that are not substitutes for customers, and where this leads to similar conditions of competition across the range of such related products. In such cases, it may be appropriate to include such related products in the relevant product market, provided the constraining effect of supply substitution across the range of products is equivalent to that of demand substitution in terms of effectiveness and immediacy¹²¹. In considering supply-side substitution, ComReg considers the following factors:

¹²¹ Notice on Market Definition, paragraph 32.

- (a) **Suppliers with similar production technologies:** these are producers who can switch swiftly from producing one product to the focal product or utilising spare capacity to do so. This is where the alternative supplier has all the relevant assets; only needs adjustment to the production process and/or inputs; and this does not involve significant sunk/irrecoverable costs.
- (b) **Barriers to entry (technical, financial or regulatory):** these are obstacles to the entry of new suppliers to the relevant/focal product market and they can include technical expertise, financial resources required or regulatory requirements, such as licences. While these challenges may not prevent a supplier from entering a market in the longer term, they may prevent immediate entry in the short term to constrain the profitability of a SSNIP.

3.5.5. Focal Product – Fibre Ethernet based Retail LLs

- 3.78 The European Commission’s Notice on Market Definition and SMP Guidelines¹²² (of which ComReg is obliged to take utmost account) provides market definition principles that are useful and applicable when analysing markets, including retail markets. The first step involves identifying the focal product at the retail level, which, once established, can then be used as the basis for assessing potential complement and/or substitute products.¹²³
- 3.79 The starting point for this retail market assessment is the retail LL for which demand is highest. The majority of retail LL services are provided using an Ethernet interface and over a fibre medium (72% in H2 2023). It is ComReg’s view that the focal retail product is an Ethernet LL over a fibre medium. ComReg notes that Fibre Ethernet Retail LLs include such services whether provided via point-to-point or PON based technologies. Services provided over PON can deliver bandwidth symmetry, guaranteed high-quality service availability (based on active network management, where required) and business class SLAs which meet the product characteristics of a LL. Further, PON based LL services are sold and marketed as LLs and are priced accordingly and meet customer requirements for LL performance. For

¹²² See paragraph 30 of the SMP Guidelines and Section 1.3 of the European Commission’s Notice on Market Definition.

¹²³ As noted in paragraph 23 of the European Commission’s Notice on Market Definition, demand substitution constitutes the most immediate and effective disciplinary force on the suppliers of a product, and paragraph 25 notes further that “...the main approach used by the Commission to define the relevant product market is that of assessing the substitutability of products from the perspective of the customer (demand substitution). Situations of sufficiently strong demand substitution arise when customers would switch easily from the products of the undertaking(s) involved to readily available alternative products.”

example, [§< [REDACTED] §<], a advanced user which has purchased [§< [REDACTED] §<] LL products, makes no distinction between GPON and P2P fibre LLs as long as they meet its the product specifications.

- 3.80 Further to the above, consideration must be given to whether the focal product is a standalone retail LL connectivity product or a connectivity product bundled with various applications and services. The majority of retail LLs are purchased as part of a bundle, namely alongside various applications and services. However, it is important to note that ComReg's primary focus in this market analysis is on the local access. It is the local access portion of a LL where potential competition problems are most likely to arise, as this is where the highest potential barriers to market entry may exist. These barriers are primarily associated with infrastructure that is not easily replicated. Therefore, the local access portions of both standalone and bundled products are included as they make up the local access portion of the market.
- 3.81 It is therefore ComReg's position that a fibre Ethernet LL (whether on a standalone basis or in a bundle with other services) is the focal product against which to assess alternative potential substitute products. If an alternative product is found to be an effective substitute for the focal product, it is included in the relevant product market.

3.5.6. Is a xWDM and other modern Interface LLs an effective substitute for a fibre Ethernet LL

- 3.82 xWDM is a transmission technology originally used by NOs to provide optical fibre links with very high capacity bandwidth within their networks. It is increasingly being used by businesses that have very high bandwidth requirements, particularly for data centres and data storage network applications.
- 3.83 In the 2020 Decision, xWDM and other modern interface LL services were considered an effective substitute for an Ethernet based retail LL and therefore in the same relevant retail product market as fibre Ethernet LLs. In their response to the QQ, LL service providers agreed¹²⁴ with the inclusion of xWDM and other modern interface LLs in the same relevant retail product market as fibre Ethernet LLs.
- 3.84 In paragraphs 3.85 to 3.92 below, ComReg outlines the rationale for deciding that xWDM and other very high bandwidth retail LL services may represent an effective retail substitute for fibre Ethernet based LLs.

¹²⁴ Service Providers response to QQ, question 16.

Demand Side Substitution

Product Characteristics - Comparison to Fibre Ethernet LLs

- 3.85 xWDM equipment typically supports a wide range of service connection interfaces and protocols, including Ethernet, SDH and other modern interfaces such as those associated with data storage applications. Therefore, the qualitative aspects of Ethernet and other very high bandwidth LL services such as xWDM are very similar. The introduction of very high bandwidth Ethernet services that are capable of delivering symmetric speeds of up to 100 Gbit/s has further reduced the gap between the maximum bandwidths that these LL services can deliver, while xWDM systems can deliver multiple wavelengths on a single fibre.
- 3.86 The 2020 Decision indicated that purchasers of very high bandwidth LLs (such as xWDM LLs) tended to value product attributes in a similar manner to purchasers of Ethernet based retail LLs. In particular, service availability, bandwidth, symmetry and contention were mentioned by the majority of Respondents purchasing very high bandwidth LLs as being important or very important service characteristics. The number of xWDM based retail LLs has continued to increase, alongside Ethernet based retail LLs since the last market review, with a total of 1,357 retail lines being provided in H2 2023, a 79% increase on the 2020 figure. As such, ComReg is of the view that the observations detailed above remain valid.

Pricing

- 3.87 Retail pricing information on xWDM is difficult to ascertain with any degree of certainty and/or reliability due to the factors outlined in paragraph 3.76 above (the bundling of services).

Intended Use

- 3.88 High bandwidth retail LLs are used in a similar way to other similar LL services. As noted in paragraph 3.82 above, some end-users such as data centres require specialist high bandwidth applications for connecting storage area networks. In such instances, these end-users typically purchase xWDM or other high bandwidth LL products. Hence, the intended use of xWDM is broadly similar to that of high bandwidth Ethernet retail LLs.
- 3.89 Furthermore, as the demand for higher bandwidth services increases into the future, the substitutability of xWDM (and similar very high bandwidth products) with high bandwidth Ethernet services will likely converge.

Conclusion on Demand Side Substitution

- 3.90 Very high bandwidth LLs such as xWDM and higher speed Ethernet LLs have sufficiently similar product characteristics and are used in a similar way by end-users. The introduction of very high bandwidth Ethernet services that are capable of delivering symmetric speeds of up to 100 Gbit/s has further reduced the differences between Ethernet and other very high bandwidth LLs, such as xWDM based LLs.

Supply Side Substitution

Comparison to Fibre Ethernet LLs

- 3.91 ComReg notes that all SPs providing very high bandwidth MI LL services such as xWDM are also supplying Ethernet services. Thus, in a substitution context, any competitive constraint that may arise from SPs of xWDM and other very high bandwidth retail LL services is already considered in the demand side substitution analysis above.

Conclusion

- 3.92 Having considered the relevant demand side factors including functionality, pricing and consumer usage, as well as relevant supply side factors, ComReg's view is that xWDM and other modern interface LL services are in the same relevant retail product market as fibre Ethernet LLs.

3.5.7. Is an Ethernet P2P Wireless LL an effective substitute for either a Fibre Ethernet or xWDM LL

Introduction

- 3.93 P2P radio links are used mainly by fixed and mobile operators, broadcasters and utilities to provide transmission capacity and networks, as well as provide redundancy and back up for other networks. In providing transmission capacity, using radio rather than cable can be a solution where constraints such as costs, local topography and the need for access to remote rural locations are fundamental considerations.¹²⁵

¹²⁵ In such scenarios, radio links provide operators with the ability to roll-out rapidly and the capability to install transmission paths as and when required.

- 3.94 The European Commission noted in the Explanatory Note to the 2020 Recommendation that wireless is more a complementary product rather than a substitute product to dedicated fibre connection¹²⁶, where it stated:

“... wireless technologies are unlikely to be able to replicate dedicated fibre connections because business users do not consider wireless technologies as a substitute but as a complementary service. This complementarity is further reinforced by the fact that the dedicated fibre connections will be increasingly essential for the deployment of wireless technologies to be able to meet the required quality of service.”

Position in the 2020 Decision

- 3.95 In the 2020 Decision, Ethernet P2P radio link based LL services were not considered an effective substitute for retail wired Ethernet or xWDM and other modern interface LL services. This was due to *inter alia* the following factors; the majority of multi-site customers are unlikely to see wireless Ethernet LLs as a substitute for wired Ethernet or xWDM LLs due to a perceived difference in quality between both types of media, resulting in these customers seeing wireless Ethernet LLs as a complementary product rather than a substitute; HEAnet, which manages the ICT needs of the Irish public education sector, including primary, secondary and 3rd level institutions’ connectivity requirements, puts a premium¹²⁷, from a procurement perspective, on fibre LLs over wireless LLs; and there is very little switching from wired only to wireless only.

Current Analysis

- 3.96 The majority of SPs in their responses to the QQ did not see any reason to change the conclusion that P2P wireless-based retail LLs were outside the LLs market. Three service providers, Eircom, EU Networks and Verizon, all expressed the view that wireless should be included in the market. Of these, EU Networks stated that it was *“Not quite sure what the reasoning is to exclude wireless LLs as these provide P2P dedicated transmission capacity”*. Eircom expressed the view that wireless should be included due to the growth in wireless links over the past two years and the price competitiveness of wireless against fibre. Eircom also presented examples of tenders by NBI for Strategic Community Points (**SCP**), Tetra and HEAnet which use wireless solutions. Verizon expressed the view that wireless P2P could be

¹²⁶ Page 52, Explanatory Note to the 2020 Recommendation.

¹²⁷ HEAnet confirmed this premium was 20% in a meeting with ComReg on 17.05.23.

considered equivalent as it provides wireless P2P as an equivalent offering with the same SLAs.

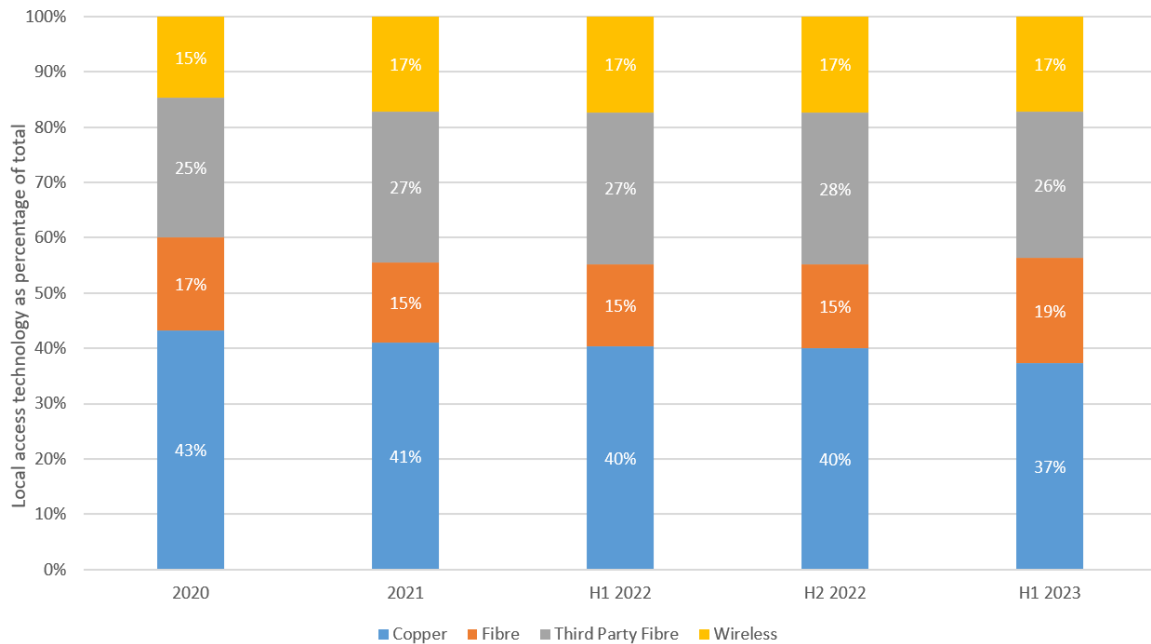
- 3.97 ComReg notes the following in regard to the examples provided by Eircom. The NBI SCP and the associated tenders were designed to develop wireless access points in communities pending its fibre network rollout. They are therefore designed as a second best service pending to roll-out of fibre and this does not suggest sufficient substitutability. ComReg is aware that [REDACTED] [REDACTED]. As noted above, HEAnet, in its tendering competition rules, allocates a premium for fibre over wireless connections i.e. a fibre connection could be 20% more expensive than an equivalent wireless solution and still be awarded the business for a site. HEAnet has also confirmed that there has been a migration to fibre over time, with over two thirds (67%)¹²⁸ of secondary school connections being fibre and over 72% of primary school connections being fibre.

Demand Side Substitution

- 3.98 When the top wireless LLs customers are analysed, the majority tend to be public bodies such as HEAnet, the Department of Justice and the Department of Education. The demand for wireless LLs from these public bodies is influenced by factors such as locations with potentially limited fibre availability, cost considerations & lead-times.
- 3.99 In assessing the level of demand for wireless LLs in the retail sector, seven major retailers' LL purchases were analysed to determine whether wireless LLs are seen as a complement to or an effective substitute for retail fibre Ethernet or xWDM and other modern interface LL services. For the purpose of analysing the major retailers' wireless usage, the following retailers were included; Dunnes Stores, Tesco, Lidl, Aldi, Musgraves, M&S, and BWG Foods. Looking at Figure 11, it can be seen that wireless local access technology accounts for approximately one sixth of the LLs purchased by major retailers, ranging from 15% to 17% over the three year period.

¹²⁸ In meeting with ComReg May 2023.

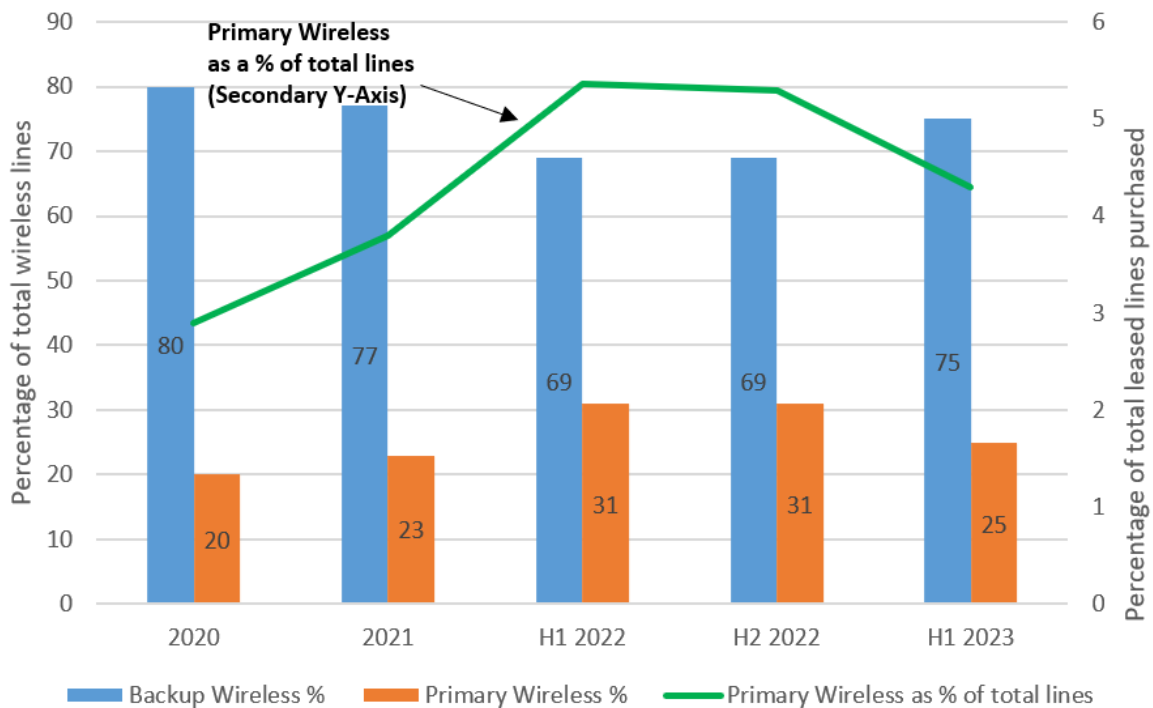
Figure 11: Breakdown of Leased Line local access technology purchased by Major Retailers



3.100 Given the somewhat high percentage of wireless lines being used, it should be noted that a significant proportion of these are purchased by major retailers as backups for their fibre lines, as seen on the secondary Y-axis in Figure 12. Although the wireless lines are predominantly purchased for backup, the percentage of wireless lines used as the primary source of connectivity has increased over the 4 years, from 2.9% to 4.3%. These volumes of wireless lines purchased are low, relative to the overall amounts of leased lines purchased by major retailers, indicating that major retailers see P2P wireless LLs as complementary to fibre Ethernet or xWDM LLs, as opposed to an effective substitute (or are used where fibre services are not available). [X [REDACTED] X] is the largest purchaser of wireless LLs out of all the multi-store retailers. However, despite its high volume of purchases, it uses wireless LLs in addition to wired LLs¹²⁹, therefore in most cases it is used as a back-up complementary service.

¹²⁹ Captured in Retail LL data from 2020 up to and including H1 2023.

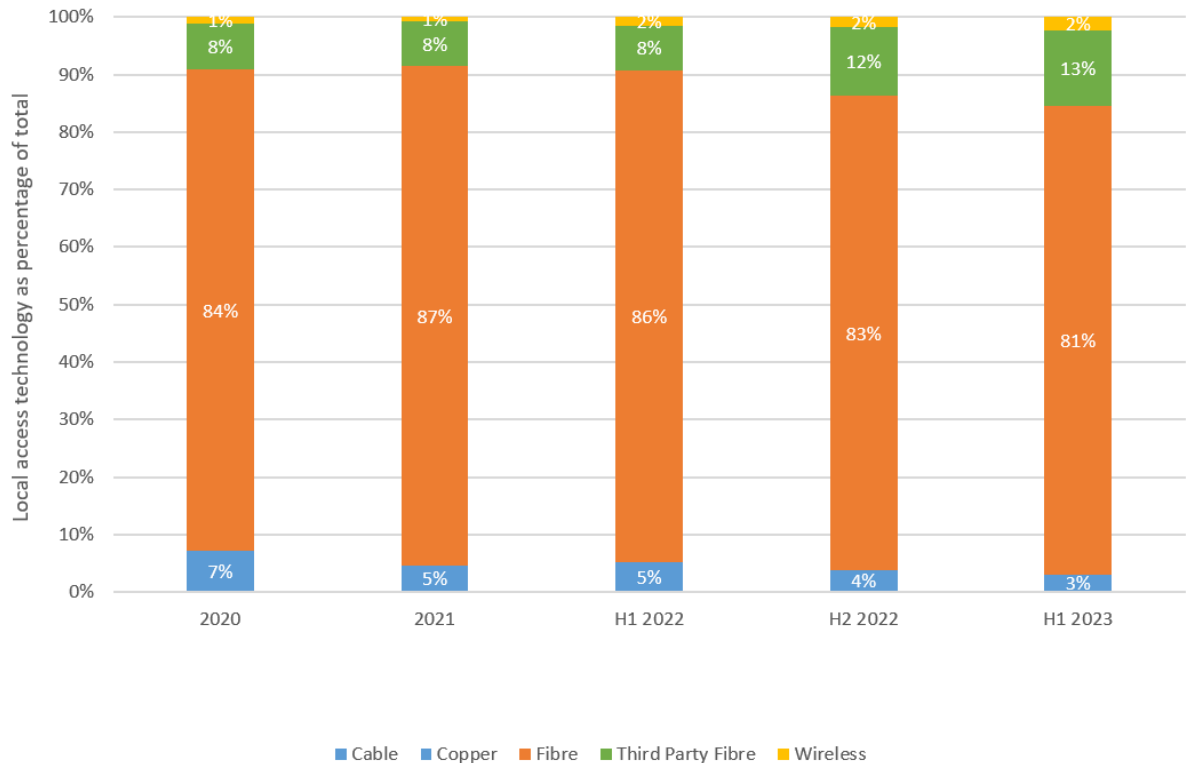
Figure 12: Breakdown of major retailers' usage of wireless leased lines



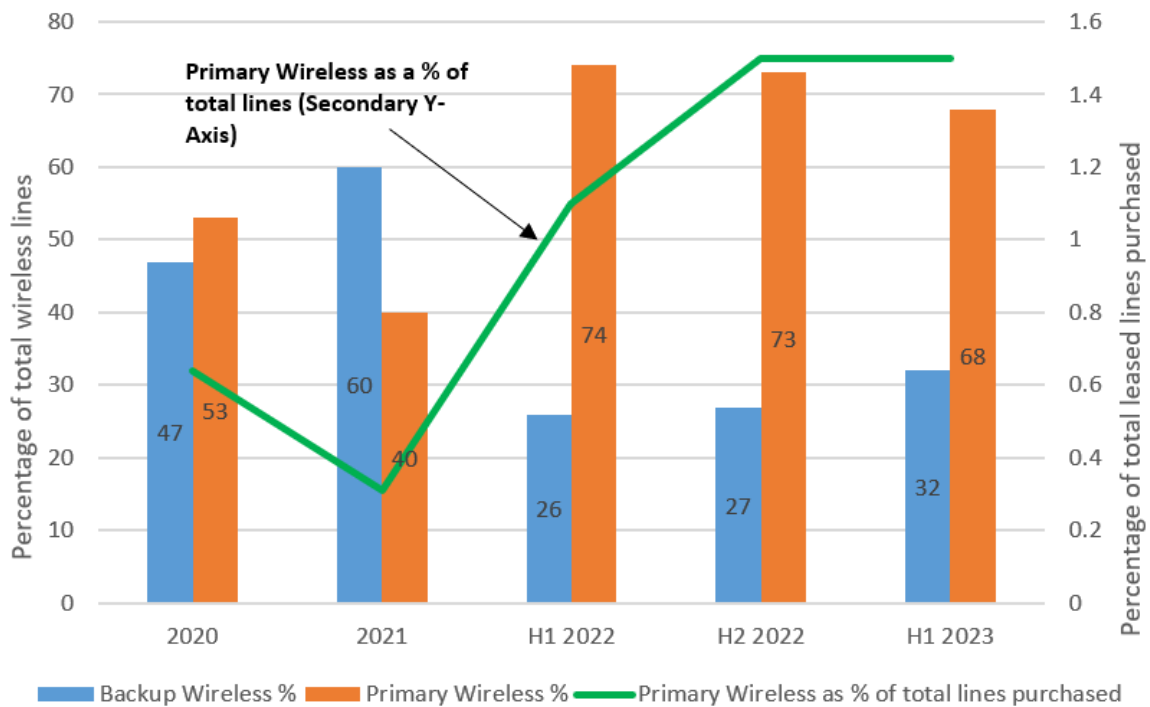
3.101 None of the major financial institutions in the country use wireless LLs (at any material level) to obtain connectivity. Of the financial services companies, only 2% of the total demand for LLs in this sector is wireless¹³⁰ and the majority of these are used as backup to other fixed services at the same premises. This low level of demand for wireless LLs in the financial sector is illustrated in Figure 13, where it can be seen that the number of wireless LLs purchased, as a proportion of the total demanded, has not been above 2% since 2020, indicating that the financial sector does not see wireless as a viable substitute for wired leased lines.

¹³⁰ Captured in Retail LL data H1 2023.

Figure 13: Breakdown of Leased Line local access technology purchased by Banks and Fintech Companies



3.102 Wireless P2P leased lines being seen as a complementary service to fibre Ethernet or xWDM LLs is further illustrated by Figure 14, which shows the usage purpose for wireless LLs purchased by financial institutions. Although a large proportion of wireless LLs purchased by financial institutions are for the purpose of them being used as the primary source of connectivity, it can be seen on the secondary Y-axis of Figure 14 that these wireless lines account for a small percentage of the total number of leased lines purchased by the entire financial sector. Wireless LLs being used as the primary source of connectivity only account for 1.5% of all LLs purchased, illustrating that they are not seen as an effective substitute to fibre Ethernet or xWDM LLs.

Figure 14: Breakdown of banks and ‘fintechs’ usage of wireless leased lines

3.103 Table 3 below shows the trend in retail wireless and wired MI LLs over the period 2019 to 2023. As can be seen, the number of wireless LLs increased by 688 during the period, an increase of 24.2%. However, the total number of MI LLs (both wired and wireless) increased by 5,702, an increase of 42.5%. As a result, wireless LLs as a percentage of the total MI LLs has decreased from 21.2% in 2019 to 18.5% in 2023. Additionally, where wireless LLs are used as a back-up to wired LLs, it would not be unexpected to see some growth in wireless MI LLs where wired MI LL volumes are growing.

Table 3: Retail wired and wireless MI LLs 2018-2023

	2019	2020	2021	2022	2023
Wired MI LLLs	10,545	12,197	13,410	14,028	15,559
Wireless LLs	2,842	2,994	3,379	3,395	3,530
Total Wired and Wireless MI LLs	13,387	15,191	16,789	17,423	19,089
Wired MI Lines as % of Total Wired and Wireless MI LLs	78.8%	80.3%	79.9%	80.5%	81.5%
Wireless Lines as % of Total Wired and Wireless MI LLs	21.2%	19.7%	20.1%	19.5%	18.5%

Intended Use

3.104 As P2P radio link based retail LLs are used to provide uncontended, symmetric, high quality access similar to wired based retail LLs, for some retail customers, there does not appear to be any significant discernible difference in their intended use, although as noted above their use as a back-up service for wired LLs is evidenced. For other retail customers in both the public and private sector, there is a distinct preference for wired over wireless LLs, as evidenced by HEAnet offering a premium for wired leased lines.

Conclusion on Demand Side Substitution

3.105 Although wireless Ethernet LLs have some similar characteristics to wired LLs, they also have notable differences including in terms of distance, line-of-sight and congestion issues, all of which limit their ability to provide equivalent service quality levels to those of fibre LLs. As a result of these differences in product characteristics, a sufficient number of retail end-users would not likely consider wireless Ethernet LLs to be an effective substitute for fibre LLs.

3.106 In particular, the intended use of wireless Ethernet LLs is different to those of fibre LLs. When compared to fibre Ethernet, xWDM and other high speed LLs, the largest consumer group, multi-site customers, show a distinct preference for fibre LL products. This is most explicitly evident in HEAnet's 20% premium scoring for tender submissions for fibre over other mediums for LLs¹³¹.

3.107 The above evidence would suggest that a HM of either fibre Ethernet, xWDM and/or other high speed LL services is likely to be able to sustain a profitable SSNIP in the range of 5-10% (up to 20% in the case of retail customers like HEAnet) above the competitive level without a substantial number of customers switching to wireless LL services.

Supply Side Substitution

3.108 Those SPs of wireless Ethernet LLs who also provide fibre Ethernet or xWDM and other high speed LL services provide no additional constraint as they are already accounted for in the demand side substitution. Those that are wireless only LL SPs have two options when considering providing fibre Ethernet or xWDM and other high speed LL services, namely either purchase wholesale access to another SPs network or build a network capable of offering the service.

¹³¹ Based on public tendering awarding criteria and confirmed in meeting with HEAnet; 17 May 2023.

- 3.109 Option 1 would represent a weaker form of competitive constraint as it involves no additional infrastructure/network, especially when purchasing from a SP who is a wholesale provider who are also retail competitors.
- 3.110 Option 2 would involve substantial levels of upfront capital investment which may be sunk and would require a significant lead in timeframe for building the physical network. This would, in all likelihood, take much longer than the time constraints associated in responding to tenders issued by most retail customers, thereby undermining any supply side constraint.
- 3.111 Therefore, overall, supply side substitution by a wireless only SP entering the market for the provision of fibre Ethernet or xWDM and other high speed LL services, does not represent an effective constraint on a HM supplier of Ethernet LL services over a fibre medium sustaining a SSNIP in the range of 5-10% above the competitive level.

Conclusion

- 3.112 Having considered relevant demand side factors including functionality, pricing and consumer usage, as well as relevant supply side factors, ComReg's position is that wireless Ethernet LLs are not likely to be an effective substitute for either fibre Ethernet and/or xWDM LLs.

3.5.8. Is broadband an effective substitute for fibre Ethernet and xWDM LLs?

- 3.113 Broadband services are used by many business customers for connections to the internet, e-mail, cloud storage and other data services. With the rollout of NGA networks, broadband services can now provide speeds of up to 2 Gbit/s¹³². However, there are still performance gaps between broadband services and LL services. For example, broadband services are generally asymmetric (i.e. lower upload than download speeds) and contended services, while LL services are typically symmetric and dedicated services, with high quality SLAs. Moreover, the services provided by SPs for Broadband is generally of a lower quality than that of fibre retail LL services.
- 3.114 In the 2020 Decision, ComReg considered that business broadband was not a part of any of the relevant wired retail LL markets. This remains the case for the reasons set out below.
- 3.115 As described in paragraphs 2.14 to 2.16 above, a number of SPs now provide leased lines delivered on PON networks. These services are sufficiently distinguishable from broadband being utilised by businesses, usually through

¹³² As stated on Eircom and SIRO websites.

the provision of such services with bandwidth symmetry, CoS, guaranteed high-quality service availability (based on active network management) and business class SLAs. These are collectively referred to below as PON based LLs. Such services are sold and marketed as LLs and are priced accordingly and meet customer requirements for LL performance.

Demand side substitution

3.116 First, there are sufficient differences between the utilisation of FTTH broadband for business and LLs in terms of product characteristics (see summary in Table 4 below). As mentioned in paragraph 3.90 above, fibre Ethernet and xWDM LLs can provide symmetric speeds, guaranteed bandwidths and high-quality service metrics, including low latency, jitter and packet loss, short repair times, high levels of reliability and redundancy. These features are important for the business market.

Table 4: Product Characteristics Comparison

	Broadband	Leased lines ¹³³
Symmetric speeds	No	Yes
Guaranteed bandwidths	No	Yes
Contention	Contended	Uncontended
Repair times	Days	Hours

3.117 Second, the prices of LLs are much higher than those of broadband services, with PON based LLs priced in the intermediary range. In the absence of readily available retail pricing information, we use the wholesale input prices observed in the market as a proxy for the competitive retail price benchmark to compare the prices of broadband and LL services. As shown in Table 5 below, Eircom's monthly rental costs of wholesale LLs (prices shown are for speed of 10Mbit/s) are multiples of its broadband products. Despite such price differences, there have not been significant migrations from LL to broadband products at the retail level, even with increased availability of higher bandwidth broadband services.

¹³³ Include services whether provided via point-to-point or PON based technologies.

Table 5: Indicative Wholesale Ethernet LL monthly rental, (WDC Access Circuit, logical and physical (within 500m of exchange) Q3 2022¹³⁴

	Zone B	Zone B
	Same NGN Region Handoff	
	Medium Density	High Density
Option 1	€ 415	€ 284
Option 2	€ 310	€ 244
Option 3	€ 251	€ 221
Option 4	€ 242	€ 218
Option 5	€ 235	€ 215
Option 6	€ 375	€ 269
	Same NGN Node Handoff	
	€ 214	€ 234

Table 6: Eircom VUA monthly rental prices, September 2023

FTTC-based VUA	Standalone	POTS-based
	€19.12	€5.56
FTTP-based VUA	Standalone	POTS-based
150/300/500 Mbit/s	€23.50	€9.09
500/100 Mbit/s	€27	€12.59
1000 Mbit/s	€28.50	€14.09
1000/150 Mbit/s	€32	€17.59
2000 Mbit/s	€33.50	€19.09

3.118 Lastly, broadband and LLs appear to be used for different applications by consumers. Broadband is mostly used for email, internet access and streaming services while LLs are often used for multiple purposes, including email and Internet, disaster recovery, data services and connectivity between premises.

3.119 Further, ComReg notes that broadband, and LLs are targeted towards different categories of customers. For example, Eircom's website is divided

¹³⁴ Pricing data taken from open eir Network Price List Effective Rates, v.8.0, available online at https://www.openeir.ie/wp-content/uploads/2022/02/Network-Price-List-Effective-Rates-V8_0-Unmarked-07022022.pdf.

into two separate sections: personal section and business section, with the latter further divided into small business (1-9 employees) and medium to large business categories (10+ employees). Broadband for business appears to be marketed to small businesses while LLs appear to be marketed to medium to large businesses. SIRO has similar website designs that distinguish between residential and business customers and between small businesses and medium to large businesses.

Supply side substitution

- 3.120 On the supply side, we assess if suppliers of broadband services are able to switch to supplying LL services effectively in the short term to exercise effective competitive constraints on the suppliers of LLs. We note that many broadband SPs are also providers of LL services. Constraints placed by these SPs are already accounted for as they are already active in the LL market.
- 3.121 For broadband providers that are not active in the LL market, they have two options to provide wired LLs: 1) purchase wholesale access to another SPs network or 2) build a network capable of offering the service. Neither of these options are realistic options, for the same reasons outlined for the lack of supply side substitution of Ethernet P2P Wireless, in paragraphs 3.109 to 3.110 above.
- 3.122 Overall, supply side substitution by a business broadband provider is not likely to prevent a HM supplier of Ethernet LL services over a fibre medium from profitably sustaining a SSNIP.
- 3.123 In their response to the QQ, most SPs agreed that business broadband should continue to fall outside the retail LL market. Eircom noted there is an increasing role for MI wireless and broadband services as substitutes for TI products and services. Verizon considered that Broadband could be in the same market noting that “[REDACTED]”¹³⁵. Viatel agreed that broadband doesn’t fall into the LL product markets but noted its popularity in solutions such as SD-WAN is growing due to price and availability.
- 3.124 As discussed in section 3.4.3, despite the growing adoption of SD-WAN technology, businesses especially larger sites still require high bandwidth

¹³⁵ From Verizon response to QQ, question 11.

symmetric LL services with guaranteed quality. This is evidenced by the continued increase in LL demand since the 2020 Decision¹³⁶.

Conclusion

3.125 In the light of the foregoing discussion, ComReg is of the view that broadband is not an effective substitute for MI fibre Ethernet or MI xWDM LLs,

3.5.9. Is dark fibre an effective substitute?

3.126 Dark fibre refers to the rental of fibre optic cables (in general a single fibre strand or a pair of fibre strands within a fibre optic cable) owned by an operator. This is a passive product that requires the end-user to provide the electronic equipment (switches, multiplexers, repeaters etc.) necessary to transmit data over the fibre cable. In contrast, LLs are considered to be 'active' products since they are provided to end-users with the electronics and management to enable an end-to-end connection between locations.

3.127 In the 2020 Decision, ComReg held the view that dark fibre services were not likely to be an effective substitute for wired LL services, noting that the inclusion of dark fibre services was not likely to impact upon ComReg's assessment of competition in the MI WDC markets given the relatively small demand for dark fibre services at the retail level.

3.128 In their responses to the QQ following the 2020 Decision, SPs expressed their view that nothing significant had changed in the market since the 2020 Decision to merit the inclusion of dark fibre in the retail market. BT stated in its response that dark fibre [REDACTED]
[REDACTED]
[REDACTED]¹³⁷ while EUNetworks stated that they "[REDACTED]"¹³⁸ from the retail LLs market.

3.129 In the remainder of this subsection, ComReg presents information and evidence to support its view that dark fibre is not an effective retail substitute for any of the fibre-based LL retail markets.

¹³⁶ See Figure 4 above.

¹³⁷ From BT Response to QQ, question 11.

¹³⁸ From EUNetworks Response to QQ, question 11.

Demand Side Substitution

Product Characteristics

- 3.130 ComReg notes that dark fibre is available at both the retail and wholesale level in Ireland. There are several providers supplying these services in Ireland¹³⁹. Dark fibre has the ability to support the provision of fibre Ethernet or xWDM LL services – whether retail or wholesale – of any bandwidth and interface. However, to enable these fibre Ethernet or xWDM LL services, end-users must have the expertise required to light and manage dark fibre, alongside providing additional inputs, such as terminal equipment and switching locations.
- 3.131 ComReg also notes that dark fibre requires additional operational resources, in commissioning, acceptance testing, and administering a passive infrastructure. As the service is generally provided as unmanaged (i.e. supplier of dark fibre services is not typically responsible for fault repairs and other maintenance services for any connected active equipment), the end-user must also place additional resources into monitoring and fault reporting of the link.

Intended use

- 3.132 There are substantial additional costs, as well as operational skills and knowledge, required for retail end-users to manage their own networks based on purchased dark fibre inputs. These factors are likely to render dark fibre services unattractive for the vast majority of end-users purchasing fibre LL services.
- 3.133 ComReg has also analysed the profile of end-users that currently purchase dark fibre services. The analysis indicates that these services would appear to be suitable only for very large, advanced users such as large multinational cloud service providers and Government Networks ('GovNet'), given that it requires additional inputs (e.g. terminal equipment) and management. This is illustrated by the H1 22 data, which shows that [redacted] of all dark fibre lines purchased by retail end-users were purchased by GovNet, with the large cloud-based and technology companies¹⁴⁰ accounting for [redacted] of end-user purchases. These figures suggest that there is some substitution by very large corporations but given that the vast majority of end-user purchasers are comprised of a select few organisations

¹³⁹ Aurora, Digiweb, Eircom, Enet, ESBT, EUNetworks and Vodafone.

¹⁴⁰ Amazon, eBay, Facebook, Google, Microsoft.

and government bodies who have the knowledge and capacity to manage dark fibre, it is clear that most retail end-users do not see dark fibre as a substitute.

- 3.134 This evidence further suggests that only a niche customer segment requiring very high bandwidths and very large capacities would consider dark fibre services as a credible alternative to fibre Ethernet, xWDM, or other high speed LL services.

Supply Side Substitution

- 3.135 ComReg notes that some of the SPs¹⁴¹ supplying dark fibre services are also active in the provision of retail LL services. Thus, the competitive constraint arising from these operators is already accounted for in ComReg's analysis.

Conclusion

- 3.136 For the above reasons, ComReg's view is that at the retail level, dark fibre services are not likely to be an effective substitute for fibre LL services. ComReg notes that the inclusion, or otherwise, of dark fibre services in the retail market is not likely to impact upon ComReg's assessment of competition in the WDC markets given the relatively small demand for dark fibre services at the retail level.

3.5.10. Bandwidth Breaks

- 3.137 LL products can be sold over a range of bandwidths, with these ranging from less than a megabit to multiple gigabits. In this Subsection, ComReg examines whether the MI WDC product market should be segmented according to bandwidths, namely whether a 'bandwidth break' exists. A bandwidth break would constitute a separate product market either side of the break within the products using the same set of technology. For example, hypothetically, a MI Retail Product Market consisting of speeds up to and including 1Gbit/s, with another Retail MI Product Market consisting of speeds above 1Gbit/s. In its 2020 Decision, ComReg was of the view that there was unlikely to be a break in pricing at the retail level, in relation to bandwidth breaks, given that SPs will pass through at least some of the wholesale price differences to their retail customers. Therefore, it was decided that there would be no bandwidth break required in the MI WDC Markets.
- 3.138 Subsequent to the 2020 Decision, ComReg has engaged with SPs through its QQ, asking SPs:

¹⁴¹ Eircom, Virgin Media, Vodafone.

“The 2020 Decision did not separate the retail MI LL market by bandwidth. Do you consider there are any developments since then that should change this?”

- 3.139 In their responses to this, the majority of SPs indicated that bandwidth breaks were not present. Eircom, which indicated bandwidth breaks were not present, noted in its response “[redacted]”¹⁴². Colt noted “[redacted]”¹⁴³, while Virgin Media noted “[redacted]”¹⁴⁴.
- 3.140 One SP, Enet, did express its concern that if there is no bandwidth break in the MI LL market, [redacted]”¹⁴⁵. As a result of this, Enet suggested that “... ComReg should account for these scenarios in the upcoming review”¹⁴⁵.
- 3.141 Noting the position in the 2020 Decision and having considered the responses to the QQ (with the vast majority of respondents indicating that bandwidth breaks were not necessary in the MI LLs market), ComReg’s position is that there has been no significant developments that would justify a bandwidth break being introduced in the retail MI LL market.

3.5.11. Impact from Deployment of SDN

- 3.142 Since the 2020 Decision, there has been an increased deployment of SD-WAN technology in the retail LLs market, and an increase in the deployment of SDN. SDN is becoming more widespread at the retail level but this does not impact on retail LL demand per se. It has however, changed the manner in which overall connectivity solutions are sold. Aggregators can now offer enhanced monitoring and automatic backup solutions using business

¹⁴² From Eircom Response to QQ, question 12.

¹⁴³ From Colt Response to QQ, question 12.

¹⁴⁴ From Virgin Media Response to QQ, question 12.

¹⁴⁵ From Enet Response to QQ, question 12.

- (a) Wireless Ethernet LLs are not likely to be an effective substitute for either fibre Ethernet and/or xWDM LLs and therefore not in the same relevant retail market.
- (b) Broadband, including business broadband, is not an effective substitute for Ethernet or xWDM LLs and therefore is not in the same relevant retail market.
- (c) Dark fibre services are not likely to be an effective substitute for fibre LL services at a retail level and therefore not in the same relevant retail market.
- (d) There is no bandwidth break in the retail MI LL market.

3.6 Geographic market Assessment

3.6.1. Introduction

3.148 In this section, ComReg assesses the geographic scope of the Retail MI Product Market as identified and summarised in Section 3.5 above.

3.149 As was the case with the assessment of the Retail MI Product Market, ComReg is not required to define the geographic boundaries of this market. However, it is nevertheless useful to examine their likely geographic scope, since it is likely to be of relevance to the consideration of the geographic scope of the upstream WDC markets, including in the context of any indirect retail constraints.

3.150 This Section includes:

- (a) the framework for assessing the geographic scope of the MI Retail Product Market;
- (b) the assessment of the geographic scope of the MI Retail Product Market; and
- (c) the overall conclusion on geographic market definition.

3.6.2. Framework for assessing Retail Geographic Markets

3.151 In general, the process of defining the geographic boundaries of markets involves identifying any geographic areas where a distinct break in competitive conditions can be observed. ComReg's approach in identifying

the retail geographic markets follows the approach adopted by the European Commission in the 2020 Recommendation.¹⁵⁰

3.152 The European Commission's Notice on Market Definition indicates that:

"...when defining relevant markets National regulatory authorities should identify geographic areas where the conditions of competition are sufficiently homogenous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different".¹⁵¹

3.153 The European Commission also notes in its SMP Guidelines that:

"...According to established case-law, the relevant geographic market comprises an area in which the undertakings concerned are involved in the supply and demand of the relevant products or services, in which the conditions of competition are sufficiently homogenous, and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are significantly different. Areas in which the conditions of competition are heterogenous do not constitute a uniform market."¹⁵²

3.6.3. Assessing Geographic Scope of Modern Interface LLs

Introduction

3.154 In the 2020 Decision, ComReg defined a national market for the retail MI LL market. Below we consider whether the conditions of competition are sufficiently homogenous or are noticeably heterogenous across the country to define either a national or subnational Modern Interface LL market(s). This will be examined by looking at both the demand and supply side factors.

Demand side

3.155 First, as noted in the 2020 Decision, although multi-site retail LL customers represent the minority of the total number of customers, such customers account for the majority of all retail Ethernet LL demand. These customers typically tender for LL services on a nationwide basis for the entire contract and require a single vendor to meet their total connectivity requirements. The

¹⁵⁰ 2020 Recommendation.

¹⁵¹ *Ibid.*

¹⁵² European Commission guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services, OJ 2018 C 159/1 (the '[SMP Guidelines](#)')

multi-site nature of the contracts supports a position that the retail MI LL market is national in scope.

- 3.156 Second, in their response to the QQ, most SPs stated that they did not have, or intended to have different retail product or services offerings in different geographic region. This indicates that there are no significant differences in product/services offered across different areas of the country.
- 3.157 Furthermore, pricing for LLs tend to be on a bespoke basis and can often be purchased as part of a bundle, as outlined in para 3.76 above, therefore obtaining precise LL pricing data can be challenging. However, ComReg has found no evidence of geographic based differentiated pricing or marketing strategies.
- 3.158 Therefore, from a demand perspective, in particular due to the multi-site nature of the retail MI LL market, this market can likely be considered to be national.

Supply side

- 3.159 As shown in Table 1, there are multiple SPs operating in the retail MI market, and as indicated above in subsection 3.4.4, a number of SPs have continued expanding their fibre networks. Many of them can compete for multi-site contracts on a national basis, either using their own networks or using wholesale inputs from other operators such as Enet and SIRO (in the absence of regulation). Further, the multi-site nature of the contract requires SPs to compete on a national basis, rather than focusing on certain areas given customer demand can be spread across different locations.
- 3.160 As such, in ComReg's view the geographic scope of the retail MI LL market is National and wholesale geographic considerations are analysed at the wholesale level in Section 4 below.

3.6.4. Conclusion on Geographic Market Definition

- 3.161 Having considered the conditions of competition for both the demand for and supply of MI LLs, ComReg is of the view that the conditions of competition in are sufficiently homogenous across the country to define the geographic scope of the Retail MI Product Market as being national.
- 3.162 It should be noted that as part of the market definition assessment of the WDC markets in Section 4.4, ComReg has undertaken a detailed analysis to ascertain whether there are differences in the conditions of competition between different areas, based on differences in the condition of wholesale supply and demand. In this regard, ComReg finds that there are sub-national geographic markets at the wholesale level due to the differences in the conditions of supply and demand. However, it is this demand behaviour at

the retail level that underpins the need for a precise and granular geographic market definition and competition assessment at the wholesale level to allow regulation to ensure that the retail market is effectively competitive at a national level.

Q. 2 Do you agree with ComReg’s proposed definition of the relevant retail LL market? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views.

Chapter 4

4. WDC Market Definition

4.1 Introduction

- 4.1 In this section, ComReg sets out its position in relation to the definition of the relevant WDC markets from both product and geographic perspectives. Below, ComReg has defined the product market as the market for MI WDC,^{153 154} which consists of all fibre based LLs with modern interfaces including Ethernet, xWDM, and with dark fibre also included in the market.
- 4.2 As regards the geographic market definition, ComReg's position that the MI WDC market is divided into the following four geographic markets:
- (a) **MI WDC Market 1:** which is sub-national in its geographic scope and equates to a unique and separately distinguishable set of 2,565 WPZs, all of which contain CPs and have satisfied the criteria for assessing differences in conditions of competition as set out in sub-section 4.4.3;
 - (b) **MI WDC Market 2:** which is sub-national in its geographic scope and equates to a unique and separately distinguishable set of 2,455 WPZs, all of which contain CPs and have failed the criteria for assessing differences in conditions of competition as set out in sub-section 4.4.3;
 - (c) **MI WDC Market 3:** which is sub-national in its geographic scope and equates to a unique and separately distinguishable set of 1,079 WPZs, which contain no CPs and have satisfied the criteria for assessing differences in conditions of competition as set out in sub-section 4.4.3; and

¹⁵³ As discussed in Subsection 3.4.1, we do not consider it necessary to define a relevant market for TI market as the market definition will not alter our view that this market is in terminal decline and does not warrant further regulation.

¹⁵⁴ In the 2020 Decision, ComReg included Ethernet in First Mile ("EFM") in the relevant MI WHQA market. EFM is a set of specifications that allow SPs to run Ethernet over multiple bonded copper pairs in the access segment (LLU) to connect the "first mile" from the customer to the nearest node. Given the continued decline of LLU (from over 27,000 in Q1 2019 to just over 7,000 in Q2 2023) and the impending switch-off of Eircom copper network, ComReg considers that EFM no longer forms part of MI WDC relevant market. LLU was deregulated following ComReg's WLA Decision in January 2024 (ComReg 24/07). Further, from the data submitted by SPs, there are no EFM lines reported in the last few years.

(d) **MI WDC Market 4:** which is sub-national in its geographic scope and equates to a unique and separately distinguishable set of 1,120 WPZs, which contain no CPs and have failed the criteria for assessing differences in conditions of competition as set out in sub-section 4.4.3.

4.3 In defining the relevant WDC markets, ComReg begins by identifying the narrowest focal product as a basis for the subsequent substitutability analysis. From there, ComReg examines whether this focal product constitutes a market of its own, or whether it should be broadened to include other products or services, taking into account demand-side and supply-side substitution at the wholesale level. ComReg also considers the strength of any indirect constraints arising from downstream retail markets. After identifying the relevant product market(s), ComReg then assesses the geographic scope of the WDC markets.

4.4 Accordingly, this section is organised as follows. Section 4.2 identifies the focal product. Section 4.3 defines the relevant wholesale product market following a demand-side and supply-side substitutability analysis. Section 4.4 defines the geographic scope of the wholesale markets, with section 4.5 setting out the overall conclusions.

4.2 Identifying the Focal Product

4.5 The first step in defining the WDC market(s) involves identifying the relevant focal product(s). A focal product is a product where a potential competition bottleneck is believed to occur, that is, a product which Access Seekers rely on to offer effective competition on downstream markets. According to BEREC,

“The focal product is defined as the main product under investigation and the focal area is the area under investigation, in which the focal product is sold. The definition of the focal product may depend on specific market conditions and on the issues that NRAs want to address during the market analysis.

(.....) an NRA should start by identifying the focal product considering their national market conditions. One of the possible criteria chosen by NRAs might be to define the focal product as the one where competition problems are believed to exist.”¹⁵⁵

¹⁵⁵ BEREC Report on Impact of Fixed-Mobile Substitution in Market Definition, at p.12. BoR 12 (52), 24 May 2012. Available online at https://www.berec.europa.eu/eng/document_register/subject_matter/berec/reports/363-berec-report-impact-of-fixed-mobile-substitution-fms-in-market-definition

- 4.6 ComReg identifies wholesale Ethernet LL services provided over a fibre medium (“**Fibre Ethernet WDC**”) as the focal product, as this is the prevailing technology used by SPs to provide WDC services at the wholesale level. As shown in Table 7 below, at the end of 2023 there were a total of 32,393 in-situ LLs sold at the wholesale level (including self-supply). The majority of the sales are wired LLs, representing over 91% of the total wholesale LL market. Within wired LLs, Ethernet is the dominant technology, with a share of 83.8% of all wired LLs. Overall, wired Fibre Ethernet WDC services account for 76.7% of all wholesale LLs. When TDM is excluded, wired Fibre Ethernet WDC LLs share is even larger, at approximately 82.2% of wholesale LLs.

Table 7: Wholesale Leased Lines by Technology 2023

	Ethernet	xWDM	TDM	Total
Wired	24,820	2,596	2,193	29,609
Wireless	2,780	N/a	4	2,784
Total	27,600	2,596	2,197	32,393

- 4.7 ComReg notes that Fibre Ethernet WDC include such services whether provided via point-to-point or PON based technologies¹⁵⁶. Services provided over PON can deliver bandwidth symmetry, guaranteed high-quality service availability (based on active network management, where required) and business class SLAs which meet the product characteristics of a LL. Further, PON based LL services are sold and marketed as LLs and are priced accordingly and meet customer requirements for LL performance. For example, [§< [REDACTED] §<], an advanced user which has purchased [§< [REDACTED] §<] LL products, makes no distinction between GPON and P2P fibre LLs as long as they satisfy its service specifications¹⁵⁷.

4.3 Product market

- 4.8 The EC’s 2020 Recommendation states that “*The distinguishing product characteristics of dedicated capacity are their ability to provide dedicated and uncontended connections and symmetrical speeds and should be assessed, as for products in other markets, by means of a substitutability analysis*”¹⁵⁸.

¹⁵⁶ Including GPON and XGS-PON. See paragraphs 2.14 and 2.15 in Chapter 2 for a detailed description. SIRO and NBI currently provide PON-based LL products.

¹⁵⁷ Meeting with ComReg on 17 May 2023.

¹⁵⁸ Para 33, the 2020 Recommendation.

- 4.9 The following products are considered in ComReg’s substitutability analysis to determine if they can act as an effective direct constraint on the focal product, i.e., Fibre Ethernet WDC, and therefore whether they are to be included in the same relevant product market:
- (a) xWDM and other MI products;
 - (b) P2P Wireless Ethernet WDC products;
 - (c) Broadband including business broadband; and
 - (d) Dark fibre.
- 4.10 In addition, the assessment also considered whether there is a bandwidth break within the MI WDC products by conducting a chain of substitution analysis for MI WDC of all bandwidths. A bandwidth break considers whether LLs, which are offered over a range of bandwidths, should be segmented at a market level according to bandwidth ranges.

4.3.1. Is WDC provided over xWDM an effective substitute for Fibre Ethernet WDC?

- 4.11 In section 3.5.6, ComReg sets out its position that Retail LL services provided over xWDM technologies are effective substitutes for Ethernet LLs due to, inter alia, sufficient similarity of product characteristics and the intended use of these services. ComReg is of the view that there is also likely to be effective substitutability between WDC based on Ethernet and xWDM at the wholesale level.
- 4.12 As demand for WDC is primarily derived from demand for retail LLs, we consider that the reasons set out in section 3.5.6 to include LLs provided over xWDM in the relevant retail market are also relevant at the wholesale level. xWDM based WDC services have sufficiently similar product characteristics compared to wired Ethernet WDC services as both can provide dedicated connections, symmetric speeds and high-quality services. Our data shows that SPs purchase both xWDM and ethernet based WDC services for the same purposes, i.e., own network use as well as downstream supply of retail and wholesale LL services.
- 4.13 When high speed fibre-based Next Generation Network (**‘NGN’**) Ethernet networks were deployed in Ireland, in general xWDM technology was used in the core network to connect the customer facing NGN Aggregation (**‘AGG’**) nodes to a pair of NGN core nodes, known as Primary Edge (**‘PE’**) nodes. This core transmission delivered high bandwidth circuits to AGG nodes which then in turn connected to customers premises, (via fibre) to provide lower speeds. For instance, the core network may provide a diverse pair of

n*10Gbit/s circuits to an AGG node which in turn would connect multiple customer premises at lower speeds.

- 4.14 The individual SP network arrangements were designed by network planners to effect the most economic solutions, based on the expected demand, their customers' profiles, forecast expansion requirements, fibre availability and distances involved and of course equipment costs. Fibre Ethernet access technology is typically based on a minimum LL access speed of 1Gbit/s so if a customer requires 10Mbit/s, the access bearer component of the LL is still 1Gbit/s. Similarly, for incremental speeds above 1Gbit/s, the Ethernet access bearer is 10Gbit/s.
- 4.15 As bandwidth requirements increase, it can be more efficient for an SP to connect customers directly to the xWDM platform rather than investing in the collocated Ethernet nodes. This also becomes more economic particularly as these equipment costs continue to fall and where availability of ports on an Ethernet node may be approaching exhaustion. Hence, where a customer requires 1Gbit/s or above it may be more efficient to provide their service via xWDM.
- 4.16 The use of xWDM and Ethernet equipment has overlapped, and the data clearly shows that many SPs use both Ethernet and xWDM technologies, to varying degrees, to provide circuits of 1Gbit/s and above. On aggregate, over 40%¹⁵⁹ of circuits greater than 1Gbit/s were provided over xWDM. Hence, our conclusion is that xWDM is an effective substitute for Ethernet based WDC service.
- 4.17 In terms of pricing, as wholesale LL pricing information is not readily available, we use Eircom's published prices to compare the prices of Ethernet and WDM LLs¹⁶⁰. We consider that the prices of WDM LLs are comparable to those of Ethernet LLs.¹⁶¹
- 4.18 On the supply side, ComReg notes that the main xWDM WDC SPs (Eircom, EU networks, Hibernia/EXA, Colt) also provide wired Ethernet WDC services. ComReg considers that there are low barriers to switching between supplying xWDM and Ethernet based WDC services. This is because the majority of

¹⁵⁹ H2 2023 Data (on-net data including retail self-supply).

¹⁶⁰ [Eircom RIO Network Price List \(openeir.ie\)](https://www.eircom.ie/Network/Network-Price-List).

¹⁶¹ This is based on the comparison of WUP (up to 25km with local tail up to 500m) and WSEA (Local tail up to 500m, Same Region High Density, Option 6 class of service) at speed of 1Gbit/s.

cost incurred in providing such services are sunk costs for associated civil engineering and cabling, estimated at up to 80% of the overall cost¹⁶².

- 4.19 In their responses to the QQ, LL SPs did not consider there to be any reason to warrant any change to the position in the 2020 Decision which included xWDM LLs in the same relevant product market as wired Ethernet LLs.
- 4.20 Having regard to above, ComReg considers that wired xWDM WDC is an effective substitute for wired Ethernet WDC and therefore should be included in the same product market.

4.3.2. Is Wireless Ethernet WDC an effective substitute for Wired Ethernet WDC and Wired xWDM WDC

- 4.21 As set out in Table 8 below, on-net¹⁶³ wholesale wireless MI LLs sales (including self-supply) only account for just over 10% of total on-net MI LLs¹⁶⁴ in 2023. The majority of the wholesale MI LL demand is fulfilled by wired ethernet services, at over 90%.

Table 8: Wholesale wired and wireless MI LLs (including self-supply), 2023

	No. of LLs	%
Wireless MI	2,780	10.1%
Wired MI	27,416	90.9%
Total MI	30,196	100%

- 4.22 ComReg's position is that WDC provided over P2P wireless Ethernet is not an effective substitute for wired Ethernet WDC and wired xWDM WDC.
- 4.23 Wireless WDC products are primarily purchased by SPs to provide downstream retail services. We note that based on H2 2023 data, no wholesale off-net wireless LLs purchases are used as network inputs¹⁶⁵. As such, the rationale for excluding them from the relevant WDC market is largely related to the reasons for their exclusion at the retail level as set out in section 3.5.7 above.
- 4.24 In particular, the top 10 private sector LL customers (namely, [REDACTED])

¹⁶² Page 62, EC 2020 Recommendation.

¹⁶³ On-net sales refer to LL sales made using the SP's own network.

¹⁶⁴ Based on H2 2023 data.

¹⁶⁵ Based on H2 2022 data.

[REDACTED] all have a very strong preference for wired Ethernet LLs, purchasing little to no wireless LLs¹⁶⁶. The notable exception is one major retail multiple [REDACTED] which purchases [REDACTED] wireless LLs out of a total of [REDACTED]¹⁶⁷ of its LLs as a backup service for wired LLs. As such, they are considered complementary to the wired LLs services, as discussed in section 3.5.7 above.

- 4.25 On the other hand, public bodies such as schools, Government departments and networks are the main users of wireless LLs, primarily due to the limited fibre availability at their premises (e.g., many schools are located in rural areas), considerations on costs and lead-times to provide services. One of the largest purchasers of wireless LLs is HEAnet, who confirmed with ComReg that it put a 20% premium on fibre solutions over wireless ones,¹⁶⁸ i.e., a fibre connection could be 20% more expensive than an equivalent wireless solution and still be awarded the business for a site. HEAnet has also confirmed that there has been a migration to fibre over time, with over two thirds (67%) of secondary school connections and over 72% of primary school connections being fibre. HEAnet is of the view that wireless LLs are sufficient for back-up and resilience purposes but not as a primary link¹⁶⁹ for 3rd level institutions.
- 4.26 The Office of the Government Chief Information Officer ('OGCIO'), another very large purchaser of fibre and wireless LLs, expressed a strong preference for fibre over wireless LL services. In many instances, wireless LLs were used for backup in the case of faults on the primary fibre-based service¹⁷⁰ or for sites where fibre was not available.
- 4.27 Furthermore, most SPs, including some who supply wireless LLs, in their responses to the QQ (with the exception of Eircom and EU networks) agreed that P2P wireless LLs do not constitute an effective substitute for wired Ethernet WDC. ComReg's views on Eircom's examples in support of its view have been set out in paragraph 3.97 above.
- 4.28 In light of the above, ComReg's position is that wireless WDC is not an effective substitute for wired Ethernet and xWDM WDC.

¹⁶⁶ Based on H1 2022 data.

¹⁶⁷ Based on H2 2022 data.

¹⁶⁸ Meeting with HEAnet on 17 May 2023.

¹⁶⁹ Meeting with HEAnet on 17 May 2023.

¹⁷⁰ Meeting with OGCIO on 18 April 2023.

4.3.3. Is wholesale broadband an effective substitute for wired Ethernet WDC and Wired xWDM WDC?

- 4.29 In section 3.5.8 above, ComReg set out its view that, at the retail level, broadband (including business broadband) is not likely to be an effective substitute for wired Ethernet LLs and xWDM LLs as there are sizeable differences in terms of product characteristics, pricing, as well as intended use of these services by customers.¹⁷¹ ComReg considers that these differences equally apply at the wholesale level given most wholesale demand is derived from retail demand.
- 4.30 In particular, many business customers including large corporate and public sector end-users require symmetric and dedicated connections with guaranteed speed and service levels. This cannot be satisfied by broadband products and is why businesses are prepared to continue to pay a premium for LL services. Despite the rollout of high-speed fibre broadband in Ireland, we have not observed any downward trend in the volume of MI LLs sold. Contrarily, the volumes of MI LLs sold has increased in both retail¹⁷² and wholesale markets since 2020.
- 4.31 Furthermore, there are significant gaps between prices of LLs and broadband. As illustrated in Table 5 and Table 6 in section 3.5.8, Eircom's monthly rental costs of wholesale LLs (prices shown are for speed of 10Mbit/s) are multiples of Eircom's broadband products. Despite such price differences, we have not seen a trend of migrations from LL to broadband products at the retail level, even with increased availability of higher bandwidth broadband services.
- 4.32 Many SPs (including Eircom, Enet, Vodafone, Virgin Media, Siro¹⁷³) agree with ComReg's position that wholesale broadband does not constitute an effective substitute for wired ethernet WDC in their responses to ComReg's QQ.
- 4.33 Based on the above, ComReg does not consider that broadband forms part of the relevant WDC product market and is not an effective substitute for fibre Ethernet and xWDM WDC.

¹⁷¹ See subsection 3.4.2 above.

¹⁷² See Figure 3 Volumes of Retail MI leased lines sold over past years.

¹⁷³ ComReg's views on their responses are detailed in section 3.5.8.

4.3.4. Is dark fibre an effective substitute for wired Ethernet WDC and Wired xWDM WDC?

Overview

- 4.34 DF refers to rental of fibre optic cable (typically a single or pair of fibre strands within a cable) owned by an operator. This is a product that requires the purchaser to install and manage the electronic equipment (lasers, switches, multiplexers, repeaters etc.) necessary to transmit data over the fibre cable. In contrast, LLs are sold with the equipment and managed services to enable an end-to-end connection between locations.
- 4.35 Many operators currently provide DF at the wholesale level, including Eircom, Enet, EU Networks, etc. As shown in Table 9 below, Enet is by far the biggest DF supplier as of 2022, representing [REDACTED] of all DF sales by operators. Enet sells DF on its MANs and connections to data centres on its Dublin metro rings. Its main customers are [REDACTED].

Table 9: SP DF Sales¹⁷⁴ 2022 [PARTIALLY REDACTED]

Dark Fibre Sales	Volume	%
Enet	[REDACTED]	[REDACTED] ¹⁷⁵
EU Networks	[REDACTED]	[REDACTED] ¹⁷⁶
Eircom	[REDACTED]	[REDACTED] ¹⁷⁷
Virgin Media	[REDACTED]	[REDACTED] ¹⁷⁸
ESBT	[REDACTED]	[REDACTED] ¹⁷⁹
ZAYO	[REDACTED]	[REDACTED] ¹⁸⁰
Aurora	[REDACTED]	[REDACTED] ¹⁸¹
EXA	[REDACTED]	[REDACTED] ¹⁸²

¹⁷⁴ Excludes resale of just over 500 dark fibre lines – [REDACTED]

¹⁷⁵ Between 50% and 60%.

¹⁷⁶ Between 10% and 20%.

¹⁷⁷ Between 10% and 20%.

¹⁷⁸ Between 10% and 20%.

¹⁷⁹ Between 0% and 10%.

¹⁸⁰ Between 0% and 10%.

¹⁸¹ Between 0% and 10%.

¹⁸² Between 0% and 10%.

BT	[REDACTED]	[REDACTED] ¹⁸³
Viatal	[REDACTED]	[REDACTED] ¹⁸⁴
Total	2,847	100%

4.36 The other main SP suppliers are EU Networks, Eircom and Virgin Media. [REDACTED] [REDACTED] are among the biggest customers of EU Networks. Eircom's main customers are [REDACTED]. [REDACTED] [REDACTED]. It also sells a small amount of DF to [REDACTED] [REDACTED] for backhaul purposes, replacing LLs previously purchased from [REDACTED] [REDACTED]. Virgin Media sells mainly to [REDACTED] [REDACTED] and a number of private and public customers.

4.37 On the demand side ¹⁸⁶, [REDACTED] [REDACTED] is the biggest purchaser of DF, accounting for [REDACTED] [REDACTED] of the total purchases. It has agreements with [REDACTED] [REDACTED] [REDACTED] to purchase DF. [REDACTED] [REDACTED] are also among the main SP purchasers. Apart from SPs, there is a significant amount of direct purchases from end customers, including large enterprises and public sector organisations such as HEAnet and OGCIO.

Table 10: DF Purchases 2022 [REDACTED]

Dark Fibre Purchaser	Vol	%
Vodafone	[REDACTED]	[REDACTED] ¹⁸⁷
Viatal	[REDACTED]	[REDACTED] ¹⁸⁸
BT Ireland	[REDACTED]	[REDACTED] ¹⁸⁹
HEAnet	[REDACTED]	[REDACTED] ¹⁹⁰
Amazon Data Services	[REDACTED]	[REDACTED] ¹⁹¹

¹⁸³ Between 0% and 10%.

¹⁸⁴ Between 0% and 10%.

¹⁸⁵ Enet response to QQ July 2022.

¹⁸⁶ Purchasers are a mix of SPs and large and sophisticated enterprises and public sector organisations.

¹⁸⁷ Between 40 and 50%.

¹⁸⁸ Between 0% and 10%.

¹⁸⁹ Between 0% and 10%.

¹⁹⁰ Between 0% and 10%.

¹⁹¹ Between 0% and 10%.

Virgin Media	[X]	[X]	192
Microsoft Ireland	[X]	[X]	193
Magnet Networks	[X]	[X]	194
Interxion	[X]	[X]	195
Enet	[X]	[X]	196
SIRO Ltd	[X]	[X]	197
GovNet	[X]	[X]	198
Equinix (Ireland)	[X]	[X]	199
Others	[X]	[X]	200
Total		2,847	100%

4.38 SPs purchase DF mostly as an input to extend the reach of their own networks. As shown in Table 11 below, own network input accounts for 60% of all DF purchased, while onward resale of DF and supply of retail LLs supply accounts for 30% and 10% respectively.

Table 11: SPs DF Uses 2022²⁰¹

	Network input	Resale	LL	Total
No. of DF lines	1,023	501	173	1,698
%	60%	30%	10%	100%

4.39 The two large public sector networks, OGCI0 and HEAnet, are significant purchasers of DF. OGCI0 accounts for the majority of all Government/public service demand, including Government departments, hospitals and local authorities. OGCI0 has used DF to establish a large capacity national

¹⁹² Between 0% and 10%.

¹⁹³ Between 0% and 10%.

¹⁹⁴ Between 0% and 10%.

¹⁹⁵ Between 0% and 10%.

¹⁹⁶ Between 0% and 10%.

¹⁹⁷ Between 0% and 10%.

¹⁹⁸ Between 0% and 10%.

¹⁹⁹ Between 0% and 10%.

²⁰⁰ Between 10% and 20%.

²⁰¹ Note this refers to usage of DF by SPs where provided and does not include non-SPs.

“Dark fibre could, based on an appropriate substitutability analysis under certain conditions and in certain geographic areas, be included in the dedicated capacity product market, due to its flexibility in terms of technical characteristics, price and bandwidth.....The substitutability depends on the ability of the access seeker to self-provide the knowledge and active equipment needed as well as the difference in price to active products. If dark fibre is found to exert sufficient competitive constraint over the pricing of leased lines, it could be included in same relevant market for dedicated capacity”.

And further:

“There is evidence from a number of countries (notably including those with significant PtP fibre deployment) that operators and larger businesses purchase and make use of dark fibre (fibre unbundling) in a similar manner to the way in which they would use active leased lines.”

- 4.42 From the supply-side it states²⁰⁴ that *“there are relatively low barriers to a dark fibre supplier to offer active leased line connectivity and vice versa, and many commercial suppliers of dedicated capacity make both options available in areas in which they are present”.*
- 4.43 ComReg notes that a number of countries have included DF in the WDC market, including Austria²⁰⁵, Iceland²⁰⁶, the Netherlands²⁰⁷ and the UK²⁰⁸.

Substitutability Analysis

- 4.44 From a demand substitutability perspective, at the wholesale level ComReg considers there to be sufficient similarities in product characteristics between dark fibre and MI WDC, especially for high-capacity wholesale leased line customers. Both products can ultimately provide high capacity symmetric and dedicated connections. There is an additional requirement for the dark fibre purchaser to install and manage the electronic equipment themselves in order to light the dark fibre. However, ComReg is of the view that most SPs have the expertise and ability to do this as they already use dark fibre for either their own network buildout, or as inputs to delivering LL services.

²⁰⁴ Page 58.

²⁰⁵ [Cullen International \(cullen-international.com\)](http://cullen-international.com)

²⁰⁶ [PTA Decision no.8 2014 M6 Appendix A.pdf \(fjarskiptastofa.is\)](http://fjarskiptastofa.is)

²⁰⁷ [NL-2021-2353%20Adopted EN.pdf \(europa.eu\)](http://europa.eu)

²⁰⁸ [Consultation: Business connectivity market review - Ofcom](#)

Further, with respect to intended use, both dark fibre and wholesale LLs are used by SPs as network inputs or as an input to downstream wholesale and/or retail services.

- 4.45 ComReg does not have reliable data to compare the prices between DF and active LLs. However, ComReg notes the growing demand for DF in recent years, and evidence of certain SPs switching from LLs to DF for backhaul connectivity. For example, Enet noted in its response to the QQ that

[REDACTED]
[REDACTED] Also, as mentioned in paragraph 4.40, [REDACTED]
[REDACTED].

- 4.46 In addition, there is evidence of SPs using both LL and DF as wholesale input to provide downstream LL services. One SP [REDACTED] informed ComReg at the meeting on 10 October 2022 that it [REDACTED]

[REDACTED]
[REDACTED]” Similarly, in its meeting with ComReg on 22 September 2022, another SP [REDACTED] informed ComReg that they use wholesale LL (DIA and Layer 2 access) and dark fibre to provide LL services.

- 4.47 In its response to QQ [REDACTED] indicated its preference for DF stating

[REDACTED]
[REDACTED].²⁰⁹

- 4.48 On the supply side, all the DF suppliers in Ireland, bar one, also supply wired ethernet LLs. The main difference between a LL and DF is the requirement for the purchaser to purchase, install and manage the electronic equipment (lasers, switches, multiplexers, repeaters etc.) necessary to transmit data over the DF. ComReg considers that most SPs active in the LL markets (other than pure resellers) can easily light the DF for the provision of LLs, whether this is for network extension or onward resale at the wholesale or retail level, as they have already done so to greater or lesser extents. Therefore, ComReg considers there are low barriers to switching between supplying dark fibre and leased lines.

²⁰⁹ [REDACTED] response to Q.5 in QQ.

- 4.49 In their response to the QQ, many SPs (Eircom, Virgin Media, Vodafone, etc) indicated they do not see any developments to alter the conclusion in the 2020 Decision which excluded DF from the relevant market. SIRO, on the other hand, considered that dark fibre should be included in the relevant market, [REDACTED]

[REDACTED] BT also noted that Ofcom mandated certain dark fibre to be regulated and the approach should be consistent across regulators.

- 4.50 On balance, and in light of the reasons set out in paragraphs 4.34 to 4.49 above, ComReg considers that dark fibre is an effective substitute for wholesale wired ethernet LLs.

4.3.5. Bandwidth analysis

- 4.51 ComReg's view is that, consistent with the 2020 Decision, a chain of substitution exists for MI WDC of all bandwidths so there is a single market for all MI WDC services at all bandwidths.
- 4.52 A chain of substitution²¹¹ refers to the substitutability between a number of similar products, which could lead to each of these products being part of the same market. A chain of substitution implies that a product at one end of the chain can potentially exert an indirect constraint on a product at the other end of the chain.²¹²
- 4.53 For example, if product B is a substitute for products A and C, while A and C may not be direct substitutes, they may be considered to be in the same product market since their respective pricing may be constrained by substitution to B.²¹³

²¹⁰ Siro response to Q.17 in QQ.

²¹¹ The concept of a 'chain of substitution' is described in the EC Notice on Market Definition (paragraphs 56-58) and is further described in the UK Office of Fair Trading document "Market definition: Understanding competition law", December 2004 at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284423/oft403.pdf

²¹² Aproskie, J. and S. Lynch (2012) 'The Chain of Substitution in Market Definition: Pitfalls in Application' <http://www.compcom.co.za/wp-content/uploads/2014/09/Aproskie-and-Lynch-Chain-of-substitution-in-market-definition-Competition-Conference-2012.pdf>.

²¹³ EC Notice on Market Definition.

- 4.54 As such, it is possible that an increase in the price of one of the products in the chain could lead to a rise in the demand for a product further up the chain, in which case the associated products would be considered part of the same market for the purposes of a competition assessment.
- 4.55 In the context of MI WDC, ComReg assesses whether a chain of substitution exists between MI WDC products offered at various bandwidths, and thereby subject to a common pricing constraint. For example, products that are close to the ends of the “chain” such as 10 Mbit/s and 1 Gbit/s circuits may not be close substitutes for each other, but both may be seen as substitutable for a 100 Mbit/s LL in terms of product characteristics, pricing and intended use. If they are sufficiently close substitutes for a 100 Mbit/s LL, then there may be a complete chain of substitution, meaning that all three LL products are part of a single product market.
- 4.56 In their responses to the QQ, most SPs agreed that there was no bandwidth break. Eircom stated that [REDACTED] [REDACTED] [REDACTED]”.²¹⁴ Virgin Media, Vodafone and NBI also agreed that a bandwidth break is not required.

Demand-side substitutability

- 4.57 ComReg considers that MI WDC products across different bandwidths have sufficiently similar product characteristics such as dedicated connections, symmetric speeds and high-quality services. The speed requirements may vary by customers, but by way of chain of substitution as demonstrated below, all bandwidths can be considered to belong to in the same market.
- 4.58 Table 13 below shows Eircom’s WSEA prices ²¹⁵ across a range of bandwidths. We can see that Eircom’s prices go up gradually with the bandwidths. The price increments between adjacent bandwidths are very small. In the event of a 5-10% SSNIP, it is likely that a purchaser would switch to a higher bandwidth product in order to save costs and avail of a better product, thus rendering the SSNIP unprofitable. For example, if the price at 100 Mbit/s for high density increases by 5-10% (i.e., to €661.5 - €696), a purchaser would be better off switching to a 150 Mbit/s product. Similarly, if the price at 1 Gbit/s increases by 5-10%, a purchaser would likely switch to 1.5 Gbit/s. Therefore, MI WDC products of adjacent bandwidths are likely to

²¹⁴ Eircom response to Q.18 in QQ.

²¹⁵ [eircom RIO Network Price List \(openeir.ie\)](https://www.openeir.ie/eircom-rio-network-price-list)

be on the same market, and by extrapolation there exists a chain of substitution between MI WDC of all bandwidths.

Table 13: Eir Zone B WSEA Annual Rental- Logical

Mbit/s	Same site high density	Same site medium density
1	€340	€382
10	€463	€704
20	€478	€754
30	€495	€805
40	€531	€916
50	€559	€1,033
75	€592	€1,147
100	€630	€1,297
150	€704	€1,500
200	€723	€1,649
250	€766	€1,734
300	€808	€1,898
450	€937	€2,326
500	€980	€2,414
600	€1,020	€2,598
750	€1,061	€2,788
1000	€1,149	€3,129
1500	€1,257	€3,162
2000	€1,361	€3,477
2500	€1,464	€3,709
3000	€1,534	€3,749
4000	€1,648	€3,847
5000	€1,753	€3,964
6000	€1,848	€4,079
7000	€1,915	€4,185
8000	€1,972	€4,195
9000	€2,033	€4,240
10000	€2,101	€4,289

Supply-side substitutability

- 4.59 On the supply side, wired MI WDC services of all bandwidths are delivered using the same physical medium, i.e. fibre. Once the fibre is connected, it can be scaled up or down to provide a wide range of bandwidth services. The barriers involved in doing so (e.g. scaling from 1 Gbit/s to 10 Gbit/s) are merely to change the NTU equipment and the corresponding exchange card or module. This does not require significant costs or work. ComReg considers that SPs are able to change the equipment easily and in a timely manner as they already supply a wide range of bandwidths with different

specifications of equipment installed. Therefore, all bandwidths of fibre MI WDC services are substitutable and belong to the same market.

- 4.60 To summarise, based on the above demand and supply side substitutability analysis, ComReg's position is that there is a single market for fibre MI WDC of all bandwidths.

4.3.6. Assessment of Indirect Constraints – MI WDC

- 4.61 Even in the absence of actual or potential direct constraints, a vertically integrated alternative SPs' self-supply of retail LLs could be part of a relevant MI market if it is shown that its presence in related retail markets is able to exercise a sufficiently effective and immediate indirect pricing constraint on a HM's supply of MI WDC products. In this respect, retail customers' behaviour may, through demand-side substitution at the retail level, indirectly impact the ability of the HM supplier of WDC to profitably sustain a SSNIP above the competitive level, i.e., indirect retail constraints arising from the retail market may affect wholesale price setting behaviour in the WDC markets.
- 4.62 The main distinction between an MI WDC LL and an MI retail LL is that the former is sold to another SP and the latter is provided to an end-user who is not an SP.²¹⁶
- 4.63 Currently, all SPs that have their own network to supply retail leased lines are also active in supplying WDC LL services. This means that indirect constraints are not a relevant consideration in defining the relevant WDC market as they have been already accounted for in the context of the assessment of direct constraints²¹⁷.

4.3.7. Conclusion on the WDC product market

- 4.64 ComReg's position is that the relevant WDC product market (the '**WDC Product Market**') consists of the provision of wholesale dedicated capacity over a fibre medium (including point-to-point and PON network configurations) using modern interface ("**Fibre MI WDC**"), which include Ethernet, xWDM and other modern interfaces. ComReg further considers the

²¹⁶ As noted earlier, a Wholesale LL can be used to provide retail services and/or act as network inputs for a SP.

²¹⁷ Furthermore, they are not considered relevant to the SMP assessment for similar reasons. However, ComReg considers whether services external to the relevant markets delivered over wireless P2P radio links when undertaking its competition assessment of the MI WDC markets in Section 5 below.

market consists of wired MI WDC of all bandwidths, i.e., there is no bandwidth break.

Q. 3 Do you agree with ComReg’s product market assessment for the Relevant WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views.

4.4 Geographic Scope of the Relevant WDC Product Markets

4.65 In this Section, ComReg considers the geographic scope of the WDC Product Market described in Section 4.3 above. In doing so, ComReg follows the approach recommended by the EC in the 2020 Recommendation, the Notice on Market Definition, and the SMP Guidelines.

4.66 The Notice on Market Definition²¹⁸ notes that the approach used:

“.. to define the relevant geographic market is that of assessing conditions of competition. A common starting point is to identify the areas where the relevant conduct or concentration is likely to have effects, by identifying the location of the undertaking(s) involved and of their customers. The Commission then analyses whether the conditions of competition in a certain area are sufficiently homogenous for the effects of the conduct or concentration to be able to be assessed and whether that area can be distinguished from other areas because the conditions of competition are applicably different in those areas”

4.67 In addition, the 2020 Recommendation²¹⁹ states that:

“When identifying relevant geographic markets within their territory in accordance with Article 64(3) of the Code, national regulatory authorities should carry out a granular analysis of demand and supply-side substitutability, starting from an appropriate geographic unit, and aggregating such units that exhibit similar competitive conditions. The assessment of competitive conditions should be forward-looking and should be based, inter alia, on the number and characteristics of competing networks, distribution of and trends in market shares, prices and behavioural patterns.”

²¹⁸ Notice on Market Definition, paragraph 38.

²¹⁹ Paragraph 3.

4.68 The SMP Guidelines in particular points out that:

“In the electronic communications sector, the geographical scope of the relevant market has traditionally been determined based on two main criteria:

(a) the area covered by a network; and

(b) the existence of legal and other regulatory instruments”²²⁰.

4.69 In assessing any potential geographic variances in conditions of competition, ComReg has also taken utmost account of the BEREC report on the application of the common position on geographic aspects of market analysis²²¹. Therein BEREC notes that NRAs generally adopted criteria based on “structural market indicators”, such as the coverage of the alternative networks, the market share of the incumbent operator and the number of “significant” competitors, rather than on market outcomes, such as prices (either retail or wholesale) or non-price features of the products.

4.70 In light of the above, ComReg focused on the following “structural” criteria in its geographic assessment:

(a) The number of alternative networks (para 4.82-4.85); and

(b) Coverage of alternative networks (para 4.86-4.102).

4.4.1. The Context for the Geographic Market Assessment

4.71 Before conducting its assessment, ComReg:

(a) details the rationale behind its choice of geographic unit for assessing the boundaries of the geographic market (discussed in subsection 4.4.2 below);

(b) sets out the reasoning behind the criteria that it has employed in assessing the conditions of competition in its overall assessment of the geographic scope of the WDC market (discussed in subsection 4.4.3 below); and

(c) describes the mapping process that it has undertaken to analyse the relevant supply and demand criteria (discussed in subsection 4.4.4 below).

²²⁰ Paragraph 51.

²²¹ BEREC [“Common Position on Geographic Aspects of Market Analysis”](#), BoR (18) 213, 06.12.2018.

4.4.2. Geographic Unit

- 4.72 The first step in assessing the geographic scope of a market is to define a basic geographic unit as a starting point for assessing any differences in competitive conditions across geographic areas. The 2020 Recommendation²²² indicates that the geographic unit should be:
- (a) of an appropriate size, i.e. small enough to avoid significant variations of competitive conditions within each unit but big enough to avoid a resource-intensive and burdensome micro-analysis that could lead to market fragmentation;
 - (b) able to reflect the network structure of all relevant operators; and
 - (c) have clear and stable boundaries over time.
- 4.73 In the 2020 Decision, ComReg adopted Workplace Zones (**‘WPZ(s)’**) as the geographic unit. WPZs are an administrative unit created by Ireland’s Central Statistics Office (**‘CSO’**) and are designed to capture ‘daytime population’ of areas. The daytime population includes everybody who indicated they worked or studied in the area, along with persons in that area who do not work or study (and so are there during the day)²²³. ComReg’s position in the 2020 Decision was that the WPZ was a better fit for the analysis of business-oriented markets; it is far fewer in number than small areas and is publicly available for stakeholders to inspect.
- 4.74 WPZ were created by the CSO following the 2016 census in response to stakeholders’ requirements for a more suitable unit for business market analysis. While WPZs do not reflect the structure of the networks, other alternative geographic units have the same issues. For example, the locations of Eircom’s exchanges were designed around the distance limitation of the traditional copper based PSTN²²⁴ service, while alternative network (**‘AN’**) deployments are designed to connect customers and/or urban centres in the most efficient manner and are not planned based on administrative boundaries.
- 4.75 Many Respondents (BT, Virgin Media, NBI, Orange, Pure Telecom, Hibernia) to ComReg’s QQ did not see any reason to change WPZ as the geographic unit. Eircom stated that if the market is correctly defined to include wireless

²²² 2020 Recommendation, paragraph (37).

²²³ Currently there are 7,219 WPZs in Ireland. Further details on the CSO construct of WPZs are available [here](#). Note CSO may publish new WPZs in the near future based on its 2022 census. If so, ComReg may update its analysis to reflect the new WPZs.

²²⁴ Public switched telephone network.

then a granular geographic assessment will not be required. However, it also noted that if ComReg is able to justify the exclusion of wireless then the choice of WPZ was acceptable to Eircom. Enet had no objection *per se* to using WPZs as a starting point, but suggested case by case assessment for certain areas with unique characteristics, such as St Stephen's Green and the new cycle lane in Clontarf. It also noted the importance of conducting interim reviews in areas where there is a material change in competitive conditions.

- 4.76 Some respondents to the QQ did not agree with the choice of WPZ. Vodafone considered WPZs to be unduly complex and suggested Eircom's exchange area footprint as a more appropriate alternative. Verizon and ESBT also considered that WPZs are overly granular or complex. On the other hand, ESBT was of the view that the more granular an assessment is, the more accurate will be the result, and therefore suggested using townlands as the geographic unit as they are smaller than WPZs.
- 4.77 Having considered the QQ Respondents' views, ComReg considers that the WPZ continues to be the most suitable geographic unit. It is of an appropriate size to allow for detailed analysis (compared to Eircom exchange areas), and is big enough to avoid a burdensome micro-analysis (compared to small areas or townland areas). Eircom exchanges are also not as relevant to the location of businesses using LLs and so greatly diminish any results which they may produce when compared to WPZs. Also, as noted in the 2020 Decision, Eircom exchange areas can vary greatly in size and therefore the conditions of competition are much less likely to be homogenous within them when it comes to assessing the WDC market, noting in particular that in the main, the purchase of WDC is to serve medium to large businesses with the scale of this demand being lower relative to other services such as broadband.
- 4.78 On the above basis, ComReg is of the view that WPZs are a good match for the business focused WDC market.

4.4.3. Criteria for Assessing Differences in Conditions of Competition

- 4.79 In the 2020 Decision, ComReg set the following two main criteria for the assessment as to whether the conditions of competition differed sufficiently across WPZs having LL connected premises, namely:

- (a) **Criterion 1:** A WPZ has two or more ANs present (3 networks including Eircom)²²⁵; and
- (b) **Criterion 2:** 75% of current demand must be within 50 metres of two or more ANs²²⁶.

4.80 For WPZs where there are no connected premises, the criteria adopted in the 2020 Decision was whether the WPZ intersects with at least two ANs.

4.81 ComReg also included additional tests for business parks and “WPZ islands”. Given its higher business density, business parks have different demand and supply conditions from WPZs. WPZ islands refer to WPZs initially identified as areas not meeting the two criteria but are surrounded entirely by WPZs that do.

Criterion 1: A WPZ has two or more ANs present

4.82 The European Commission’s Explanatory Note to the 2020 Recommendation states, in relation to the criteria for assessing the geographic dimensions of competition and the homogeneity of competitive conditions, that:

“NRAs should define relevant geographic markets within their territory by taking into account, inter alia, the degree of infrastructure competition in those areas. The mapping of networks, ... where relevant, can once again be useful for that purpose.”²²⁷

4.83 ComReg describes below how it has mapped all the ANs capable of supplying MI WDC services in the State, and how it identified how many such ANs were present in or at each WPZ.

4.84 The BEREC Common Position²²⁸ notes that a criterion based on the number of operators present in an area has an advantage over other potential criteria, in that it is more direct and easily observable. ComReg is of the view that where a WPZ has two or more competing ANs (in addition to Eircom), it is likely to have sufficiently different competition conditions compared to WPZs where there is only one or no AN network present. This is supported by precedents from both the academic literature and the NRA and NCA decisions:

²²⁵ Section A.1.5.7 of the 2020 Decision.

²²⁶ *Ibid.*

²²⁷ Explanatory Note to the 2020 Recommendation, p20.

²²⁸ At page 25.

- (a) In its 2014 Review of wholesale broadband markets, Ofcom considered that the presence of two or more competitors to the incumbent at an exchange was sufficient to lead to significant declines in BT's market share. In contrast, exchanges with only one operator in addition to BT were included in the same market as monopoly exchanges, as Ofcom considered the competitive conditions to be sufficiently homogeneous;²²⁹
- (b) Bresnahan and Reiss²³⁰ showed that, in certain oligopolistic retail markets, the largest benefits to competition come with the addition of the third firm in a market;
- (c) The Dutch NRA concluded that, while there is no 'magic number' for the minimum number of competitors necessary for effective competition, unless significant economies of scale are apparent, competition is unlikely to be effective with just two firms, and the social optimal is a market with more than two firms;²³¹
- (d) In considering BT's appeal of Ofcom's 2016 Business Connectivity Market Review, the UK Competition Appeals Tribunal heard expert evidence that *"mergers from five to four firms are nearly always approved by competition authorities and four to three mergers are sometimes approved, suggesting that between three and four competitors is judged sufficient for effective competition"*;²³² and
- (e) Xiao and Orazem show that, in US broadband markets, the entry of a fourth firm on the market has little effect on competitive conduct; due to data limitations, they surmise (at p.27) - but cannot demonstrate – that where a fourth entrant makes little difference to competitive conduct on broadband markets, then as few as three providers may suffice to create a competitive environment.²³³

²²⁹ Ofcom Review of the Wholesale broadband access markets, Statement, 26 June 2014, paragraphs 4.132 – 4.133 and 4.139 – 4.141. https://www.ofcom.org.uk/_data/assets/pdf_file/0021/57810/WBA-Final-statement.pdf

²³⁰ Bresnahan, T.F., & P.C. Reiss. *"Entry and Competition in Concentrated Markets"*. The Journal of Political Economy, Vol. 99, No. 5. (Oct., 1991), at Figure 4 (p.996).

²³¹ OPTA, "Is two enough", 2006, page 10. [OPTA- EAT](#).

²³² CAT case 1260/3/3/16, British Telecommunications v Office of Communications (BCMR). First expert report of Chris Osborne, paragraph 4.20.

²³³ Mo Xiao and Peter Orazem, *"Does the fourth entrant make any difference?: Entry and competition in the early U.S. broadband market"*. International Journal of Industrial Organization, 2011, vol. 29, issue 5, 547-561.

- 4.85 Therefore, ComReg considers that two or more ANs is the appropriate criterion for assessing the degree of homogeneity in competitive conditions across different geographic areas.

Criterion 2: 60% of current or potential demand must be within 50 metres of two or more ANs

- 4.86 Having two or more rival networks alone does not mean that most (if not all) of the demand in a WPZ can be served by these networks. We need to consider if the demand is sufficiently close to rival networks, and how much of the demand is covered by rival networks. This leads us to the discussion of the distance criterion and the proportion criterion below.

Distance Criterion

- 4.87 The distance criterion examines how close to a network operator a business customer needs to be so that it makes economic sense for the network operator to extend its network to serve that customer.
- 4.88 In the 2018 Further Consultation, ComReg proposed a 100-metre criterion, i.e., so long as a premises was within that distance of an AN, it could be served by that AN. This was chosen based on the wayleave notification period that were required by local authorities to undertake civil engineering work associated with extending telecommunications networks. Distances over 100 linear metres automatically require a 3 month notice period which would exclude SPs from being able to bid for many retail contracts. Many SPs objected to the 100-metre criterion in their responses to the 2018 Further Consultation, noting that network digs are conducted “as the dog walks” and not “as the crow flies”, therefore making the then proposed 100 metre radial distance criterion far too high. In addition, SPs also claimed that civil engineering costs associated with excavation for laying duct was prohibitive, making the “economic dig distance” far shorter than 100 metres. As a result, ComReg reduced the radial distance criterion to 50 metres in its 2020 Decision.
- 4.89 In their responses to the QQ, a number of SPs were happy with the distance criterion applied in the 2020 Decision. Vodafone stated that it [REDACTED]
- [REDACTED]
- [REDACTED]²³⁴. Virgin Media also stated that it did [REDACTED]

²³⁴ From Vodafone response to QQ, question 22

- [REDACTED] ²³⁵.
- 4.90 Some SPs disagreed with the 50 metre distance criterion. Eircom were of the view that it was too low due to developments of the CEI access products and stated that [REDACTED]
- [REDACTED] ²³⁶. ComReg is of the view that the CEI access products are at their early stage of the deployment and the take-up is still low, with the exception of NBI. Therefore, ComReg does not consider a distance of [REDACTED] [REDACTED] metres, as suggested by Eircom as an appropriate distance criterion.
- 4.91 Enet is of the view that it is more appropriate for the criteria to have regards to access to alternative network chambers, they noted that [REDACTED]
- [REDACTED] ²³⁷.
- 4.92 ComReg disagrees with Enet's argument, which relates to whether an access seeker (such as Enet) could extend its network using the PI of another SP. The 50 metre distance criterion, however, relates primarily to the ease with which the ANs in close proximity to the end-user's premises could extend their own networks to serve this location. As to the point raised by Enet, ComReg cannot analyse the access procedure to each premises which may be adopted by every SP having regard to the particular conditions they may attach to allow access by third parties to their physical infrastructure. Some SPs may only allow access to their PI at their chambers while others may allow ASs to drop new chambers or install duct without using chambers. Otherwise, this could mean treating every premises as a separate market

²³⁵ From Virgin Media response to QQ, question 22

²³⁶ From Eircom response to QQ, question 22

²³⁷ From Enet response to QQ, question 22.

which is not feasible. ComReg believes that maintaining the 50 metre criteria remains a reasonable approach.

- 4.93 In light of the above, ComReg considers that the 50 metre radial distance criterion remains appropriate.

Proportionality Criterion

- 4.94 In this section ComReg examines what proportion of premises should meet the 50 metre distance criterion in a WPZ such that that WPZ can be considered to have sufficiently different competitive conditions to form part of a separate geographic market (we refer to this as the ‘proportionality criterion’). In the 2020 Decision ComReg decided that the most reasonable proportionality criterion was 75%.

- 4.95 In its “comments letter”²³⁸, in response to ComReg’s notification of the draft measures that were ultimately adopted in the 2020 Decision, the EC stated, under the heading “**Need for forward-looking and dynamic market analysis**”:

“The Commission takes note of ComReg’s approach in defining four separate sub-national geographical markets for modern interfaces based on ComReg’s criteria. It further notes that, while the criteria might be considered rather conservative¹⁶, variations of the selected threshold of 75% of premises connected to two or more networks do not appear to have a significant impact on the number of WPZs belonging to either the competitive or uncompetitive areas.”

- 4.96 Looking at the international experience, we note that Ofcom used a network coverage of 65%²³⁹ in its analysis. Ofcom considered that if rival networks were able to supply more than 65% of large business sites in an area, the area can be sufficiently considered covered by rival networks and that it distinguishes such areas from areas that do not meet this criterion. On the other hand, TKK, the Austrian regulator, applied a 25%²⁴⁰ AN coverage criterion. ComReg notes that although Austria’s proportionality criterion is low, it has other criteria in place, for example, whether the incumbent’s market share is below 50%.

²³⁸ EC Case IE/2029/2214 Published 3 December 2019.

²³⁹ Ofcom Business Connectivity Market Review 2028.

²⁴⁰ [29297 \(cullen-international.com\)](https://www.cullen-international.com).

- 4.97 There is no precise number when it comes to determining the appropriate proportionality criterion. The proportionality criterion is essentially determining how much of the premises in a WPZ an AN would need cover to be considered to be a competitive constraint so as to change the competition conditions of the WPZ. ComReg considers that a 60% threshold to be appropriate, as it means that an AN is able to cover a clear majority of premises in a WPZ and therefore is suggestive of sufficient differences in the conditions of competition in that WPZ relative to those that do not meet this criterion. A threshold of above 60% is also sufficient but not necessary. In contrast, a 50% threshold is considered too low as half of the premises would have no access to an AN. On that basis, ComReg considers a 60% threshold is the appropriate criterion.
- 4.98 ComReg has conducted a sensitivity analysis using a threshold of 75%, 65%, 60% and 50% (see Annex: 2). ComReg has found that the geographic boundaries and SPs market shares do not change significantly when the threshold is reduced gradually from 75% to 50%. ComReg is therefore satisfied that the 60% proportionality criterion is robust.
- 4.99 In their responses to the QQ, some SPs expressed concerns about the use of 75% as the proportionality criterion. Eircom noted that the 75% figure was considered conservative and stated in their response that “[REDACTED]”²⁴¹.
- 4.100 Enet also voiced concerns about the 75% proportionality criterion, suggesting an additional criterion using business premises be introduced. It stated “[REDACTED]”²⁴². ComReg rejects the suggestion of the additional “[REDACTED]” criterion as only a small proportion of all businesses require LLs and it is not possible to identify such potential demand in a reliable manner.
- 4.101 Further, ComReg notes its attempts detailed in the 2020 Decision to use NACE²⁴³ codes, the Irish Times top 1,000 business list and business locations extracted from the Eircode database to generate a database of

²⁴¹ From Eircom response to QQ, question 22.

²⁴² From Enet response to QQ, question 22.

²⁴³ European Industrial Activity Classification.

potential LL customer locations. ComReg compiled a list of 15,000 business locations of forecast demand, referred to as the “Organisations” database. However, these efforts were abandoned for a number of reasons, mainly due to the very low correlation between the forecast and the actual demand which manifested at a later date. Other significant challenges encountered were the absence of locations in the Irish Times data and ambiguity in NACE code classifications. For instance, a local pharmacy could have the same code as a major pharmaceutical production facility. Further details can be found in Annex 1²⁴⁴ of the 2020 Decision.

- 4.102 In light of the above, ComReg is of the view that a criterion at 60% is fair and reasonable.

Business Parks Test

- 4.103 In the 2020 Decision, ComReg introduced a “Business Parks” test to address contiguity issues whereby WPZs that failed the above criteria but overlapped with Business Parks with multiple ANs present, were deemed to pass the test. ComReg assessed geographic differences over time and was of the view that there were certain areas such as business parks²⁴⁵ and data centres²⁴⁶ and campuses of 3rd level educational establishments, collectively referred to as ‘Business Parks’²⁴⁷ as areas likely to hold high concentration of AN infrastructure due to higher demand in such areas. To address the contiguity issues, ComReg decided that any WPZ that overlapped with a Business Park which passed the 2 AN test would be considered as having met the criteria, i.e., the Business Park Test.
- 4.104 The list of business parks and commercial areas subjected to this test in the algorithm were listed in Section 5.4 of Annex 4 of the 2020 Decision. This list has been updated and is contained in Annex: 3 of this Consultation.
- 4.105 ComReg is of the view that it remains appropriate to include the Business Parks Test in the current market review. The supply and demand conditions

²⁴⁴ Section A.1.5 Summary and Assessment of Respondent Views in relation to the Geographic scope of the relevant WHQA Markets.

²⁴⁵ Business parks are sites that contain clusters of typically commercial businesses. They tend to be located in suburban areas and near to main roads. As these tend to group similar types of end-user demand (i.e. corporate or IT specific firms) in one location, the costs for operators connecting to these sites are lower compared to areas where end-user premises are more dispersed.

²⁴⁶ Data centres, in the broadest sense, are premises whose main purpose is to house computing and communications equipment in secure locations and which therefore require very high capacity LL as well as dark fibre to carry data to and from their facilities.

²⁴⁷ 209 such Business Parks was listed in Appendix 5 of the 2016 Consultation.

of many business parks remain sufficiently different due to high level of economic activity and AN infrastructure presence.

“Islands” Test

- 4.106 A similar issue also arises in respect of WPZs that failed the criteria above even though all surrounding WPZs met the criteria (“Islands”). In the 2020 Decision, ComReg considered it reasonable that ANs could extend their networks to meet demand in these Islands. As such, the conditions of competition in these Islands are sufficiently similar to those surrounding them, that they should be considered part of the same geographic market.
- 4.107 ComReg is of the view that it remains appropriate to include the Island Test in the current market review to address the contiguity issues.

4.4.4. Mapping Process

- 4.108 In this subsection, ComReg sets out the methodology it has employed in mapping the supply and demand conditions in WPZs according to the geographic assessment criteria set out above.

Mapping of Supply

- 4.109 Firstly, ComReg describes the process of mapping SPs’ networks. ComReg requested networks maps from the SPs in its SIRs issued on 25 July 2022²⁴⁸. ComReg received network maps from the following SPs:
- (a) Aurora;
 - (b) BT;
 - (c) Colt;
 - (d) Digiweb;
 - (e) Enet;
 - (f) ESBT;
 - (g) EU Networks;
 - (h) Hibernia;
 - (i) Host;
 - (j) Magnet;
 - (k) SIRO;

²⁴⁸ SIRO submitted an updated map on 22 April 2024 upon request from ComReg to reflect SIRO’s recent rollout.

- (l) Verizon;
 - (m) Viatel;
 - (n) Virgin Media;
 - (o) Vodafone; and
 - (p) Zayo
- 4.110 ComReg has not mapped Eircom’s network as it considers Eircom to have a ubiquitous network due to its extensive duct and pole network. As such Eircom can reach most premises in the State within a reasonable timeframe.
- 4.111 ComReg notes it is not feasible to distinguish which side of the road the network was running on, and indeed many networks are routed along the centre of roadways. For this reason, ComReg considers that it is appropriate to allocate a ‘thickness’ or effective width of 20 metres to the SPs’ networks. This also takes into account the fact that the majority of Eircodes (which can be used to derive the location of a connected premises) use the centroid of premises rather than their perimeter for their location coordinates.
- 4.112 These network maps were then refined to remove SPs’ core network elements, as ComReg considers that it is unlikely that local network access break-out from those locations is possible. For example, core networks that are routed along mainline railways, motorways and high-tension electricity pylons or co-located with high pressure cross-country gas pipes, typically cannot facilitate break-out locations from which LLs services could be provided.
- 4.113 Some portions of SPs’ networks routed on national primary roads (“N routes”) are also treated in this manner as road openings on N routes are subject to a 3-month wayleave period by Transport Infrastructure Ireland (“TII”). As such they cannot be accessed in a timely fashion to allow many SPs to bid for retail LL contracts. Many such routes traverse exclusively agricultural areas and are used for backhaul and rarely, if ever, are used to connect customers’ locations.
- 4.114 However, it should be noted that such core network elements were taken into account when considering the availability of alternative backhaul services. This allows us to gauge whether or not local access networks have access to backhaul services, including those that could be self-provisioned.

Mapping of Demand – Connected Premises

- 4.115 Below ComReg details its approach to mapping the current demand for MI LLs (both wholesale and retail) in the State. As in the 2020 Decision, the current demand is in the form of a list of premises currently connected with LL services.

4.116 ComReg collects LL data on a regular basis through SIRs. As a result of the difficulties encountered in obtaining and verifying geolocation information from the SPs, a complete dataset, including reliable geolocation information, has only been available to ComReg since April 2024. This dataset used for analysis in this Consultation is the H2 2023 dataset. However, the data used for Dark Fibre connected premises which was included in the dataset used in our calculations, was for Q3 2022, which had some quality issues which were addressed in as far as possible at the time. ComReg has issued a new Dark Fibre data request for H1 2024 which requires detailed and accurate geolocation information and it will be refreshed in future with LL data requests, for use in the decision.

4.117 Following data cleansing, where duplicates were removed²⁴⁹ and premises that could not be located were disregarded²⁵⁰ owing to SPs’ poor geolocation data, there are 14,811 premises connected by wired MI WDC²⁵¹ as of H2 2023.

Table 14: Premises Served by MI WDC Network, H2 2023 [X PARTIALLY REDACTED X]

Service Provider	Premises served by MI WDC Network
Aurora	[REDACTED]
BT	[REDACTED]
COLT	[REDACTED]
Eircom	[REDACTED]
Enet	[REDACTED]
ESBT	[REDACTED]
EU Networks	[REDACTED]
Hibernia	[REDACTED]
Host	[REDACTED]
SIRO	[REDACTED]
Verizon	[REDACTED]
Viatel	[REDACTED]
Virgin Media	[REDACTED]
Vodafone	[REDACTED]
Zayo	[REDACTED]
Total	14,811

²⁴⁹ Duplicated inputs refer to the same premises that appear more than once in a particular SP’s information. The number of duplicates removed for the purpose of this analysis was 9,852.

²⁵⁰ 24 premises were not included in the analysis due to poor or insufficient geolocation data being provided by SPs.

²⁵¹ Includes Dark Fibre connections supporting these services.

4.4.5. Treatment of National Broadband Ireland in Geographic Market Assessment

- 4.118 As noted in section 3.4.4, one of the notable developments since the 2020 Decision is the ongoing rollout of the NBP²⁵² in the IA area. Although the IA is identified as areas of market failure in the provision of high-speed broadband, NBI is required or permitted to provide a number of wholesale LL products in the IA.
- 4.119 NBI is expected to complete its rollout in 2027. As of Q3 2024 the take up of NBI LLs is very low (single digits). However, ComReg is required to take a forward-looking view in conducting its market review, and therefore takes the following approach to take account of NBI's potential impact on the WDC market.
- 4.120 First, ComReg proposes to assess NBI's impact after assessment using the criteria described in section 4.4.3. This is because NBI's presence is unlikely to materially change the competition conditions in areas already meeting the criteria. ComReg will focus on the areas that fail the criteria and examine if NBI's rollout will change the competition conditions in these areas.
- 4.121 Second, ComReg does not consider it appropriate to map NBI's network the same way as it maps other networks given that NBI is only permitted to provide LL services to premises included on the NBI IA list of premises²⁵³. Even if a premises is close to NBI's network, it cannot be served by NBI unless it is a premises designated as falling within the IA premises list.
- 4.122 ComReg therefore adopts the following approach having regard to the circumstances of NBI:
- (a) In WPZs where there is at least 1 CP and where a CP is on the IA list of premises, we make the assumption that NBI's network is also at that premises (as NBI is obliged to connect it if so required by the customer). We recognise that NBI's network may not yet be available at a particular location today, but it will be by 2027 at the latest. NBI is therefore treated as an AN at these premises.

²⁵² See earlier discussions on NBP at paragraphs 3.54 to 3.62.

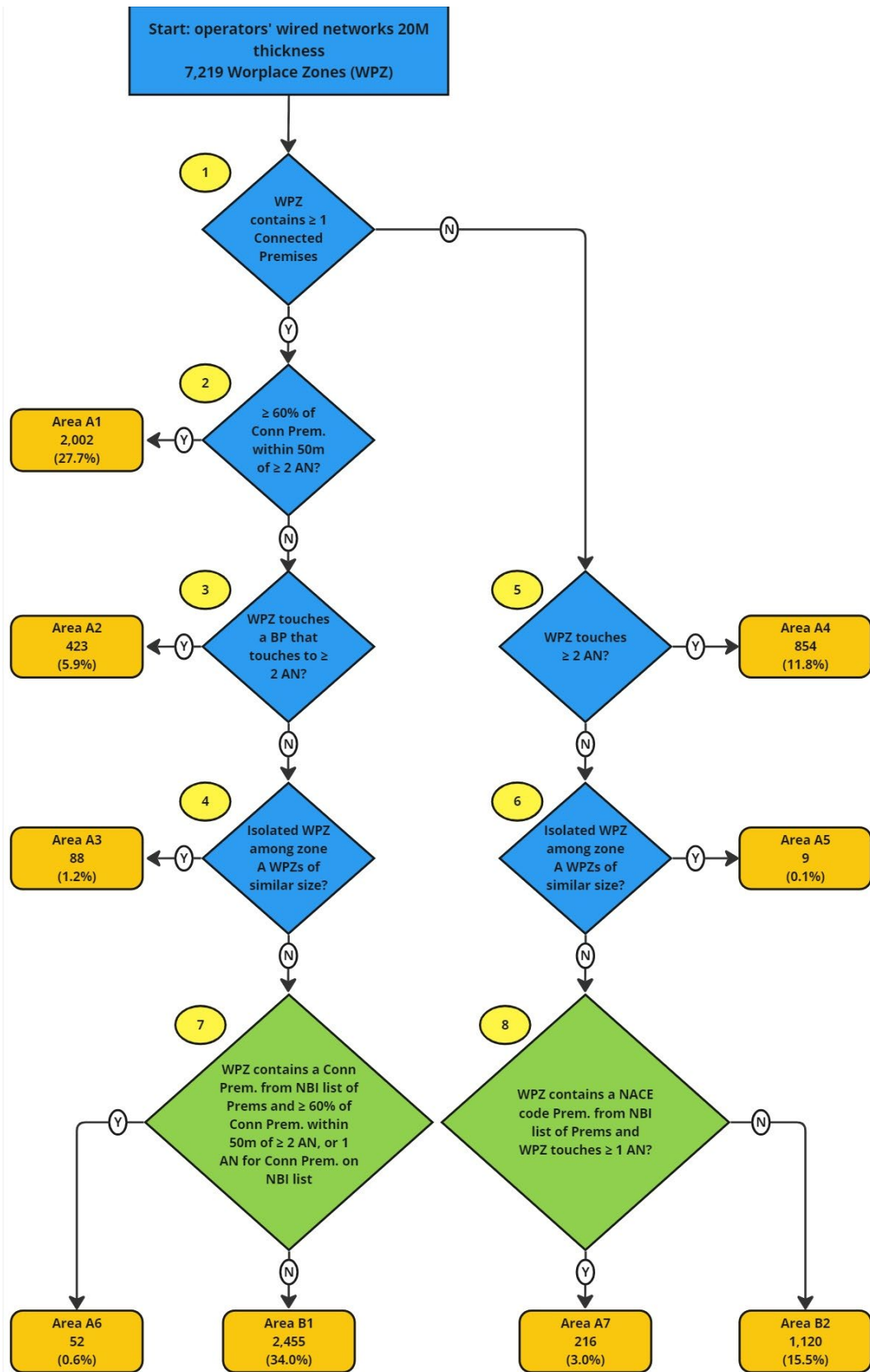
²⁵³ With the exception of [redacted] identified by NBI within the IA area. NBI are permitted to provide mast backhaul to these sites on a self-funded basis.

- (b) In WPZs where there are no CPs, the test is whether the WPZ intersects with two ANs. As noted in paragraph 4.121, it is not appropriate to map NBI's network the same way as other networks are mapped and a proxy is required to represent NBI's network presence in these WPZs. We recognise that most of the IA premises are residential premises which are unlikely to require LL services. We remove these residential premises from the IA list using NACE codes. We also remove farms from the list as they are unlikely to require LLs. We deem NBI's network to be present at the remaining business premises (again, as NBI is obliged to provide LL if so required) and treat NBI as an AN having a presence there. We recognise, as set out earlier, NACE codes are not a good proxy for LL demand, but the exercise is not concerned with demand, but with NBI's network presence at business premises.

4.4.6. The Algorithm for Applying the Criteria for the Geographic Market Analysis

- 4.123 The flowchart of the operation of the algorithm for the geographic market analysis in this Consultation (the "Algorithm") is illustrated in Figure 15 below.

Figure 15: Flowchart of the Algorithm



- 4.124 As shown in the diagram, steps 1-4 relate to WPZs with at least one CP, steps 5 and 6 relate to WPZs with no CP, and steps 7 and 8 are carried out to assess NBI's impact on the geographic market. For further information, see sequence of the Algorithm for Applying the Geographic Assessment Criteria set out Annex: 4.
- 4.125 In total, the Algorithm produces nine areas based on variances in conditions of competition²⁵⁴:
- (a) **Area A1**²⁵⁵: consists of 2,002 WPZs within which a minimum of 60% CPs are within 50 metres of two ANs;
 - (b) **Area A2**²⁵⁶: consists of 423 WPZs which overlap with a Business Park which in turn intersects/passed by two or more ANs;
 - (c) **Area A3**²⁵⁷: consists of 88 WPZ Islands which are entirely surrounded by WPZs that have met the criteria and are therefore considered to meet the criteria as well;
 - (d) **Area A4**²⁵⁸: consists of 854 WPZs which do not contain CPs but which touch two ANs;
 - (e) **Area A5**²⁵⁹, consists of 9 WPZs which do not contain CPs but passed the Islands test;
 - (f) **Area A6**²⁶⁰, consists 52 WPZs where NBI network is considered to be present. These WPZs are deemed meet the criteria after taking account of NBI's presence;
 - (g) **Area A7**²⁶¹: consists of 216 WPZs which do not contain CPs but NBI is considered to be present along with 1 AN;
 - (h) **Area B1**²⁶²: consists of 2,455 WPZs which contain at least one CP but have failed the criteria, even after taking account of NBI's network presence.

²⁵⁴ See a list of WPZs and a map indicating area types in Annex: 5 and Annex: 6.

²⁵⁵ Refer to the Algorithm flowchart in Figure 15.

²⁵⁶ *Ibid.*

²⁵⁷ *Ibid.*

²⁵⁸ *Ibid.*

²⁵⁹ *Ibid.*

²⁶⁰ *Ibid.*

²⁶¹ *Ibid.*

²⁶² *Ibid.*

- (i) **Area B2**²⁶³: consists of 1,120 WPZs which do not contain CPs but have failed the criteria, even after taking account of the impact of NBI's presence.

4.126 It should be noted that Area B1 contains a small subset of CPs that fall within the IA list of premises. ComReg recognises that the conditions of competition for these premises may be somewhat different compared to the rest of Area B1, but the differences are not sufficient to suggest a separate geographic market. Instead, these differences are addressed as part of the pricing remedies design as discussed in Chapter 7.

4.4.7. Definition of the Geographic Markets

4.127 ComReg has grouped WPZs with similar competition conditions and defined four separate markets. ComReg considers that each of these markets has sufficiently homogenous conditions of competition and can be distinguished from the other markets in which the prevailing conditions of competition are appreciably different.

4.128 The geographic markets determined are as follows:

- (a) **MI WDC Market 1:** Comprised of four areas: Area A1, Area A2, Area A3, and Area A6. These areas contain a total of 2,565 WPZs, all of which contain CPs and have satisfied the criteria set out in section 4.4.3²⁶⁴.
- (b) **MI WDC Market 2:** Comprised of only one area, Area B1, which has a total of 2,455 WPZs which contain connected premises but fail the criteria set out in section 4.4.3²⁶⁵.
- (c) **MI WDC Market 3:** Comprised of three areas: Area A4, Area A5 and Area A7. These areas contain a total of 1,079 WPZs with no CPs that have satisfied the criteria set out in section 4.4.3²⁶⁶; and
- (d) **MI WDC Market 4:** Comprised of only one area, Area B2, with a total of 1,120 WPZs which contain no connected premises and have failed the assessment criteria set out in section 4.4.3²⁶⁷.

²⁶³ *Ibid.*

²⁶⁴ This is a 62.1% increase from a total of 1,582 WPZs in this market in the 2020 Decision.

²⁶⁵ This is a 22.9% increase from a total of 1,998 WPZs in this market in the 2020 Decision.

²⁶⁶ This is a 6.5% decrease from a total of 1,153 WPZs in this market in the 2020 Decision.

²⁶⁷ This is a 54.9% decrease from a total of 2,486 WPZs in this market in the 2020 Decision.

4.129 The MI WDC Markets 1 to 4 are referred to together in this Consultation as the '**MI WDC Markets**'. As noted later in Section 5, following the SMP assessment, for the purpose of considering competition problems and the imposition of remedies, as appropriate:

- (a) The MI WDC Market 1 and 3 are collectively referred to in this Consultation as the '**Zone A MI WDC Markets**'; and
- (b) The MI WDC Market 2 and 4 are collectively referred to in this Consultation as the '**Zone B MI WDC Markets**'.

Q. 4 Do you agree with ComReg's geographic market assessment for the Relevant WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views.

4.5 The Trunk – Terminating Boundaries of the MI WDC Markets

4.5.1. Definition

4.130 The trunk-terminating boundary between networks delineates parts of a network that may face different competitive conditions of supply. In trunk networks, SPs may be able to aggregate traffic at relevant network points and so can exploit greater economies of scale, scope and density to overcome barriers to entry.²⁶⁸

4.131 In relation to the MI WDC markets, these trunk markets are effectively adjacent to the terminating MI WDC segments, as SPs require both terminating and trunk segments to complete LL end-to-end connectivity.

4.132 In the 2020 Decision ComReg defined Trunk Nodes as Eircom aggregation nodes with at least two ANs (other than Eircom) having either already established interconnection with Eircom or having infrastructure sufficiently close²⁶⁹ to Eircom Aggregation Nodes²⁷⁰ which could reasonably facilitate

²⁶⁸ For example, SPs can use the trunk network to aggregate traffic for other services including (but not limited to) broadband and telephony.

²⁶⁹ A distance of 100 metres.

²⁷⁰ There are currently 191 Eircom Aggregation Nodes. Under the 2020 Decision, 93 of these were designated as Trunk Nodes.

interconnection services with Eircom²⁷¹. ComReg identified 93 such Trunk Nodes and delineated the Trunk Market as the traffic traversing between each of the Trunk Nodes, irrespective of bandwidths. In practice, this means that the terminating segment of the LL runs from the connected premises up to and including a serving Trunk Node.

- 4.133 In this subsection ComReg sets out its assessment of the trunk market in respect of the MI WDC Market in the current market review.

4.5.2. Assessment of the Trunk Market

- 4.134 ComReg considers that the criteria used in the 2020 Decision to define Trunk Nodes remain appropriate. The two AN criterion ensures that there are at least three networks (including Eircom) available to offer backhaul services from each of the Trunk Nodes and to establish interconnection with Eircom. ComReg also proposes to continue to apply a 100 metre criterion for interconnection, as opposed to the 50 metre criterion used in the Algorithm in the geographic market assessment for individual CPs. This is because Eircom Aggregation Nodes are network points where traffic from multiple LLs from various CPs (and other services such as WLA) will be handed over and therefore offers greater economies of scale and scope opportunities. It makes more economic sense for SPs to dig a longer distance. Additionally, plans by SPs to establish new points of interconnection with other networks are part of strategic high level network designs, and so are not under the same time constraints which can regularly apply in the case of LL/WDC customer connections. Interconnects may be subject to a three month notification commencement period which often apply to civil engineering digs over 100 metres as required by local authorities²⁷². However, these lengthier lead-times can more readily be absorbed as part of network expansion plans, which by their nature, involve longer term planning. For these reasons, ComReg considers the 100 metre distance is appropriate.
- 4.135 ComReg has conducted a sensitive analysis by applying a 150 metre criterion. The increase in the number of Trunk Nodes is very small (6 non-Trunk Nodes would move to Trunk Nodes). This means that the 100 metre criterion is robust.

²⁷¹ In addition, ComReg took into account backhaul networks and SPs which already have interconnections in place with a minimum of 3 backhaul providers.

²⁷² The 100 metre distance applied here is the radial distance, or the “crow flies” distance. Network dig distances will not typically follow the “crow flies” route, but the “dog walks” distance, which is usually longer than the former. Therefore a “crow flies” distance of 100 metres generally involves a dig distance of over 100 metres, which requires a three month notification period as required by local authorities.

- 4.136 Applying the above criteria, ComReg has identified 131 Trunk Nodes out of total of 191 Eircom aggregation nodes, which are listed in Annex: 8. All other aggregation nodes are designated as non-Trunk Nodes. There is a significant increase in the number of Trunk Nodes as compared with the 2020 Decision (93 Trunk Nodes), indicating development in the trunk market in recent years due to network build and expansion.
- 4.137 ComReg maintains the view in the 2020 Decision that there is no need for a bandwidth break for the trunk market. As discussed in section 4.3.5, a chain of substitution exists between all bandwidths of MI WDC products and this equally applies to the trunk market.
- 4.138 Based on the above, ComReg's position is that the trunk market should include all MI WDC irrespective of bandwidths between each of the Trunk Nodes set out in Annex: 8 of this Consultation.
- 4.139 ComReg is aware that potential developments in the Irish market such as a change in ownership of particular SPs could have and the implications this may have on the MI WDC and the trunk market. ComReg will monitor the situation closely and take into account any material developments in the final Decision.
- 4.140 ComReg also intends to continue to closely monitor developments in the WDC markets over the market review period and if market outcomes appear to be materially different ComReg may, at its sole discretion, decide whether to commence a fresh market review earlier than planned.

Q. 5 Do you agree with ComReg's assessment of the Trunk – Terminating Boundaries of the MI WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views.

Chapter 5

5. Competition Analysis – SMP Assessment

5.1 Overview

- 5.1 In this Section, ComReg sets out its position in relation to the assessment of competition and SMP in the Relevant WDC Markets defined in Chapter 4.
- 5.2 In summary, ComReg has formed the view that:
- (a) No Undertaking has SMP in MI WDC Market 1;
 - (b) Eircom has SMP in MI WDC Market 2;
 - (c) No Undertaking has SMP in MI WDC Market 3; and
 - (d) Eircom has SMP in MI WDC Market 4.
- 5.3 This Section is organised as follows: subsection 5.2 sets out the framework for assessing SMP; subsections 5.3 to Section 5.7 set out ComReg’s assessment of SMP in each of the defined Relevant WDC Markets, and subsection 5.8 designates Eircom with SMP in MI WDC Market 2 and MI WDC Market 4.

5.2 Assessment framework

- 5.4 Given that the WDC market is identified in the 2020 Recommendation as a market susceptible to *ex ante* regulation, it is not necessary to carry out a three criteria test (**‘3CT’**) before advancing to the SMP assessment, as the presumption in favour of regulation is already met at EU level by means of the 2020 Recommendation and Regulation 49(4) of the ECC Regulations. ComReg is entitled to form a presumption that regulation of the WDC markets is – in principle – warranted, and can therefore proceed to assess whether, based on the evidence available to it, there are grounds to conclude that an SP has SMP in each of the WDC Markets.
- 5.5 However, even if a 3CT was to be carried out, ComReg considers it would be passed in any event as demonstrated in the SMP assessment in MI WDC Market 2 (Subsection 5.5) and MI WDC Market 4 in (Subsection 5.7), which substantially overlaps with an assessment of the criteria which are the subject of a 3CT.
- 5.6 The European regulatory framework for electronic communications networks and services has aligned the concept of SMP with the competition law

definition of dominance advanced by the Court of Justice of the European Union in *United Brands v. Commission*:²⁷³

“The dominant position referred to [by Article 102 of the Treaty on the Functioning of the European Union] relates to a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its end users.”

5.7 Regulation 45(2) of the ECC Regulations effectively mirrors this definition of dominance and states that:

“An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.”

5.8 The European Commission’s SMP Guidelines, of which ComReg is required to take utmost account, describe a range of criteria that may be considered by NRAs when seeking to establish whether an undertaking(s) has SMP in a relevant market.

5.9 The SMP Guidelines state that:

“According to established case-law, very large market share held by an undertaking for some time — in excess of 50 % — is in itself, save in exceptional circumstances, evidence of the existence of a dominant position. Experience suggests that the higher the market share and the longer the period of time over which it is held, the more likely it is that it constitutes an important preliminary indication of SMP.”²⁷⁴

5.10 Market shares in excess of 50% therefore give rise to a strong presumption of SMP. However, the SMP Guidelines also state that the existence of a high market share alone is not sufficient to establish the existence of SMP; rather it means that the undertaking concerned *may* be in a dominant position and

²⁷³ Case 27/76 *United Brands v European Commission* [1978] ECR 207, Paragraph 65. See also paragraph 52 of the SMP Guidelines.

²⁷⁴ Paragraph 55 of the SMP Guidelines.

this needs to be considered alongside other potentially relevant criteria for assessing the existence of SMP, such as:

- (a) Overall size of the undertaking;
- (b) Control of infrastructure not easily duplicated;
- (c) Technological advantages or superiority;
- (d) Absence of, or low, countervailing buyer power;
- (e) Easy or privileged access to capital markets or financial resources;
- (f) Product/services diversification (e.g. bundled products or services);
- (g) Economies of scale;
- (h) Economies of scope;
- (i) Vertical integration;
- (j) A highly developed distribution and sales network;
- (k) Absence of potential competition; and
- (l) Barriers to entry and expansion.

5.11 The relative importance of each factor may vary from one analysis to another as the characteristics or dynamics of the market under assessment change. Consequently, flexibility is needed in applying the above criteria. In particular, ComReg considers that factors (a), (b), (d), (g), (h), (i), (k) and (l) above are most relevant to the analysis of SMP in the Relevant WDC Markets. The other factors are considered of less (or no) relevance for the purposes of the SMP assessment in the Relevant WDC Markets. The reasons are set out in Annex: 7²⁷⁵.

5.12 In addition, many of the above factors, while presented separately, may, in fact, be interrelated and all available evidence is considered by ComReg collectively before a determination on SMP is made. The SMP Guidelines note that:²⁷⁶

“A dominant position can derive from a combination of the above criteria, which taken separately may not necessarily be determinative.”

²⁷⁵ Due to the lack of pricing information that is readily comparable across WDC services (noting services can be sold as part of a bundle of services and have variable factors such as distance) ComReg has not assessed factors such as historical and future pricing behaviour.

²⁷⁶ Paragraph 79 of the 2020 Explanatory Note.

- 5.13 Given an inherent degree of overlap, ComReg proposes to combine its assessment of these factors under the following three broad headings:
- (a) Existing competition in the Relevant WDC Markets: an assessment of factors such as market shares, relative strength of existing competitors, barriers to expansion (including economies of scale, scope and density), vertical integration, and indirect constraints;
 - (b) Potential competition in the Relevant WDC Markets: an assessment of factors such as control of infrastructure not easily duplicated, economies of scale, scope and density, barriers to entry in the Relevant WDC Markets, as well as considering the overall strength of potential competitors; and
 - (c) Strength of any countervailing buyer power ('**CBP**'): an assessment of the impact posed by any strong buyers of the Relevant WDC products on the competitive behaviour of the Relevant WDC SPs.

5.3 Overview of the WDC Markets in Ireland

- 5.14 Before examining the competition conditions and SMP in each of the Relevant WDC Markets, we first provide an overview of the markets in Ireland as a whole. As shown in Table 15, there are many SPs active in the supply of MI WDC products, including among others Eircom, BT, Enet, Virgin Media, SIRO and Colt. Apart from Eircom, most network operators do not have national coverage, and smaller network operators mostly focus on major business parks, urban or commercial areas.
- 5.15 Overall, there are a total of 14,811²⁷⁷ premises currently served with fixed MI LLs in Ireland. Eircom is by far the largest operator connecting these premises, accounting for [redacted]²⁷⁸ of the overall market. Eircom's market share almost double its closest competitor, Enet, which supplies [redacted]²⁷⁹ of the national market, while the rest of the network operators all have a market share below 10%.

²⁷⁷ Includes DF connected premises at Q3 2022 with duplicate premises removed.

²⁷⁸ Between 40% and 50%.

²⁷⁹ Between 20% and 30%.

Table 15: Share of the Total Connected Premises²⁸⁰, H2 2023 [REDACTED]

Network Operator	Premises supplied	Market Share
Eircom	[REDACTED]	[REDACTED] ²⁸¹
Enet	[REDACTED]	[REDACTED] ²⁸²
BT Ireland	[REDACTED]	[REDACTED] ²⁸³
Virgin Media	[REDACTED]	[REDACTED] ²⁸⁴
SIRO	[REDACTED]	[REDACTED] ²⁸⁵
Colt	[REDACTED]	[REDACTED] ²⁸⁶
ESBT	[REDACTED]	[REDACTED] ²⁸⁷
EU Networks	[REDACTED]	[REDACTED] ²⁸⁸
Verizon	[REDACTED]	[REDACTED] ²⁸⁹
Vodafone	[REDACTED]	[REDACTED] ²⁹⁰
Host Ireland	[REDACTED]	[REDACTED] ²⁹¹
Aurora	[REDACTED]	[REDACTED] ²⁹²
Zayo	[REDACTED]	[REDACTED] ²⁹³
Hibernia Atlantic/EXA	[REDACTED]	[REDACTED] ²⁹⁴
Viatel	[REDACTED]	[REDACTED] ²⁹⁵
Total	14,811	100.0%

5.4 SMP Assessment in MI WDC Market 1

5.4.1. Existing Competition in MI WDC Market 1

5.16 For the purpose of assessing existing competition, ComReg examines factors such as market shares and the presence of competing ANs, vertical integration, and barriers to expansion in MI WDC Market 1.

²⁸⁰ SIR, LL H2 2023 and SIR Dark Fibre Q3 2022 with duplicate premises removed.

²⁸¹ Between 40% and 50%.

²⁸² Between 20% and 30%.

²⁸³ Between 0% and 10%.

²⁸⁴ Between 0% and 10%.

²⁸⁵ Between 0% and 10%.

²⁸⁶ Between 0% and 10%.

²⁸⁷ Between 0% and 10%.

²⁸⁸ Between 0% and 10%.

²⁸⁹ Between 0% and 10%.

Market Shares and Presence of ANs

5.17 In MI WDC Market 1, ComReg estimates that there are a total of 9,371 premises supplied with MI WDC services, representing 63.3% of total CPs in Ireland in H2 2023²⁹⁶ (see Figure 16 below). Eircom has the largest market share in this market, at [3< [REDACTED] 3<]²⁹⁷. Enet is the second largest operator in this market, with a market share of [3< [REDACTED] 3<]^{298 299}. There are also a number of other sizeable network operators that provide MI WDC services in this market, including BT, SIRO, Virgin Media and Colt.

²⁹⁰ Between 0% and 10%.

²⁹¹ Between 0% and 10%.

²⁹² Between 0% and 10%.

²⁹³ Between 0% and 10%.

²⁹⁴ Between 0% and 10%.

²⁹⁵ Between 0% and 10%.

²⁹⁶ Includes Dark Fibre connected premises at Q3 2022.

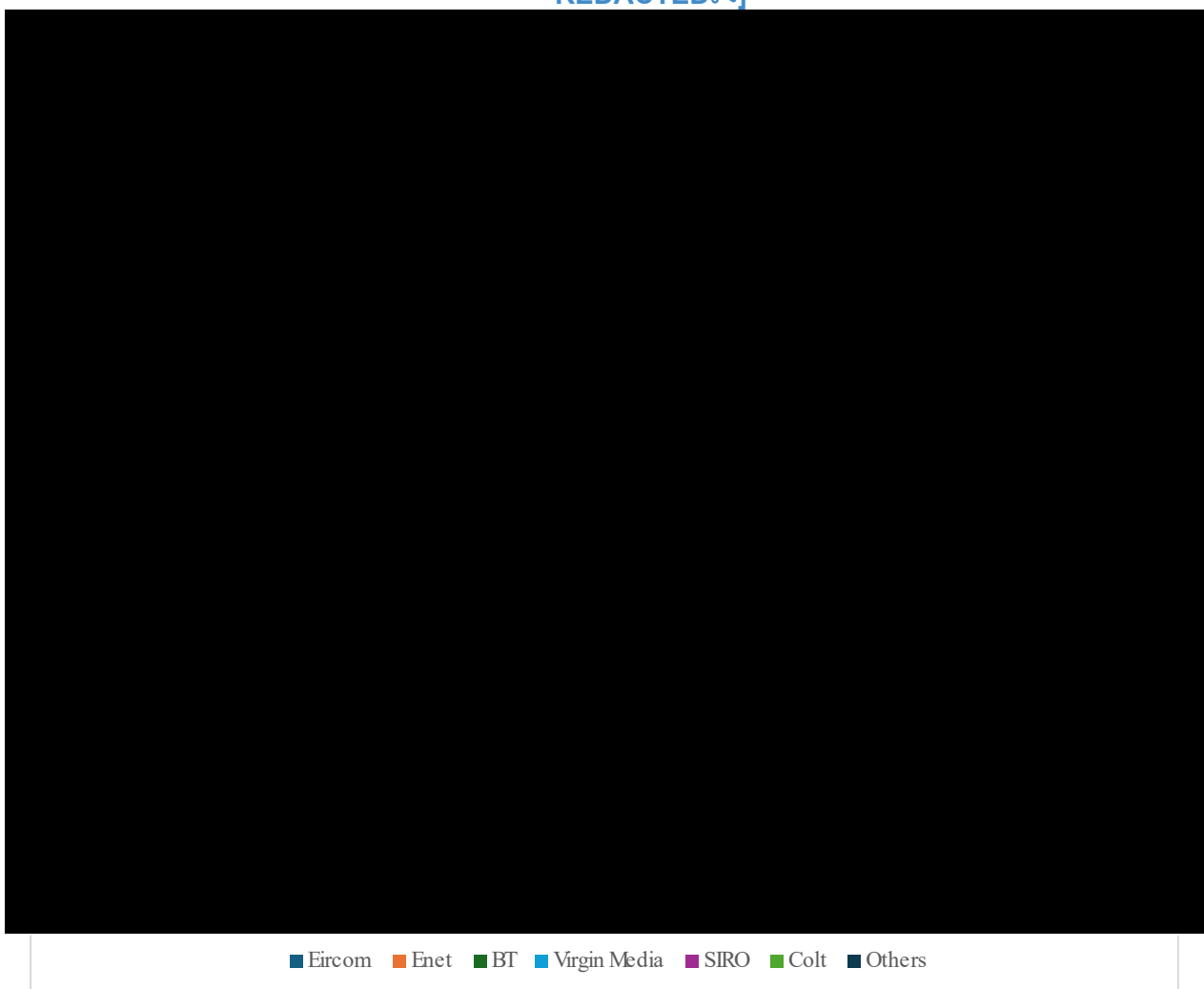
²⁹⁷ Between 30% and 40%.

²⁹⁸ Between 20% and 30%.

²⁹⁹ [3< [REDACTED]

[3< [REDACTED]

Figure 16: Market Shares in the MI WDC Market 1, H2 2023 [REDACTED]



5.18 Eircom's market share was well below 50%, the threshold for a presumption of a finding of SMP. As shown in Table 16 below, Eircom market share has remained largely stable since 2018³⁰⁰ ³⁰¹. The market share differences between Eircom and its competitors' market shares means that these competitors are likely able to exert a reasonable competitive constraint on Eircom.

³⁰⁰ Between 30% and 40%.

³⁰¹ The boundaries of MI WDC Market 1 have expanded significantly since the 2020 Decision (see footnote 264). The comparison shown in Table 16 is therefore not a like-for-like comparison. In order to make like-for-like comparisons, ComReg has calculated market shares for 2018 and H1 2023 based on MI WDC Market 1 defined using H2 2023 data. The results are very similar to those shown in Table 16.

Table 16: Market shares in M1 WDC Market 1, 2018, H1 and H2 2023
[PARTIALLY REDACTED]

Operator	2018	H1 2023	H2 2023
Eircom	[REDACTED] ³⁰³	[REDACTED] ³⁰⁴	[REDACTED] ³⁰⁵
Enet	[REDACTED] ³⁰⁶	[REDACTED] ³⁰⁷	[REDACTED] ³⁰⁸
BT	[REDACTED] ³⁰⁹	[REDACTED] ³¹⁰	[REDACTED] ³¹¹
Virgin Media	[REDACTED] ³¹²	[REDACTED] ³¹³	[REDACTED] ³¹⁴
SIRO	[REDACTED] ³¹⁵	[REDACTED] ³¹⁶	[REDACTED] ³¹⁷
Colt	[REDACTED] ³¹⁸	[REDACTED] ³¹⁹	[REDACTED] ³²⁰
Others	[REDACTED] ³²¹	[REDACTED] ³²²	[REDACTED] ³²³
Total	100%	100.0%	100%

5.19 It is worth noting that Eircom's biggest competitor, Enet, operates and manages the MANs under a long-term concession agreement with the Department of Environment, Climate and Communications ('DECC'). Under this agreement, Enet is obliged to provide open access to SPs to WDC

³⁰² From the 2020 Decision.

³⁰³ Between 30% and 40%.

³⁰⁴ Between 30% and 40%.

³⁰⁵ Between 30% and 40%.

³⁰⁶ Between 10% and 20%.

³⁰⁷ Between 20% and 30%.

³⁰⁸ Between 20% and 30%.

³⁰⁹ Between 10% and 20%.

³¹⁰ Between 10% and 20%.

³¹¹ Between 0% and 10%.

³¹² Between 0% and 10%.

³¹³ Between 0% and 10%.

³¹⁴ Between 0% and 10%.

³¹⁵ Between 0% and 10%.

³¹⁶ Between 0% and 10%.

³¹⁷ Between 0% and 10%.

³¹⁸ Between 0% and 10%.

³¹⁹ Between 0% and 10%.

³²⁰ Between 0% and 10%.

³²¹ Between 10% and 20%.

³²² Between 0% and 10%.

³²³ Between 0% and 10%.

services on a transparent and non-discriminatory basis. Data gathered by ComReg indicates Enet's MANs and its associated WDC services are used widely by SPs for LLs. This suggests that infrastructure-based competition is not solely confined to cities but is evident throughout the towns where the MANs are situated.

- 5.20 We also note that SIRO has grown its market share in MI WDC Market 1 since ComReg's 2020 Decision. It has grown from almost nil in 2018 to [redacted]³²⁴ in H2 2023. As SIRO continues to expand its network, it is expected to continue to act as a competitive constraint on Eircom over the period of this market review.
- 5.21 Further, as explained in subsection 4.4 above, MI WDC Market 1 is an area where a minimum of 60% of the CPs are within 50 metres of at least two ANs. This suggests that the ANs are able to supply a majority of the CPs in such WPZs and there is a greater degree of infrastructure-based competition in this area. Indeed, the Algorithm results show that 80% of the CPs in this market are within 50 metres of at least two ANs. This suggests, alongside the other evidence presented below, that a number of SPs have the ability to potentially provide services to these CPs and thereby exert a sufficient competitive constraint on each other's behaviour in the associated WPZs.
- 5.22 In ComReg's view, the presence of ANs and the market share distribution in MI WDC Market 1 indicates that there is reasonably strong competition within MI WDC Market 1.

Vertical Integration

- 5.23 ComReg is of the view that no SP is able to materially leverage its vertically integrated position to the detriment of competition in MI WDC Market 1. This is because Eircom's market share in this market is moderate (especially when compared with MI WDC Market 2), and Eircom's main competitors such as Enet (and Magnet), BT and Virgin Media are also vertically integrated, having already entered both the wholesale and retail markets. Given the number of these competitors and their significant market shares vis-a-vis Eircom's, they can pose a degree of competitive constraints on Eircom (and each other) at both the wholesale and retail level. Therefore, Eircom would have less of an ability and incentive to materially leverage its vertically integrated position to the detriment of competition in MI WDC Market 1. However, given the multi-site nature of the large portion of the LL demand at the retail level, some incentives may nonetheless remain.

³²⁴ Between 0 and 10%.

Barriers to expansion

- 5.24 The existence of sunk costs associated with network buildout, economies of scale, scope and density³²⁵ are likely to act as significant barriers to expansion in the telecommunications sector. However, ComReg considers that these barriers are largely overcome in MI WDC Market 1, as evidenced by the presence of at least two ANs operating within close proximity of the majority of the premises (60%) in this market. The distance (50 metres) the ANs need to extend their networks to serve the premises of high value customers in this market is considered economically reasonable and is unlikely to act as a significant barrier.
- 5.25 Therefore, ComReg does not consider there are significant barriers to expansion in this market.

Conclusion on Existing Competition in MI WDC Market 1

- 5.26 In light of the above, it is ComReg's view that there is sufficiently strong existing competition in MI WDC Market 1 on the basis of the presence of ANs, the market shares, low barriers to expansion and vertical integration.

5.4.2. Potential Competition in MI WDC Market 1

- 5.27 Potential competition is assessed having regard to factors such as control of infrastructure not easily duplicated, barriers to entry and expansion, as well as considering the overall strength of potential competitors.
- 5.28 ComReg is of the view that barriers to entry have been largely overcome as evidenced from the existing infrastructure-based competition. The delineation of MI WDC Market is partly based on the presence of rival network infrastructure. Additionally, the market shares presented above indicate that MI WDC Market 1 has a number of strong competitors already operating within it.
- 5.29 Taking a forward-looking view, ComReg considers that the prospects for competition in MI WDC Market 1 are favourable having regard to the trend to date of increasing SP network presence. ComReg notes that as the rollout of SIRO, Virgin Media and NBI networks continues, to the extent it can be

³²⁵ Economies of scale, scope and density refer to potential advantages that larger incumbents may enjoy over smaller new entrants. Economies of scale generally refer to the cost advantage which a large-scale operator may have over a smaller operator where the marginal cost of production decreases as the quantity of output produced increases. Economies of scope refer to the potential efficiencies which may be gained by a firm jointly producing a range of goods and services, e.g. where a CATV network or a FTTC network could be used to provide LLs, retail fixed telephony services and broadband services simultaneously. Economies of density refer to potential efficiencies associated with supplying customers who are geographically concentrated.

utilised to provide MI WDC LLs, it will further strengthen the infrastructure-based competition within this market over the lifetime of this market review.

5.4.3. CBP Assessment in MI WDC Market 1

- 5.30 CBP refers to the bargaining strength that the buyer has in relation to the seller in commercial negotiations “*due to its size, its commercial significance to the seller and its ability to switch to alternative suppliers*”³²⁶. As set out in the 2008 Guidance on Enforcement Priorities as amended, “*If countervailing power is of a sufficient magnitude, it may deter or defeat an attempt by the undertaking to profitably increase prices.*”³²⁷
- 5.31 ComReg considers that countervailing buyer power is sufficient (1) if there are credible alternative sources of supply available and (2) if customers’ purchase volume is material. ComReg is of the view that both these conditions are met in WDC Market 1 for the following reasons.
- 5.32 First, as explained earlier, 80% of the CPs in MI WDC Market 1 are within 50 meters of at least 2 ANs. As such, wholesale customers can make a credible threat to switch such that they can exert sufficient buyer power.
- 5.33 Second, MI WDC customers are typically significant suppliers of WDC services themselves. Many of these are significant purchasers, including BT, Vodafone and Enet³²⁸. They are likely to be able to exert a degree of countervailing buyer power vis-à-vis Eircom.
- 5.34 Third, as evidenced by Eircom’s market share in this market (relative to other markets), SPs do not appear to be as heavily dependent on Eircom for WDC services. They have in many cases options to purchase from ANs or self-supply.

5.4.4. Overall Conclusion on SMP Assessment in MI WDC Market 1

- 5.35 Having regard to the above analysis on existing competition, potential competition and CBP in MI WDC Market, it is ComReg’s view that no SP has SMP in MI WDC Market 1.

³²⁶ Paragraph 64, Horizontal Merger Guidelines.

³²⁷ Paragraph 18, Communication from the Commission — Guidance on the Commission’s enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings as amended on 27 March 2023 (“2008 Guidance on Enforcement Priorities as amended”).

³²⁸ SIRs, 2023 data.

5.5 SMP Assessment in MI WDC Market 2

5.36 ComReg now turns to the assessment of competition in MI WDC market 2 and concludes that Eircom is likely to hold SMP in this market. ComReg's reasoning is set out below.

5.5.1. Existing Competition in MI WDC Market 2

Presence of ANs and Market Shares

5.37 Overall there are 5,440 CPs in MI WDC Market 2, equivalent to approximately 35.9% of total connected premises in Ireland. As can be seen from Figure 17 and Table 17, Eircom is by far the biggest supplier in this market, accounting for [REDACTED]³²⁹ of the market share. Enet is the second largest supplier with a market share of [REDACTED]³³⁰. All the other SPs have a market share in the low to middle single digits.

Figure 17: Market Shares in the MI WDC Market 2, H2 2023 [REDACTED]



³²⁹ Between 60% and 70%.

³³⁰ Between 10% and 20%.

Table 17: Market Shares in MI WDC Market 2, 2018, H1 and H2 2023³³¹
[REDACTED]

	2018	H1 2023	H2 2023
Eircom	[REDACTED] 332	[REDACTED] 333	[REDACTED] 334
Enet	[REDACTED] 335	[REDACTED] 336	[REDACTED] 337
Virgin Media	[REDACTED] 338	[REDACTED] 339	[REDACTED] 340
BT	[REDACTED] 341	[REDACTED] 342	[REDACTED] 343
SIRO	[REDACTED] 344	[REDACTED] 345	[REDACTED] 346
Others	[REDACTED] 347	[REDACTED] 348	[REDACTED] 349
Total	100%	100.00%	100.00%

5.38 MI WDC Market 2 is defined on the basis that it does not meet the criteria whereby a minimum of 60% of the CPs are within 50 meters of at least two ANs. Indeed, the Algorithm results show that over 90% of the premises in this market have access to only one or no ANs. As such, this market is considered to have less infrastructure-based competition than in MI WDC Market 1. Eircom’s market share is well above 50%, the threshold for a

³³¹ The market share comparison has to be viewed in the light of market development since 2018 which resulted in the expansion of the boundaries of MI WDC Market 1. We consider this comparison is still a useful indicator of the changes in the relative market position of the SPs since the 2020 Decision.

³³² Between 60% and 70%.

³³³ Between 60% and 70%.

³³⁴ Between 60% and 70%.

³³⁵ Between 10% and 20%.

³³⁶ Between 10% and 20%.

³³⁷ Between 10% and 20%.

³³⁸ Between 0% and 10%.

³³⁹ Between 0% and 10%.

³⁴⁰ Between 0% and 10%.

³⁴¹ Between 0% and 10%.

³⁴² Between 0% and 10%.

³⁴³ Between 0% and 10%.

³⁴⁴ Between 0% and 10%.

³⁴⁵ Between 0% and 10%.

³⁴⁶ Between 0% and 10%.

³⁴⁷ Between 10% and 20%.

³⁴⁸ Between 0% and 10%.

³⁴⁹ Between 0% and 10%.

presumption of SMP pursuant to the SMP Guidelines. As shown in Table 17, Eircom's market share remains largely unchanged from the 2020 Decision. Further, Eircom's market share is multiples of its largest competitors such as Enet [§< [REDACTED] §>]³⁵⁰, Virgin Media [§< [REDACTED] §>]³⁵¹, BT [§< [REDACTED] §>]³⁵² and SIRO [§< [REDACTED] §>]³⁵³. It is very unlikely that these SPs can exert a sufficient degree of competitive constraint on Eircom.

Vertical Integration

- 5.39 Although many of SPs in MI WDC Market 2 are vertically integrated, they have limited coverage in this market. As indicated in paragraph 5.38, over 90% of the premises in this market have access to only 1 or no ANs. In contrast, Eircom is the largest MI WDC supplier with a ubiquitous coverage, as well as being a significant provider of retail MI LLs. Vertically integrated ANs are therefore unlikely to place a sufficient competitive constraint on Eircom.
- 5.40 On the above basis, it is ComReg's view that Eircom's vertically integrated structure could enhance Eircom's position in MI WDC Market 2, having regard to the more limited network reach of ANs.

Barriers to Expansion

- 5.41 As noted in paragraph 5.24, the existence of sunk costs associated with the network buildout, economies of scale, scope and density can act as significant barriers to expansion for SPs in MI WDC markets. ComReg considers this is the case in MI WDC Market 2 in particular. The reasons are twofold. First, the density of demand (2.1 premises per WPZ) is lower in this market than in MI WDC Market 1 (3.5 premises per WPZ), which can act as a barrier for an AN to reach sufficient economies of scale or density to achieve potential efficiencies. Second, there are fewer premises within 50 metres of at least 2 ANs, which raises the economic costs for the ANs to extend their networks to serve the customers. Therefore, in ComReg's view, a significant expansion of existing networks into the Area 2 MI WDC Market leads to sizeable uncertainties regarding the ability to recover the high fixed and sunk costs associated with such a network expansion.
- 5.42 In contrast, Eircom operates a ubiquitous duct/pole/fibre network with significant aspects of these costs likely to be already sunk. A significant

³⁵⁰ Between 10% and 20%.

³⁵¹ Between 0% and 10%.

³⁵² Between 0% and 10%.

³⁵³ Between 0% and 10%.

portion of the sunk costs that were involved in the initial construction of Eircom's access network are now likely to be largely amortised at this point in time, although ongoing investment is necessary. ComReg recognises that Eircom, through its ongoing network upgrade is incurring additional costs. However, any competitor expanding its network in MI WDC Market 2 would, nonetheless, face higher sunk costs than that which is faced by Eircom given its existing network, including the upgrade of it.

- 5.43 ComReg notes the obligations imposed on Eircom in the 2024 PIA Decision may have an impact on the WDC markets as the use of PIA products could potentially reduce the costs of network expansion to the ANs. However, there is limited evidence of LL delivery based on PIA at scale as of yet (with the exception of NBI using PIA to build its network). ComReg believes that over the period of this market review, the extent to which ANs' expansion using upstream inputs would effectively constrain Eircom's SMP position in MI WDC Market 2 is likely to be limited. Nonetheless, ComReg will continue to monitor the market and revisit this analysis if there are any material changes to the uptake of upstream inputs.

Conclusion on Existing Competition in the Market 2 MI WDC Market

- 5.44 Based on the assessment of the market shares and the network presence of ANs, vertical integration and barriers to entry, ComReg's position is that, absent regulation in MI WDC Market 2, it is unlikely that Eircom would be sufficiently constrained by existing competition such that it would prevent Eircom from behaving, to an appreciable extent, independently of competitors, customers and consumers.

5.5.2. Potential Competition in the Market 2 MI WDC Market

- 5.45 ComReg now assesses the effectiveness of any constraints likely to be posed by potential competition in MI WDC Market 2, having regard to factors such as barriers to entry and expansion, control of infrastructure not easily duplicated, as well as considering the overall strength of potential competitors.
- 5.46 In paragraph 5.41, ComReg has already identified that there are barriers to expansion in MI WDC Market 2 largely due to low density of demand and the distance ANs are required to dig to reach the premises. These barriers are equally likely to deter SPs from expanding their networks in this market.
- 5.47 With respect to barriers to entry, ComReg considers that there are a number of factors that may act as barriers to this type of entry occurring in MI WDC Market 2:
- (a) There are substantial sunk costs that would be incurred when entering MI WDC Market 2;

- (b) Lower density of demand makes it more difficult for ANs to reach economies scale or density compared to MI WDC Market 1.
- (c) Eircom, on the other hand, operates a largely ubiquitous network and has a large scale customer base and diversified product range. Therefore, Eircom is likely to benefit from significant economies of scale, scope and density; and
- (d) Eircom benefits from being vertically integrated as it is also a significant provider of retail MI LLs. A potential competitor would need to enter at both levels of the supply chain in order to impose a sufficient constraint on Eircom.

5.48 Given the presence of these barriers, ComReg considers that there is unlikely to be sufficient new network entry in MI WDC Market 2 during the period of this market review such that it would prevent Eircom from behaving, to an appreciable extent, independently of competitors, customers and consumers. ComReg notes there has been one new entrant since the 2020 Decision, NBI, which can potentially strengthen infrastructure-based competition. However, the entry of the NBI into the WDC market is as a result of State intervention rather than as a result of a commercial operator that has overcome barriers of entry. In addition, as explained in section 4.4.5, ComReg has already taken a forward-looking view in its geographic assessment and has assumed that NBI's network rollout will be complete within the time period of this market review (noting also that NBI can only serve premises in the IA and that only a subset of these are business premises). As such the potential impact of NBI's rollout has already been accounted for in the assessment of existing competition.

5.49 Similarly, SIRO has also made significant progress in the roll-out of its network since the 2020 Decision. As it continues its roll-out, SIRO can potentially strengthen independent infrastructure-based competition within the period of this market review. However, given that SIRO's market share in MI WDC Market 2 is only [redacted]³⁵⁴, its network still has limited coverage (compared to that of Eircom) in this market, indicating that its rollout is mainly focused in higher demand areas.

5.50 ComReg has also assessed potential entry based on access to upstream inputs (such as duct and poles). SPs can and have been using upstream inputs (such as duct and poles) to build or extend their networks on a very limited scale (with the exception of NBI).

³⁵⁴ Between 0% and 10%.

- 5.51 ComReg recognises the potential for increased take-up of Eircom's regulated PIA products such as ducts, poles and dark fibre to build or extend networks. However, the PIA access products are at their early stage of the deployment and the take-up is still relatively low. ComReg believes that there is unlikely to be sufficient new entry using upstream inputs that would effectively constrain Eircom's position in MI WDC Market 2. Nonetheless, ComReg will continue to monitor the market and revisit this analysis if there are any material changes to the uptake of upstream inputs.

Conclusion on Potential Competition in MI WDC Market 2

- 5.52 On the basis of the foregoing, ComReg considers it unlikely that ANs would enter or significantly expand their networks in MI WDC Market 2 over the period of this review to sufficiently constrain Eircom.

5.5.3. CBP Assessment in WDC Market 2

- 5.53 Below, ComReg examines where sufficient CBP exists in MI WDC Market 2 to impose a sufficiently effective competitive constraint on Eircom. ComReg adopts the approach set out in section 5.4.2 and examines if there are alternative sources of supply available and if the customers' purchase volume is material.

Credible Alternative Sources of Supply

- 5.54 As noted above, Eircom's market share in this market is very high, with this likely a result of its greater network presence relative to that of ANs. Access Seekers have limited switching options, due to the limited network reach of ANs. In this respect, ComReg notes that despite both BT and Enet being able to self-supply MI WDC products, they nonetheless buy a significant portion of their requirements from Eircom, thereby suggesting their own network reach is insufficient to fulfil their downstream demand in MI WDC Market 2.
- 5.55 Access Seekers are therefore highly reliant on Eircom's MI WDC services in MI WDC Market 2, and, in the absence of regulation, are unlikely to be in a position to credibly threaten to switch to alternative sources of supply.

Purchase volume of customers

- 5.56 The strength of CBP can be influenced by the relative size of the buyer, with this being measured according to the buyer's share of MI WDC products purchased from the SP (in this case, Eircom) relative to total purchases of MI WDC products from the same SP. The degree to which high shares of MI WDC purchases are concentrated amongst one or more buyers could also be relevant.
- 5.57 In MI WDC Market 2, Eircom has a few large customers such as BT, Enet and Vodafone. However, given their dependence on Eircom for wholesale

inputs, they are unable to exert sufficient buyer power vis-à-vis Eircom. In contrast, Eircom is not heavily reliant on alternative operators to generate revenue. It sells a significant volume of WDC input to its own retail business. As a vertically integrated operator, Eircom may have an incentive to favour its own retail business. As such, Eircom's customers are unlikely to be able to make a credible threat to switch away a large volume of purchases to constrain Eircom's market power.

Conclusion on CBP Assessment in MI WDC Market 2

5.58 Having regard to the analysis in paragraphs 5.54 to 5.57 above, ComReg's view is that it is unlikely that Eircom would be sufficiently constrained by CBP to defeat its SMP.

5.5.4. Overall Conclusion on SMP Assessment on MI WDC Market 2

5.59 Where ComReg determines, as a result of a market analysis carried out by it in accordance with Regulation 49 of the ECC Regulations, that a given market identified in accordance with Regulation 46 of the ECC Regulations is not effectively competitive, ComReg is obliged to designate an undertaking under Regulation 49(8) of the ECC Regulations as having significant market power.

5.60 Given the lack of existing or potential competition, as well as the absence of sufficiently effective CBP in MI WDC Market 2, ComReg is of the view that Eircom has SMP in this market.

5.6 SMP Assessment in MI WDC Market 3

5.61 In this Section, ComReg presents its position on the assessment of competition and SMP in MI WDC Market 3.

5.62 As defined in section 4.4.7, MI WDC Market 3 is comprised of WPZs that contains no CPs and are touched by at least two ANs. There are no CPs in these WPZs and hence no demand in this market, ComReg is unable to assess the competitive characteristics of this market based on demand-side considerations. ComReg is also unable to gauge whether any future demand would be near or far (more than 50 metres) from ANs as no assumption can be made regarding the specific location of any such demand. However, from the supply side, there are already at least two ANs present in some part of this market. In the event that demand does arise in this market, these³⁵⁵

³⁵⁵These 2 ANs include NBI's network, which is mapped as outlined in subsection 4.99 above.

should be in a position to compete for such demand, placing an effective constraint on Eircom.

- 5.63 Based on the above, ComReg does not consider that any operator holds SMP in this market.

5.7 SMP Assessment in MI WDC Market 4

- 5.64 In this Section, ComReg presents its views on the assessment of competition and SMP in MI WDC Market 4.

5.7.1. Existing Competition in MI WDC Market 4

- 5.65 As defined in section 4.4.7, MI WDC Market 4 contains WPZs that have no CPs and are touched by only one or no ANs. As such there is no effective demand and insufficient supply in this area. If demand was to arise in this market in the future, Eircom would be in a strong position to serve the customers as it has a ubiquitous network. There would be insufficient ANs to impose a competitive constraint on Eircom. This is in contrast to MI WDC Market 3, where there are at least two ANs already present. Therefore, the lack of ANs indicates a position of SMP by Eircom.

5.7.2. Potential Competition in MI WDC Market 4

- 5.66 ComReg considers barriers to entry and expansion have not been overcome, as evidenced by the lack of ANs present in this market. As there is no existing demand in this market, ANs would have little incentive to build or extend their networks. This means there is unlikely to be entry or expansion in the market to constrain Eircom's market power.

5.7.3. CBP Assessment in MI WDC Market 4

- 5.67 Due to the absence of CPs, ComReg is unable to definitively assess CBP in this market. However, given that this market is defined based on the absence of sufficient ANs, in the event that demand was to arise, customers do not have sufficient alternative sources of supply to make a credible threat to switch. As such ComReg does not consider that there is sufficient CBP to counter Eircom's market power.

5.7.4. Overall Conclusions on Competition in the Market 4 MI WDC Market

- 5.68 Where ComReg determines, as a result of a market analysis carried out by it in accordance with Regulation 49 of the ECC Regulations, that a given market identified in accordance with Regulation 46 of the ECC Regulations is not effectively competitive, ComReg is obliged to designate an undertaking

under Regulation 49(8) of the ECC Regulations as having significant market power.

- 5.69 On the basis of the above, it is ComReg's view that Eircom has SMP in MI WDC Market 4.

5.8 Designation of Eircom with Significant Market Power in MI WDC Market 2 and MI WDC Market 4

5.8.1. Designation of Eircom with Significant Market Power in MI WDC Market 2

- 5.70 In Section 5.5 above, ComReg has considered a wide range of factors to identify whether any Undertaking enjoys a position of SMP in MI WDC Market 2. These factors include:

- (a) Existing competition in WDC Market 2;
- (b) Potential competition; and
- (c) CBP.

- 5.71 ComReg's position is that MI WDC Market 2 is not likely to be effectively competitive and that Eircom would not be sufficiently constrained by the above factors such that it would prevent it from behaving, to an appreciable extent, independently of competitors, customers and consumers.

- 5.72 Where ComReg determines, as a result of a market analysis carried out by it in accordance with Regulation 49 of the ECC Regulations, that a given market identified in accordance with Regulation 46 of the ECC Regulations is not effectively competitive, ComReg is obliged to designate an undertaking under Regulation 49(8) of the ECC Regulations as having significant market power.

- 5.73 Having regard to the conclusions of the above market analysis, ComReg forms the view that Eircom has SMP in MI WDC Market 2.

- 5.74 Having regard to the conclusions reached above, ComReg's position is that Eircom should be designated as having SMP in MI WDC Market 2.

5.8.2. Designation of Eircom with Significant Market Power in MI WDC Market 4

- 5.75 In Section 5.7 above, ComReg has considered a wide range of factors to identify whether any Undertaking enjoys a position of SMP in the Area 4 MI WDC Market. These factors include:

- (a) Existing competition in MI WDC Market 4;

- (b) Potential competition; and
 - (c) CBP.
- 5.76 ComReg's position is that MI WDC Market 4 is not likely to be effectively competitive and that Eircom would not be sufficiently constrained by the above factors such that it would prevent it from behaving to an appreciable extent independently of competitors, customers and consumers.
- 5.77 Where ComReg determines, as a result of a market analysis carried out by it in accordance with Regulation 49 of the ECC Regulations, that a given market identified in accordance with Regulation 46 of the ECC Regulations is not effectively competitive, ComReg is obliged to designate an undertaking under Regulation 49(8) of the ECC Regulations as having significant market power.
- 5.78 Having regard to the conclusions of the above market analysis, ComReg forms the view that Eircom has SMP in MI WDC Market 4.
- 5.79 As referenced throughout Section 6 below, following the SMP assessment, for the purpose of considering competition problems and the imposition of remedies, as appropriate,
- (a) MI WDC Market 1 and MI WDC Market 3 are collectively referred to in this Consultation as the '**Zone A MI WDC Markets**'; and
 - (b) MI WDC Market 2 and MI WDC Market 4 are collectively referred to in this Consultation as the '**Zone B MI WDC Markets**'.

Q. 6 Do you agree with ComReg's assessment of SMP on the Relevant WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views.

Chapter 6

6. Competition Problems in the Zone B MI WDC Markets and Impacts on Competition and Consumers

6.1 Overview

6.1 In Chapter 5 of this Consultation, ComReg sets out its position that, in accordance with Regulation 49 of the ECC Regulations, the Zone B MI WDC Markets are not likely to be effectively competitive. ComReg has decided that Eircom should be designated as having SMP in these markets.

6.2 In this Chapter, ComReg proceeds to identify those competition problems which, absent regulation³⁵⁶, would arise in the Zone B MI WDC Markets (and related markets). ComReg is of the view that Eircom is likely to have the ability and incentive to engage in anti-competitive behaviour absent regulation in the Zone B MI WDC Markets, due to its SMP and its position as a vertically-integrated supplier competing with its wholesale customers in downstream markets.

6.2 Types of Competition Problems

6.3 In determining what form of *ex ante* regulatory remedies are justified in the Zone B MI WDC Markets, ComReg has carried out an assessment of potential competition problems that are likely to arise, assuming regulation is absent and taking account of the structure and characteristics of the Zone B MI WDC Markets.

6.4 In the absence of regulation in the Zone B MI WDC Markets, 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. In general, there are a number of competition problems that may arise when an SMP operator seeks to:

³⁵⁶ WDC products have been provided by Eircom pursuant to regulatory obligations imposed on it under the 2020 Decision. The assessment carried out in this Section of the Consultation is carried out in the context of what competition problems would be likely, assuming that such SMP obligations were not in place.

- (a) Exclusionary practices which would exclude or delay investment and market entry in the Zone B MI WDC Markets (and ultimately downstream markets);
- (b) Exploitative practices: where an SP with SMP engages in exploitative behaviours, such as excessive pricing, to the detriment of both competition and end users; and
- (c) Leveraging its market power into adjacent vertically or horizontally related markets with a view to foreclosing or weakening competition.

6.5 These competition problems are discussed in detail below.

6.2.1. Exclusionary Practices

6.6 ComReg's view is that absent regulation Eircom has the ability and incentive to engage in exclusionary behaviour in Zone B MI WDC Markets to foreclose competition at the retail level. These practices include but are not limited to:

- (a) refusing to supply access, applying unreasonable or discriminatory terms and conditions of access, and/or creating or exploiting information asymmetries;
- (b) engaging in exclusive contracts with downstream customers and exclusionary actions aimed generally at raising customer or consumer switching costs thereby impacting on potential competition; and
- (c) raising costs of those competitors that rely on Eircom's MI WDC inputs in providing downstream retail and/or wholesale services.

6.7 SPs that rely on Eircom's inputs to supply in the downstream market will be foreclosed from the market if they could not get access to Eircom's wholesale input, or they may be put at a competitive disadvantage if they face higher costs than the incumbent's own retail arm. This may lead to lessened competition in the downstream market which may lead to higher prices or poor quality services for consumers.

6.8 In addition, a SMP SP may also have the ability and incentive to set very low prices to foreclose competition at the wholesale level. For example, in certain parts of the Zone B MI WDC Markets where there is prospect of investment and where Eircom faces competition from ANs, Eircom may have the incentive to charge lower prices, with the intention of deterring market entry or forcing ANs out of the market. This would allow Eircom to further increase its market power and to raise its prices later. While consumers may benefit in the short run from lower prices, consumer welfare is reduced in the long run due to the elimination of competition and consumer choice in the market. As a result, the entry/expansion barriers in the Zone B MI WDC market and related markets are reinforced.

6.2.2. Exploitative Practices

Excessive Pricing

- 6.9 Excessive pricing occurs where the price which a firm with SMP charges for a product or service is not closely related to its value to the end user and/or the cost of producing or providing the relevant service.³⁵⁷ Concerns about excessive pricing arise where, absent regulation, price levels would likely be persistently high with no effective pressure (e.g. from new entry or innovation) to bring them down to competitive levels over the duration of the review period.
- 6.10 The Zone B MI WDC Markets are characterised by a high and stable incumbent share, a lack of existing and potential effective competition as well as the absence of sufficient CBP. Thus, there is likely to be insufficient competitive pressure to constrain Eircom from behaving, to an appreciable extent, independently of its customers, competitors or consumers, including engaging in excessive pricing in the Zone B MI WDC Markets.³⁵⁸
- 6.11 For example, by charging excessive prices, Eircom could raise input costs for those SPs that purchase Eircom's MI WDC products/services. These above cost wholesale prices may be passed on by SPs to the downstream markets, ultimately leading to the detriment of retail customers.
- 6.12 Excessive prices could also distort competition in the downstream market. SPs' customers could, in response to price increases, switch to Eircom. This could potentially undermine SPs' revenues and cause them to contract within or exit from the relevant market. Therefore, Eircom's excessive pricing of MI WDC inputs could lead to the exclusion of competitors from the downstream retail and/ wholesale markets (noting multi-site nature of bids³⁵⁹), and ultimately hinder effective competition in these markets.
- 6.13 Excessive prices can also pose a deterrent to entry in downstream markets and also distort investment incentives as the higher charges raise costs for SPs that purchase wholesale input from Eircom and thereby constrain their ability and incentive to invest in their own additional infrastructure.

³⁵⁷ Case C 27/76 United Brands v. Commission, [1978] ECR 207, [1978] 1 CMLR 429, paragraph 250. In United Brands the Court of Justice of the European Union held that: "...charging a price which is excessive because it has no reasonable relation to the economic value of the product supplied would be... an abuse".

³⁵⁸ Eircom's wholesale prices in the Zone B MI WDC Markets are currently regulated under the 2020 Decision.

³⁵⁹ Multi-site customers refers to organisations with more than one premises such as retail multiples, banks etc. and these customers typically tender for LL services for the multiple sites in one contract.

6.2.3. Leveraging

- 6.14 Where a vertically integrated Undertaking SP has SMP in one market that has close links with other adjacent markets either at a similar (e.g. horizontal) or different (e.g. vertical) level in the production or distribution chain, the SMP Undertaking may attempt to transfer (leverage) its market power to such vertically and/or horizontally related markets. This could enable the SMP Undertaking to strengthen its position in those related markets and/or potentially reinforce its existing market power in the SMP market.
- 6.15 Given the close relationship between the Zone B MI WDC Markets and other horizontally related markets (e.g. Zone A MI WDC³⁶⁰) and vertically related markets (e.g. WLA and retail LL market(s)), there is potential for leveraging to occur, absent regulation. Leveraging may raise rivals' costs, introduce barriers to effective access to MI WDC products, services and facilities in a timely manner, reduce competitive pressures on related wholesale/retail services and enable the SMP Undertaking to extract additional revenues from its competitors, customers and ultimately consumers.

Horizontal Leveraging

- 6.16 Horizontal leveraging arises where an Undertaking with market power in one market is able to use it to exert undue influence into other markets that are at a similar level in the production or distribution chain.
- 6.17 Absent regulation in the Zone B MI WDC Markets, Eircom could be incentivised to cross-subsidise retail and/or wholesale services offered in the Zone A MI WDC Markets (e.g. lower prices). This would allow Eircom to gain retail/wholesale market share in the Zone A MI WDC Markets by leveraging its position into the Zone B MI WDC Markets where it faces less infrastructure-based competition from other SPs.
- 6.18 Also where SPs who compete in the Zone B MI WDC Markets require MI WDC services for network extension, such as for backhaul, Eircom is likely to have the ability and incentive to deny access (including constructive denial) to such services. This can be done by leveraging its existing position into the Zone B MI WDC Markets where it faces less infrastructure-based competition from other SPs, thus potentially reducing further the competition in the Zone B MI WDC Markets for related services, such as WDC to premises.

³⁶⁰ For example, an Access Seeker may purchase MI WDC services in both the Zone A MI WDC Markets and the Zone B MI WDC Markets from the same supplier. Absent a wholesale supplier having the ability to serve these needs, its position in both these markets may be undermined.

- 6.19 ComReg considers that, absent regulation, these types of issues could arise in the Zone B MI WDC Markets as Eircom has the incentive to do so, given that it is competing in downstream markets within which Access Seekers also compete or may seek to compete.

Vertical Leveraging

- 6.20 Vertical leveraging arises where a vertically integrated Undertaking is able to leverage its SMP position at one level in the production or distribution chain into downstream markets in which it is also active.
- 6.21 Absent regulation, vertical leveraging may occur given that Eircom has the incentive, as a vertically-integrated Undertaking, to use its market power in Zone B MI WDC Markets to ultimately affect the competitive conditions in downstream retail markets. This can be achieved through its ability to control the key network inputs used by Access Seekers, which compete against Eircom in these downstream markets. This would serve to enhance its market power in these downstream markets.

Price Based Vertical Leveraging Behaviour

- 6.22 Eircom could attempt to foreclose competition in a downstream market by offering WDC products at a price that would not allow Access Seeker to compete in the downstream retail market. This can be achieved by Eircom charging a higher price (above competitive pricing) to downstream competitors than it implicitly charges to its own retail arm.
- 6.23 This incentive is heightened given the nature of the market in that most of retail LLs are purchased by multi-site customers which often tend to select one retail SP to provide LL services to all of their premises. ComReg considers that the nature of the demand for retail MI LL services, further enhances Eircom's ability and incentive to leverage its market power in the Zone B MI WDC Markets into the retail MI LL market as Eircom has a strong competitive advantage in terms of its network reach to multi-site retail LL customers' premises when compared to the reach of other SPs' networks. ComReg considers that Eircom is likely to have the ability and incentive to foreclose access to Zone B MI WDC services and leverage its market power into the retail MI LLs markets.

Non-Price Based Vertical Leveraging Behaviour

- 6.24 Non-price based vertical leveraging could be undertaken by Eircom in a number of ways absent regulation in the Zone B MI WDC Markets. Eircom could engage in exclusionary practices such as an outright refusal or constructive refusal to supply which is outlined in further detail in following section while noting that refusal to supply is particularly relevant when the

SMP operator is vertically integrated which facilitates the SMP operator to gain strategic advantage over rivals in the downstream markets.

6.25 Other examples of non-price vertical leveraging, which can be closely related to each other, can amount to constructive rather than outright denial of access, including

- (a) **Delaying tactics:** this relates to issues such as inefficient order management systems or protracted negotiations with respect to the supply of existing or new MI WDC products, services or associated facilities to downstream competitors. Eircom, as the SMP operator, has the ability and incentive to engage in a 'first mover advantage' by offering a retail offering before an equivalent wholesale product is made available to potential Access Seekers or Eircom could offer the wholesale product to a preferred Access Seeker, for example where the preferred Access Seeker is purchasing other services from Eircom, in advance of offering to other Access Seekers. This first mover advantage has the potential to cause delay and raise the Access Seekers' costs relative to the SMP operator and restrict the Access Seekers potential future retail sales.
- (b) **Quality discrimination:** providing competitors with MI WDC products at a lower quality of service (or inferior information) to that which Eircom provides to its own downstream arm (or to certain other competitors). For example, Eircom could give priority to its own customers when repairing faults or upgrading network assets.
- (c) **Lack of Transparency and Information asymmetries:** where competitors are dependent on Eircom to provide MI WDC and need certain (quality or technical) information in order to effectively compete in the downstream retail and/or wholesale market, a lack of transparency or asymmetry in the provision of relevant information can impede competition. For example, in terms of product offerings, absent regulation, Eircom, as the Undertaking designated with SMP in the Zone B MI WDC Markets, could make MI WDC inputs available to its own retail arm or to a preferred Access Seeker, which other Access Seekers are not aware of and thus not able to offer related retail products. In terms of product implementation, if Access Seekers are not aware of all the features of the wholesale products which are available to Eircom internally, they will not know that they can request these features themselves, and ultimately may find themselves offering an inferior product at the retail level relative to Eircom or the preferred Access Seeker.

- (d) **Disproportionate entry/use criteria:** Eircom may set unreasonable terms and conditions for supply/use of access to MI WDC products (including associated facilities). An example of this behaviour would include an undue requirement to use a particular (more expensive) technology beyond the extent which might be economically or technically justified.
- (e) **Unwarranted withdrawal of access already granted:** Eircom could seek to unreasonably withdraw access to facilities already granted.
- (f) **Unreasonable product bundling/tying:** this could include the bundling/tying of MI WDC products in such a way that it damages the ability of Access Seekers to compete downstream. For example, if Eircom required Access Seekers using MI WDC services to also purchase additional and unnecessary services that raises Access Seekers' costs of providing downstream retail services, this could damage their ability to compete effectively.

Information Asymmetries

- 6.26 Information asymmetries could include situations where Access Seekers require metrics on order processing, service delivery and fault repair to view the overall performance of Eircom's MI WDC products from a provisioning and service assurance perspective. Failure by Eircom to provide such data to its wholesale customers would likely impair their ability to compare the performance of Eircom's supply of wholesale products. Uncertainty for Access Seekers (and their retail and/or wholesale customers) as to the performance and quality of their purchased MI WDC inputs relative to the services and information made available internally to Eircom's retail arm could potentially discourage participation in markets dependent upon Eircom's wholesale products (for example, through a lack of visibility of average line-fault repair time between Eircom retail and wholesale customer faults).
- 6.27 Information asymmetries may also apply to future planning by the SMP Undertaking. For example, changes by Eircom to its network topography such as its location of points of interconnection may have significant implications for Access Seekers using MI WDC products. Insufficient notice of network and process changes relevant to the delivery of services in the retail market could significantly impede the ability of MI WDC Access Seekers to launch corresponding retail products and to compete with Eircom on an equivalent basis in downstream markets. A lack of information and the associated uncertainty may discourage Access Seekers from investing in or

expanding their network footprint (to avail of MI WDC products)³⁶¹ or downstream footprint (since there may be a perceived risk of stranded assets).

6.3 Conclusion on Competition problems in the Zone B MI WDC Markets

- 6.28 Having regard to the analysis set out in paragraphs 6.2 to 6.27 above, ComReg's position is that, absent regulation, Eircom, as the SMP Undertaking in the Zone B MI WDC Markets 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 market power in the Zone B MI WDC Markets over time.
- 6.29 ComReg has presented examples of such potential behaviour and, therefore, considers that it is justified and proportionate to impose obligations on Eircom in the Zone B MI WDC Markets relating to access, transparency, non-discrimination, price control and cost accounting and accounting separation. The details of these obligations are discussed in Section 7 below.

Q. 7 Do you agree that the competition problems and the associated impacts on competition end users identified are those that could potentially arise in the Zone B MI WDC Markets (and related markets)? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views.

³⁶¹ Access Seekers' use of MI WDC products depends on the extent of their backhaul network. Investing in backhaul depends on the location of Eircom's Points of Interconnection.

Chapter 7

7. Remedies in the Zone B MI WDC Markets

7.1 Introduction

- 7.1 Under Regulation 50(1) of the ECC Regulations, where an undertaking is designated as having SMP in a relevant market, ComReg is required to impose at least one obligation by way of remedy addressing the competition problems that have been identified, as set out in Regulations 51-56, 58 and 62 of the ECC Regulations.
- 7.2 According to Regulation 50(5) of the ECC Regulations, the obligation or obligations imposed must:
- (a) be based on the nature of the problem identified;
 - (b) be proportionate and justified in light of the objectives laid down in Section 12 of the Communications Regulation Act 2002 (as amended) and Regulation 4 of the ECC Regulations;³⁶² and
 - (c) only be imposed following public consultation.
- 7.3 As explained in detail below, in light of the competition problems arising or likely to arise in the Zone B MI WDC Markets and related markets, ComReg proposes to maintain the full set of remedies (including obligations of access, transparency, non-discrimination, price control and cost accounting and accounting separation) and they are considered in turn below.

7.2 Access Remedies

- 7.4 The 2020 Decision requires Eircom to meet reasonable requests for access for the provision of Access to MI Wholesale High Quality Access ('**WHQA**') products, services, facilities and Associated Facilities including in particular access to NGN Ethernet and Wavelength Division Multiplexing ('**WDM**') services, supported by requirements to provide a range of interconnection

³⁶² Pursuant to Section 12 of the Communications Regulation Act 2002 (as amended), ComReg's relevant objectives in relation to the provision of electronic communications networks and services are: (i) to promote competition; (ii) to contribute to the development of the internal market; and (iii) to promote the interests of users within the Community. Regulation 4 of the ECC Regulations further specifies ComReg's objectives and sets out a number of obligations in relation to the pursuit of its objectives.

and co-location services. Eircom is also required to comply with additional requirements in order to ensure fairness, reasonableness and timeliness of access, including an obligation to provide Service Level Agreements ('**SLAs**') and requirements regarding timeliness of product development.

- 7.5 ComReg proposes to maintain Eircom's obligation to meet reasonable requests for access in the market as set out in further detail below, having regard to the statutory requirements and criteria set out in Regulation 55 of the ECC Regulations, taking into account the obligations on Eircom to provide access to its physical infrastructure under Decision D03/24. For the reasons discussed below, ComReg does not propose to reflect the inclusion of Dark Fibre within the scope of the MI WDC Market and proposes not to expand Eircom's obligation to meet reasonable requests for access beyond active MI WDC products.

7.2.1. Statutory requirements and criteria

- 7.6 Regulation 55(1) of the ECC Regulations provides that ComReg may impose on an operator obligations to meet reasonable requests for access to, and use of, specific network elements and associated facilities where ComReg considers that the denial of such access, or the imposition on operators of unreasonable terms and conditions having a similar effect, would:
- (a) hinder the emergence of a sustainable competitive retail market;
 - (b) not be in the interests of end-users; or
 - (c) otherwise hinder the objectives set out in Section 12 of the Communications Regulation Act 2002 (as amended) and Regulation 4 of the ECC Regulations.
- 7.7 In determining whether access obligations imposed under Regulation 55 are appropriate and proportionate, ComReg must also have regard to the following:
- (a) the technical and economic viability of using or installing competing facilities, in light of the rate of market development, taking into account the nature and type of interconnection and access involved;
 - (b) the feasibility of providing the access proposed, in relation to the capacity available;
 - (c) the initial investment by the facility owner, bearing in mind the risks involved in making the investment;
 - (d) the need to safeguard competition in the long-term;
 - (e) where appropriate, any relevant intellectual property rights;
 - (f) the provision of pan-European services;

- (g) the expected technological evolution affecting network design and management;
- (h) The need to ensure technology neutrality enabling the parties to design and manage their own networks; and
- (i) In respect of the need to safeguard competition in the long term, the requirement to give attention not only to economically efficient infrastructure-based competition but also to innovative business models that support sustainable competition, such as those based on co-investment in networks.

7.8 According to Regulation 55(6) of the ECC Regulations, when imposing obligations of access, ComReg may lay down technical or operational conditions to be met by the provider or the beneficiary of the access where necessary to ensure normal operation of the network. Conditions covering fairness, reasonableness and timeliness may also be attached to obligations of access under Regulation 55(3) of the ECC Regulations.

7.9 ComReg is of the view that an obligation that Eircom meets reasonable requests for access is necessary given the ubiquity of Eircom's network in the Zone B Markets, which is unparalleled by any other, such that denial of access, or the imposition on operators of unreasonable terms and conditions having a similar effect, would hinder the emergence of a sustainable competitive retail market and would not be in the interests of end-users. In particular, leased lines providers on the retail market would be at a serious competitive disadvantage if they could not obtain from Eircom access to its network in order to serve customers in areas where no other network is present, or there is no wholesale offering; this disadvantage is heightened by the significance of multi-site demand in the retail market and the requirement for retail leased line providers to have access to a ubiquitous wholesale offer.

7.10 In accordance with Regulation 54(1) of the ECC Regulations, ComReg has considered whether Eircom's obligation to provide access to its physical infrastructure under ComReg Decision D03/24 would be sufficient to address the requirement for an obligation of access in the Zone B Markets. ComReg does not believe that this is the case and sets out below the reasons for maintaining Eircom's obligation to meet reasonable requests for access to active dedicated capacity by reference to the statutory criteria:

7.11 First, using or installing competing facilities to provide WDC services throughout the Zone B WDC Markets is not likely to be economically feasible within the period of this review. Given that Eircom's network has a reach that is unparalleled in the Zone B markets, there will not always be other facilities readily available for use to meet requirements for dedicated capacity and there are likely many instances where using Eircom's poles and ducts

network will not be economically feasible, in particular in areas where demand for dedicated capacity is limited so that economies of scale and scope will not be achievable, or will not be practical and allow an operator to build in time a wholesale offer suitable to meet the requirements of a retail operator responding to multi-site bidding requests throughout the State. In this case, neither access to Eircom's ducts and poles nor access to dark fibre would be sufficient to allow an access seeker to compete in the retail market. As such, continued access to active products on Eircom's network remains necessary to safeguard competition. As dark fibre access is unlikely to meet the requirements of a retail operator to serve end-users needs for dedicated capacity at Zone B markets sites, it is not necessary or proportionate to require Eircom to provide access to dark fibre to other operators. Furthermore, where access to passive elements would meet the requirements of an operator, then Decision D03/24 means that access to ducts and poles will be available from Eircom.

- 7.12 ComReg does not believe that any issue arises as regards the requirement that Eircom continues to provide dedicated capacity by way of wholesale active products as regards the feasibility of providing access in relation to capacity available. ComReg is not aware that there would be any material capacity constraints that would give rise to Eircom facing difficulties in meeting the proposed access obligations in the future. In terms of any expected technological evolution affecting network design and management within the period of this review, ComReg believes that Eircom should have the opportunity to offer, and the obligation to meet reasonable requests for access to, products making available dedicated capacity including using technologies other than those currently used by Eircom, where reasonable. This is entirely consistent with the need to ensure technology neutrality enabling the parties to design and manage their networks.
- 7.13 Any risks taken by Eircom (or its predecessors') in respect of the initial investment in Eircom's network supporting the provision of wholesale dedicated capacity products do not constitute a reason not to impose an obligation of access. ComReg's approach to imposing access remedies is based on principles that, inter alia, allow a reasonable rate of return on adequate capital employed, taking into account the risks involved. When proposing price control remedies ComReg is mindful of facilitating the development of effective and sustainable competition to the benefit of end-users without compromising efficient entry and investment decisions of undertakings over time. ComReg is also mindful of the role of regulatory transparency and consistency in contributing to a more predictable environment conducive to long-run investment decisions being made. Finally, intellectual property rights are not a concern in the context of the provision of WDC products, services and facilities and ComReg is satisfied

that obligations of access to WDC, in the Zone B MI WDC Markets, should facilitate the provision of pan-European services on the basis that ComReg's proposed approach is consistent with the policies of the European Commission and other NRAs. Consistent regulation of WDC across the EU will help to support a seamless provision of pan-European services by allowing Service Providers ('SPs') in other Member States to provide ECS in Ireland, including by using Eircom's WDC products, services and facilities potentially combined with other wholesale services, to compete within Ireland.

- 7.14 Accordingly, it is necessary, proportionate and justified to impose on Eircom an obligation of access pursuant to Regulation 55 of the ECC Regulations.

7.2.2. Access to dedicated capacity from a location within a Zone B WPZ up to a Trunk Node

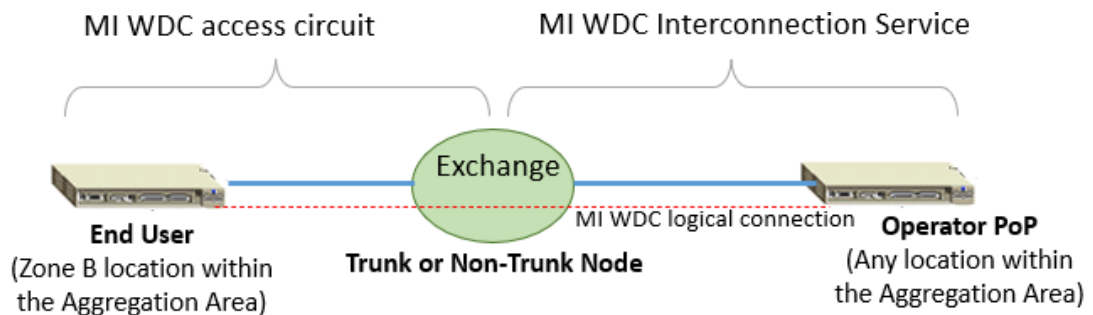
Terminating Segments

- 7.15 For the reasons set out above, Eircom is required to meet reasonable requests for access to active MI WDC products in the Zone B MI WDC Markets, that is, from a location in a Zone B WPZ up to a Trunk Node. In other words, Eircom must provide an access circuit terminating in a Zone B WPZ connecting to an interconnection circuit at an Access Seeker's Point of Handoff ('PoH') at the boundary between trunk and terminating segments, that is at a Trunk Node.
- 7.16 As set out in Section 4.5, Trunk Nodes are Eircom exchanges containing Aggregation Nodes that are in close proximity to two or more alternative networks. Of the 191 Eircom exchanges containing Aggregation Nodes in Eircom's network, 131 are Trunk Nodes. For each of the 131 Trunk Nodes, an MI WDC access circuit connected to its serving Trunk Node will be connected to MI WDC interconnection service at the Trunk Node (i.e. at any location with the Aggregation Area). This MI WDC LL is referred to as Same Node Handoff ('SNH').
- 7.17 For the Zone B locations served by one of the 60 Non-Trunk Nodes, while SNH will be available to an Access Seeker, the relevant boundary between trunk and terminating segments is at a level higher in the core network, which in practice will be determined by reference to the location of the Provider Edge ('PE') Nodes connecting (directly or indirectly) to the Non-Trunk Node. PE Nodes are larger capacity nodes situated higher in the network hierarchy to which Aggregation Nodes are connected. Each Aggregation Node is connected to a pair of PE Nodes, delimiting an Aggregation Area and the Aggregation Areas connected to the same Aggregation Nodes constitute an Aggregation Region. Each of the PE Nodes is located in an Eircom exchange

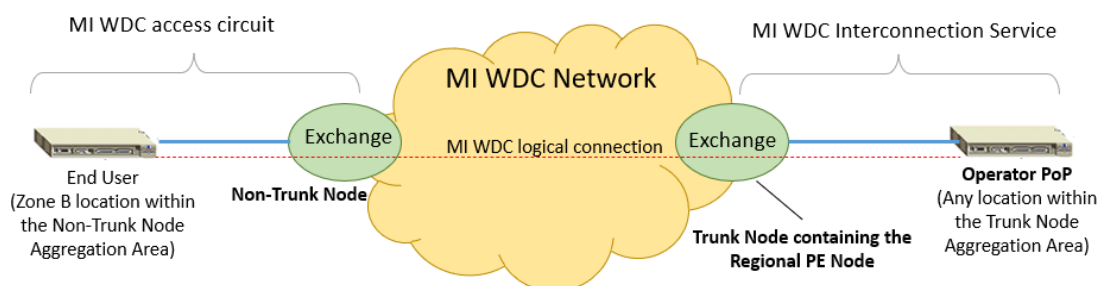
hosting one or more Aggregation nodes that are Trunk Nodes as they are in proximity to at least two alternative networks.

- 7.18 For premises served by any of the 60 Non-Trunk Nodes, the relevant Trunk Node delimiting the boundary for the regulated MI WDC product, is the Eircom exchange which contains a PE Node which is connected (directly or indirectly) to the serving Non-Trunk Node (this is known as Same Region Handoff or '**SRH**'). This means that in the case of a Non-Trunk Node, the Access Seeker can choose between SRH or SNH where it has (or is planning) a Point of Presence ('**PoP**') at that level in the network.
- 7.19 Figure 18 Figure 18 MI WDC Service Overview (Same Node Handoff or SNH) and Figure 19 depicts the main elements of an MI WDC service with Same Node Handoff ('**SNH**') and Same Region Handoff ('**SRH**') respectively, which consist of:
- a MI WDC access circuit, connected to a WDC node in the serving exchange and terminating in a Zone B location within the Aggregation Area;³⁶³
 - a MI WDC Interconnection Service terminating at any location within the Aggregation Area; and
 - a MI WDC logical connection between the MI WDC access circuit and the MI WDC Interconnection Service.

Figure 18 MI WDC Service Overview (Same Node Handoff or SNH)



³⁶³ "Aggregation Area" means the geographical area served by an Aggregation Node.

Figure 19 MI WDC Service Overview (Same Region Handoff or SRH)

- 7.20 The 191 Aggregation Nodes in Eircom's network are each connected to two PE Nodes delimiting 16 Eircom's Aggregation Regions and 12 MI WDC Aggregation Regions (geographic regions, numbered 1-12), as set out in Table 18 below and listed in Schedule 2.1 of the draft Decision Instrument (Annex: 1). The Trunk Nodes and Non-Trunk Nodes are listed in Schedules 2.2 and 2.3 respectively of the draft Decision Instrument (Annex: 1).

Table 18: Twelve MI WDC Aggregation Regions

Region Number	Eircom Region Reference	PE Node 1 Location	PE Node 2 Location
1	Urban A	Beggars Bush (BBH)	Priory Park (PRP)
2	Urban B	Blanchardstown (BDT)	Finglas (FNG)
3	Urban C	Belcamp (BLP)	Summerhill (SRL)
4	Urban D	Nangor Road, Clondalkin (CLD)	Dolphins Barn (DBN)
5	Urban E	Churchfield (CHF)	Quaker Road (QKR)
	Provincial J	Churchfield (CHF)	Quaker Road (QKR)
6	Urban F	Limerick (LMK)	Mallow (MLW)
	Provincial K	Limerick (LMK)	Mallow (MLW)
7	Provincial N	Limerick (LMK)	Portlaoise (PGS)
8	Urban G	Mervue (MVW)	Shantalla (SLA)
9	Urban H	Priory Park (PRP)	Waterford (WTD)
	Provincial O	Priory Park (PRP)	Waterford (WTD)
	Provincial P	Priory Park (PRP)	Waterford (WTD)
10	Provincial I	Bridgend (BGE)	Rathedmond, Sligo (RTD)
11	Provincial L	Drogheda (DBC)	Mullingar (MGR)
12	Provincial Z	Roslevin, Athlone (RSL)	Rathedmond, Sligo (RTD)

- 7.21 For a MI WDC access circuit terminating at a location in a Zone B WPZ served by a Non-Trunk Node, the boundary between trunk and terminating segments is determined by the region to which it belongs, which is set by the geographic location of either of the PE Nodes to which the Non-Trunk Aggregation Node is connected. In other words, Eircom is required to provide access from a location in a Zone B WPZ to any handover point identified by an Access Seeker within the region delimited by the PE Nodes serving the Non-Trunk Aggregation Node. By way of example, in respect of a premise located in a Zone B WPZ served by a Non-Trunk Node in Region 1 (Eircom Region Urban A), the Access Seeker can choose to have the MI WDC traffic handed-off (on an interconnection service) at any location in the Aggregation Area served by

- (a) a Non-Trunk Node within Region 1 (Eircom Region Urban A) in which the premise is located; or
- (b) Beggars Bush exchange; or
- (c) Priory Park exchange.

7.22 Where there are several PE Nodes in the same location (e.g., Limerick, Priory Park, Waterford), it is the location of the PE Node that matters, as opposed to the Eircom Region delimited by the specific PE Node: in other words the multiple PE Nodes in Priory Park and Waterford, delimit, for the purpose of establishing the boundary between trunk and terminating segments, one region, being Region 9, rather than the three Eircom Regions (Urban H, Provincial O and Provincial P). This is because the demarcation of the regulated product at the Trunk Node is set not by reference to the topology of Eircom's network but by reference to the presence of two alternative networks or more at an Eircom exchange containing an Aggregation Node.³⁶⁴

Associated Facilities and Services, including interconnection and co-location

- 7.23 In order that Access Seekers can avail of MI WDC services at locations within Zone B WPZs, they must be able to collect traffic from Eircom's network at Points of Handover ('**PoH**') – that is, at physical points of interconnection allowing traffic to pass between the networks – at all Trunk Nodes which set the boundary of regulated access (i.e., the boundary between trunk and terminating segments). However, although an Access Seeker should not be expected to collect traffic at a Non-Trunk Node, where they have a PoP served by the Non-Trunk Node, they should be able to interconnect with Eircom at that location and benefit from their investment deeper into the network. Eircom accordingly should continue to offer interconnection at all locations where it has Trunk and Non-Trunk Nodes including, in the case of NGN Ethernet services, using its Wholesale Ethernet Interconnect Link ('**WEIL**') product set.
- 7.24 In further recognition of the differing degrees of infrastructure deployment by Access Seekers, Eircom should continue to be obliged to facilitate a range of interconnection services, namely:

³⁶⁴ The same principle applies in respect of traffic originating from a location in a Zone B WPZ that is served by a Non-Trunk Node and which terminates at an Edge Node Handover ('**ENH**'). An ENH is handoff at an Aggregation Node installed at a premises which has diverse transmission links to the PE Nodes within the Aggregation Region. For instance, the boundary between trunk and terminating segments for traffic originating from a Zone B location served by a Non-Trunk Node in Region 4 and which terminates at Eircom's Data Centre Handoff ('**DCH**') at Telecity Data Centre Citywest (6CR) is Telecity Data Centre Citywest (6CR) which is located in Region 4.

- (a) **ISH** - the connection between the Exchange and the Access Seeker's nominated PoH in a chamber (including the exchange chamber³⁶⁵) in the vicinity of the Exchange, or equivalent facility;
- (b) **CSH** - the connection from the Eircom network to the Access Seeker's equipment in the Access Seeker's premises, which includes the installation of an Eircom Network Termination Unit ('**NTU**')³⁶⁶ at the Access Seeker's premises;
- (c) **IBH** - the connection from the Eircom network to the Access Seeker's equipment within an Eircom Exchange, or equivalent facility; and
- (d) **ENH** - the connection from the Eircom network through a dedicated Aggregation Node interface to the Access Seeker's equipment.

7.25 With the view to supporting further network rollout and infrastructure-based competition, Eircom should also be required to continue to allow the sharing of interconnection facilities between Access Seekers. This means that an Access Seeker availing of a WEIL from Eircom ('**Host Access Seeker**') may share it with another Access Seeker ('**Guest Access Seeker**'), subject to the Host and Guest Access Seekers agreeing terms. Such sharing, in addition to potentially lowering an Access Seeker's costs, also minimises Eircom's burden as regards the provision of builds of interconnection facilities.

7.26 Finally, the ability to interconnect should be further facilitated by requiring that Eircom continues to provide access to co-location in all Eircom's Exchanges serving Trunk and Non-Trunk Nodes, to include serviced space and ancillary services (including both Alternating Current ('**AC**') and Direct Current ('**DC**') power, tie cables and air-conditioning³⁶⁷) in an Eircom Exchange building or similar facility. The serviced space within an Eircom Exchange is used to accommodate equipment racks which house an Access Seeker's electronic equipment and are the PoH between the Eircom MI WDC IBH service and the Access Seeker's network. As such co-location is essential to Interconnection IBH Handover (i.e. the connection from the Eircom network to the Access Seeker's equipment within the Exchange, or equivalent facility).

7.27 For the same reasons that Access Seekers should be able to share their interconnection resources, Access Seekers availing of IBH-based

³⁶⁵ A chamber located, in whole or in part, under an exchange. There may be more than one exchange chamber at an exchange.

³⁶⁶ The physical interface which provides the service demarcation or Point of Handover of the wholesale service within the customer premises.

³⁶⁷ In exchanges where Eircom currently provide air-conditioning.

interconnection should be permitted to share their co-location spaces, their co-location rack and services within or between co-location racks with other Access Seekers (subject to appropriate agreements between them). This should allow an Access Seeker to avoid potentially long lead-times on the Co-Location facility installation³⁶⁸ and also has the potential to lower the effective cost of Co-Location and thereby lower barriers to entry/expansion in the Zone B MI WDC Markets.

Access to Eircom's Operations Support Systems ('OSS'), technical interfaces, protocols and other key technologies

7.28 In order to ensure the effectiveness of Eircom's provision of MI WDC services, Eircom should continue to be obliged also to provide Access to OSS and similar systems, as well as to technical interfaces and protocols, that are used for the purpose of placing orders for MI WDC services and availing of MI WDC services. Access to Eircom's OSS plays an important role in Eircom's provisioning of MI WDC services to Access Seekers and its downstream arm as well as for pre-ordering, ordering, fault and in-service management. Access to OSS is therefore essential to the effectiveness and efficiency of the operational aspects of the supply of the wholesale WDC products, services and facilities. Access to standards and other protocols is also necessary to ensure the interconnection and interoperability of networks.

7.2.3. Specified forms of Access

7.29 As part of its obligation to meet reasonable requests for access to MI WDC from a Zone B WPZ location up to the boundary between trunk and terminating segments at a Trunk Node, Eircom is required to continue to provide its current MI WDC offering and associated interconnection and co-location services and facilities, which it may not withdraw without the prior approval of ComReg, namely:

- (a) Eircom's NGN Ethernet product suite, delivered by way of a Wholesale Symmetrical Ethernet Access ('**WSEA**') access connection at a location within a Zone B WPZ, a Wholesale Ethernet Interconnection Link ('**WEIL**') at a serving Trunk or a serving Non-Trunk Node or at an exchange which contain a PE Node and a Wholesale Ethernet Service ('**WES**') logical connection(s) between the WSEA and WEIL (see Figure 20 and Figure 21 below); and

³⁶⁸ Including Co-Location footprint preparation, AC/DC power ordering and installation.

- (b) Eircom’s WDM product suite (Wholesale Uncontended Product (‘WUP’)), comprising a WDM connection at a location within a Zone B WPZ, a WDM interconnection Service and a WDM end-to-end circuit provisioned between the WDM access connection and the WDM interconnection service (see Figure 22 and Figure 23 below).

Figure 20 NGN Ethernet Service Overview (Same Node Handoff or SNH)

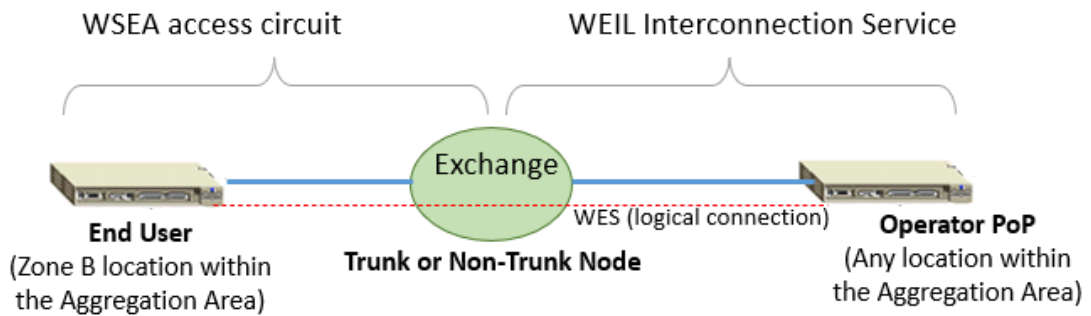


Figure 21 NGN Ethernet Service Overview (Same Region Handoff or SRH)

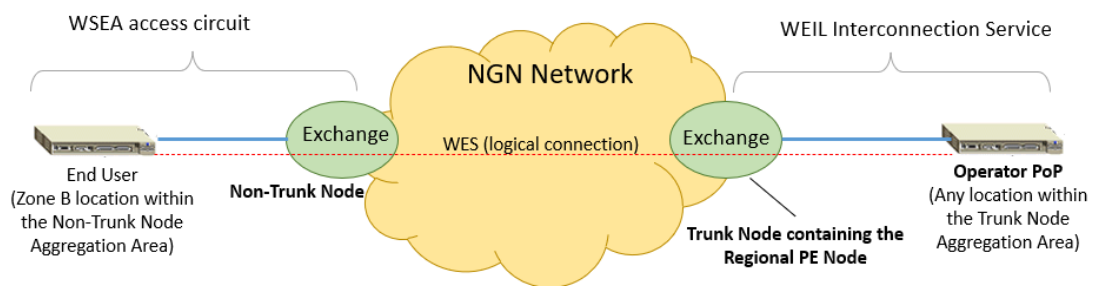


Figure 22 WDM Service Overview (Same Node Handoff or SNH)

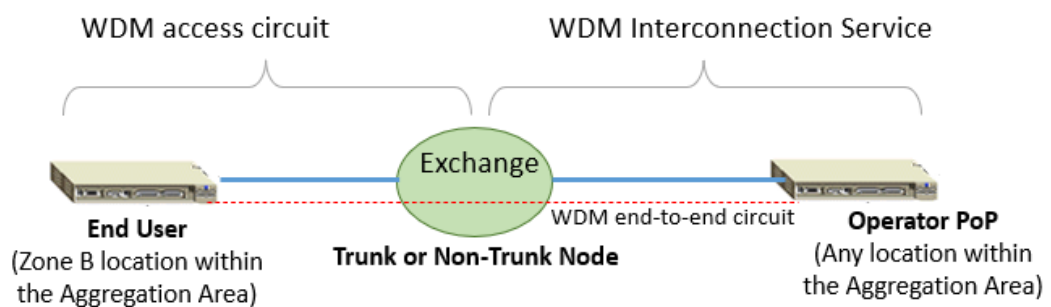
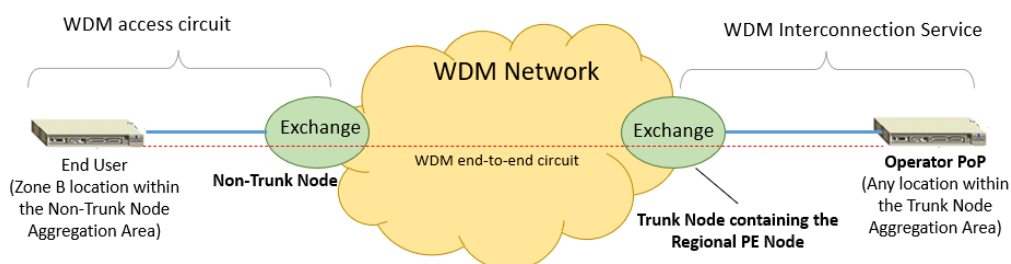


Figure 23 WDM Service Overview (Same Region Handoff or SRH)



7.2.4. Conditions to ensure fairness, reasonableness and timeliness of access

Overview

- 7.30 Regulation 55(3) of the ECC Regulations permits ComReg to attach to obligations and requirements for access, conditions covering fairness, reasonableness and timeliness. ComReg proposes, in order to ensure fair but effective and timely access to the Zone B MI WDC Markets, to attach conditions to Eircom's obligations of access so that Eircom:
- (a) May not refuse access by way of new product development or amendments to an existing product, unless the request is unreasonable and objective reasons have been provided to the Access Seeker;
 - (b) May only impose restrictions on access that are intended for the protection of the integrity of the network to the extent that they are justified, reasonable and proportionate;
 - (c) May not decline orders for an existing product where the order meets the terms and conditions for the product, and where an order is declined, must provide specific and clear reason text and codes to the Access Seeker at the closure of the order;
 - (d) May not withdraw access to facilities already granted without ComReg's prior written approval;
 - (e) Must negotiate in good faith, be it a request for a new or amended product, service or associated facility, or Service Level Agreements ('SLAs') and adhere to specified processes and timelines as regards the development of new products or amendments to existing products and SLAs; and
 - (f) Must offer meaningful SLAs, that is, legally binding contracts committing Eircom to defined service levels.

This is discussed in further detail below.

Refusal to grant of access for objective reasons

- 7.31 The obligation on Eircom to meet reasonable requests for access means that Eircom may only deny requests that are not reasonable. In practice, ComReg expects that circumstances giving rise to a legitimate denial of access would be exceptional and limited to those situations where objectively, it is not technically feasible to meet the request for access, or there are concerns regarding the protection of Eircom's network integrity which may not be mitigated otherwise than through denying access. This is consistent with the Code which states at Recital 191 that:

“...[access] requests should only be refused on the basis of objective criteria such as technical feasibility or the need to maintain network integrity.”

- 7.32 In this regard, a refusal of access based on Eircom’s commercial strategy or its assessment of Access Seeker needs does not constitute an ‘objective criterion’ as it involves the subjective intentions of Eircom.
- 7.33 ComReg notes in this regard that in considering whether requests for access are reasonable, in addition to ascertaining where necessary the technical feasibility of the requests, Eircom may, negotiating in good faith (refer to paragraphs 7.40 to 7.43), set out those terms and conditions that it proposes to attach to the product or features required to meet the access request. Therefore, requests for new forms of access (new products or improvements, variations or other amendments to existing products) may only be refused where Eircom’s reasonable concerns cannot be addressed by way of reasonable terms and conditions.
- 7.34 Once a form of access is reasonable, and a product is made available, there is no basis to decline or refuse orders for access which meet the reasonable terms and conditions associated with the product concerned.

Reasons to be given

- 7.35 In order to ensure clarity as regards the scope of Eircom’s obligation to meet reasonable requests for access, new products, or amendments to existing products, and to limit the possibility of misunderstandings and disputes between Eircom and Access Seekers, the reasons on which Eircom relies in refusing access (whether partial or in full) must be communicated in writing to the Access Seeker concerned at the same time as the refusal, in sufficient detail to allow the Access Seeker to understand the reasoning for the refusal.
- 7.36 Furthermore, with a view to facilitating monitoring by ComReg of compliance by Eircom with its obligation of access, Eircom should provide ComReg on a monthly basis with the list of all Access requests by way of new products or amendments to existing products received from any Access Seeker which have been accepted or rejected, refused or otherwise declined within the month, in each case giving the reasons for not meeting the request for access.

Withdrawal of access subject to ComReg’s prior approval

- 7.37 Given that access to Eircom’s MI WDC products, services and facilities, in the Zone B MI WDC Markets, is found to be necessary to address the competition problems arising from Eircom’s position of SMP, once granted, access should not be withdrawn. However, ComReg does not believe that it would be proportionate to force Eircom to maintain access to facilities once

granted in all cases and regardless of the circumstances. Accordingly, Eircom should be able to seek ComReg's prior approval to withdraw Access which approval ComReg may grant having regard to all circumstances in the case.

- 7.38 More specifically, ComReg proposes that Eircom is required to notify ComReg, in writing, of any proposal to withdraw access to facilities already granted, giving reasons borne out of a detailed analysis of the proposal for access withdrawal, including the impacts that the withdrawal of access is likely to have on existing Access Seekers and end-users.
- 7.39 Where Eircom proposes to withdraw access, ComReg may consult with relevant parties, prior to making a decision on whether to grant or to withhold its approval to any such request.

Requirement to negotiate in good faith

- 7.40 With the view to addressing the imbalance between Eircom and Access Seekers, Eircom should continue to be required to negotiate in good faith. Negotiating in good faith means that Eircom should not unnecessarily prolong negotiations.
- 7.41 The requirement to negotiate in good faith, given that Eircom has knowledge and expertise of its own network and systems which is not readily available to Access Seekers, also means that Eircom staff ought to provide meaningful guidance to Access Seekers as to how their Access requests could be best formulated, having regard to the purpose which the access would be put to. This obligation seeks to address the technical knowledge imbalances between the respective parties by reducing incentives to unnecessarily prolong product development timelines.
- 7.42 ComReg notes that the obligation to negotiate in good faith encompasses the way in which Eircom conducts the negotiations as well as the positions that it takes in them. In investigating an allegation of a failure to negotiate in good faith, ComReg might draw inferences from Eircom's behaviour and from the adequacy of the processes and controls it has put in place to assure compliance with this obligation. For example, ComReg might draw adverse inferences from the following:
- (a) a failure on the part of Eircom to behave in the way that a willing seller would behave when negotiating with a willing buyer;
 - (b) a failure by Eircom to respond to proposals made by Access Seekers in a timely and constructive manner;
 - (c) a failure by Eircom to deploy participants in the negotiations who have the appropriate knowledge and authority, so that negotiations could proceed in a timely manner;

- (d) the absence of effective controls to assure that decision-making processes within Eircom in relation to the negotiations could not be influenced by concerns about the commercial impact on Eircom's downstream business; and
- (e) the presence of incentives for individuals within Eircom who participated in or influenced the negotiations that might lead them to receive greater financial or other benefits if the negotiations were to be delayed, or to result in an outcome other than that which might have been freely negotiated between a willing buyer and a willing seller.

7.43 The precise nature of any investigation and the degree to which inferences might be drawn from behaviour would need to be assessed in the context of the actual circumstances of any particular case.

Product Development

7.44 A properly functioning product development process³⁶⁹ is particularly important for ensuring the development of effective competition in downstream markets and to allow Access Seekers to plan for and provide innovative services to downstream customers, including end-users. Uncertainty regarding the content and timing of product updates creates uncertainty in the market and can potentially lead to increased costs across the industry and to concerns regarding the availability of information to Eircom's downstream arm in advance of competing retail operators. Conversely, increased clarity and certainty with respect to product developments and process changes should enable Access Seekers to plan for such changes more effectively and, where necessary, to implement consequential changes to their own systems and processes. Any resulting improvement in resource allocation across the industry may lead to lower costs and improved speed to market for product innovations, ensuring the development of effective competition to the ultimate benefit of end-users.

7.45 However, in order to ensure that Access Seekers' requests for access are processed in a manner that is fair, reasonable and timely, there should be full clarity as regards key decision gates and development stages, so that Access Seekers may fully exercise their right to make requests for access to Eircom. In turn, the key decision gates and development stages should allow for Access Seekers' active participation.

7.46 In particular, clarity is required as regards the following:

³⁶⁹ The Eircom Regulated Access Product ('RAP') Product Development Process is a series of steps undertaken to bring a product idea from conception through to product launch.

- (a) The timeline during which the request will be analysed, developed and launched;
- (b) The stages of the product development process, including the times at which Access Seekers may provide inputs; and
- (c) The making of a request for access: the information that needs to be provided in order for an Access request to be processed by Eircom.

7.47 ComReg notes that ComReg's WLA Decision, Decision D05/24,³⁷⁰ required Eircom to improve its development process for WLA products; for efficiency and ease of implementation and application reasons, it makes sense that requirements imposed on Eircom in terms of the development of MI WDC products align with those applicable to WLA. ComReg accordingly proposes that the following requirements apply in respect of the development of new and amended MI WDC products:

- (a) Eircom should acknowledge in writing within three (3) working days of receipt, a request for Access, be it for a new product, service, or associated facility or an amendment to an existing product, service, or associated facility, including in both cases requests for SLAs, and provide the requestor with a unique reference to identify the Access request;
- (b) All Access Seekers should be informed of receipt of a request for Access, as soon as possible and in any event within fifteen (15) working days of the receipt of the request, to include details of the request's allocated unique reference number (to allow tracking of the request), a copy of the request, and a description of the key features and functionality requested;
- (c) Within fifteen (15) working days of the receipt of the request, on a per request basis, Eircom should publish an engagement plan outlining:
 - (i) How and when it will consult and seek design input from the requestor and other Access Seekers (for example, workshops, meetings, Eircom's Product Development Workshop ('**PDW**'), etc.);
 - (ii) How and when it shall consult and seek views from the requestor and other Access Seekers with regard to SLA requirements;

³⁷⁰ Wholesale Local Access (WLA) provided at a fixed location, ComReg 24/07, Decision D05/24, 18 January 2024.

- (iii) What timelines will be used for design input and SLA negotiations (in the case an Access request is for a new or amended SLA); and,
 - (iv) When it will issue its status update (see below), which should be as soon as possible but no later than eighty-five (85) working days after receipt of the request.
- (d) Eircom should publish a status update as soon as practicable and in any event within eighty-five (85) working days of receipt of the request, with the following information:
- (i) A description of the solution to be provided including any aspects of the proposed solution which do not reflect or are inconsistent with the request, and the objective reasons therefor, including in particular differences in key features, functionality, or any other limitations;
 - (ii) The development timelines including proposed notification, publication and launch dates;
 - (iii) What timelines will be used for SLA negotiations (in the case where an Access request is for a new or amended product, service or Associated Facility); and
 - (iv) The priority level granted to the request and any impact on the priority granted to other Access request, including any input values and calculations used by Eircom in the determination of the prioritisation of the request, and where other Access requests are being reprioritised as a result (whether granting a lower or higher priority), the reasons for same.

7.48 By allowing Eircom to propose the development timelines, ComReg is giving Eircom the flexibility to assess each Access request individually and plan and carry out its delivery in the most efficient and time effective manner. This is balanced by the requirement that once set by Eircom, the product development timelines proposed by Eircom must be adhered to and may only be deviated with ComReg's consent.

7.49 Moreover, in the case where an Access Seeker believes that Eircom is unduly delaying the development of an Access request, it may seek ComReg's intervention by way of dispute resolution under Regulation 67 of the ECC Regulations. Furthermore, ComReg may independently intervene in the case where Eircom proposes a timeline which is considered by ComReg to be unreasonable or unduly long by directing Eircom to deliver the

request within a specific timeline and ensure that the Access request is met in a timely manner.

Service Level Agreements ('SLAs')

- 7.50 SLAs are essential in ensuring Access Seekers' ability to rely on access to Eircom's network in delivering products in downstream markets, including in ensuring Access Seekers' ability to commit to service levels to their own customers. Both sub-standard SLAs and delays in negotiating and agreeing SLAs may have a significant detrimental impact on Access Seekers, in particular those who are trying to enter the market or grow market share and win customers from established SPs such as Eircom. Sub-standard SLAs may manifest, *inter alia*, in inadequate repair times, or service credits at a level which do not incentivise Eircom to meet the service levels committed to. Delays in the development and availability of suitable SLAs can have an adverse impact on competition and on end-users, as the absence of suitable SLAs ultimately lowers certainty regarding the timeliness and quality of Access being provided.
- 7.51 In addition to demanding higher quality and more innovative products and services, end-users expect efficient and timely provision of services, including a high degree of reliability and effective fault management and repair. As such, Access Seekers are reliant on efficient delivery, service quality and after-sales support from Eircom in order to be able to compete effectively in downstream markets. In this regard, ComReg notes that the expected level of service, both at the point of delivery and in-life, are key selling points which can influence an end-user when coming to a decision to purchase a product or service or to switch service providers. This means that the SLAs supporting regulated MI WDC wholesale products are an extremely important component of the wholesale input and are integral to the wholesale offering.
- 7.52 Fit-for-purpose SLAs achieve two main objectives: first, they help, in setting agreed service levels between Eircom and Access Seekers, ensure that Access is provided in a manner that is fair, reasonable, and timely, and second, they ensure that Access Seekers are compensated where service levels are not met. The two go hand in hand. SLAs give Eircom actual and adequate incentives to deliver agreed service levels, allowing Access Seekers to commit to, and compete on, guaranteed levels of service in downstream markets, but only if SLAs provide for the payment by Eircom to Access Seekers of meaningful compensation where agreed service levels are not met.
- 7.53 The nature of an effective, fit-for-purpose SLA will depend on many factors, including the nature of the wholesale services provided by Eircom and the nature of the downstream retail or wholesale services to be provided by

Access Seekers. An SLA could be based on a commitment to achieve specified service levels, or on the occurrence of particular events such as service outages, or indeed other circumstances. It shall also be possible for Access Seekers to make a reasonable request for changes to the SLA provided by Eircom. The precise nature of such an Access Seeker requested SLA would be best settled in negotiations between Eircom and Access Seekers (subject to the condition that Eircom and/or Access Seekers may seek ComReg's intervention by way of dispute resolution under Regulation 67 of the ECC Regulations).

- 7.54 In light of the risks highlighted above and having regard to Eircom's incentives in delaying negotiations or only agreeing sub-standard levels of service, ComReg is of the view that it is justified and appropriate to set down detailed requirements as regards the conduct of negotiations and the content of SLAs, as discussed in the following paragraphs.

SLA Negotiation Period and Conclusion in respect of a Request for a new SLA or amended SLA for existing products

- 7.55 Prolonged discussions on the details of the SLA or prolonged deliberation by Eircom only serve to delay the availability of SLAs, and for the reasons set out above, this is not in the best interests of Access Seekers, competition, or end-users. It can also amount to an effective refusal of access.
- 7.56 ComReg proposes to avert this risk by setting a maximum period of time of six months for discussions to take place as regards an amendment to an existing SLA or a new SLA (the '**SLA Negotiation Period**') in respect of an existing product, service, or associated facility. During the SLA Negotiation Period, Eircom must discuss and negotiate in a proactive manner, and in good faith, with Access Seekers. The SLA Negotiation Period is to end no later than six months from the request for SLA, either by agreement between the relevant parties or, in the absence of agreement, on the expiry of the six-month period or on any date prior where all parties agree that the negotiations are at an end, with Eircom making its Best and Final Offer ('**BAFO**').
- 7.57 ComReg further proposes that Eircom's BAFO becomes effective within three months of its being made, save where Eircom has applied, setting out reasons therefor, for an extension of the three-month period and ComReg, at its sole discretion, has granted same.
- 7.58 As noted above, during the SLA Negotiation Period Eircom must discuss and negotiate in a proactive manner, and in good faith, with Access Seekers. In this regard, Eircom must use the most appropriate means of negotiating that are suitable for the circumstances relating to the subject matter to be negotiated. ComReg would not for example consider limiting negotiations to written correspondence to be in alignment with the requirement to negotiate

in good faith if a more effective means of negotiating would be to meet with Access Seekers. Similarly, placing an unnecessary requirement for a meeting to take place when the matter would more effectively be addressed in writing would also not be in good faith. Nothing in the proposed requirements with respect to SLAs preclude Eircom from using the most appropriate means of negotiating based on the circumstances involved.

SLA Negotiation Period and Conclusion in respect of new product development or amendment to existing product

- 7.59 Specific issues arise in respect of new product development (to include amendments to existing products) where Eircom may have the incentive to delay SLA negotiation until after the completion of the product development and/or only provide an insufficient or basic SLA which does not meet Access Seeker requirements, thereby undermining the timely and effective use of the products in question. ComReg considers in this regard that SLAs are, in general, an integral part of a product offering. While not all amendments to products, services or associated facilities will require changes to the associated SLA, Access Seekers are likely to have a view as to whether proposed amendments to existing products, services or associated facilities will also require an associated SLA amendment. For these reasons, the 2020 Decision introduced an obligation on Eircom that new or amended SLAs for new or amended products, services or associated facilities be available at time of launch to avoid any restriction or distortion on competition. ComReg proposes that this obligation will continue.
- 7.60 In order to ensure that this is the case, ComReg proposes that Eircom should notify the SLA at the same time as the notified new or amended product documentation. Eircom shall publish dates for the SLA Negotiation period, including the start date, with the status update (no later than 85 days from receipt of the request) to ensure that the SLA can be notified with the new or amended product documentation. This will ensure that the SLA Negotiation Period runs alongside the specific product development timelines published in the status update and ensures that SLA requirements are included and taken into account in the development of the Access request. The SLA Negotiation Period is to end no later than six months from the start date of the SLA Negotiation period, either by agreement between the relevant parties or, in the absence of agreement, on the expiry of the six-month period or on any prior date where all parties agree that the negotiations are at an end, with Eircom making its Best and Final Offer ('**BAFO**'). This should limit the risk of delays caused by requiring the SLA to be ready for the new or amended product launch.

- 7.61 The agreed SLA or Eircom's BAFO shall become effective following the advance notification timeline requirements,³⁷¹ save where Eircom has made an application setting out its reasons for an extension and ComReg has used its sole discretion to grant the extension.
- 7.62 The alignment of the SLA negotiation process with the existing product development timelines should not add any significant burden on Eircom. This obligation will provide certainty for Eircom and Access Seekers on when new or amended SLAs relating to Access requests for new or amended products, services or associated facilities will be negotiated.

Service Credits

- 7.63 There should be clarity as regards the circumstances where a right to compensation arises, and the methodology used by Eircom to calculate the appropriate amount of compensation due to Access Seekers. Clarity on both aspects is required in order that Access Seekers understand how Eircom arrived at the calculated amount of service credit and based on this knowledge have assurances that Eircom is appropriately incentivised to deliver the agreed level of service.
- 7.64 Meaningful compensation means that Access Seekers recoup through compensation at a minimum the direct costs and any other loss of value arising from Eircom's failure to meet the agreed level of service. Appropriately incentivised means that it should not be less costly for Eircom to pay the SLA service credits than meet the agreed service levels. To that end, ComReg proposes that Eircom is required to:
- (a) Make available to Access Seekers during the SLA Negotiation Period an explanation of the proposed levels of service credits by reference to the costs to Eircom of deploying resources to meet the committed SLA service levels, and expected direct costs and any other reasonable loss of value likely to be incurred by Access Seekers where service levels are not met, as estimated by Eircom, itemising the relevant elements (such as lost rental cost, work crew redeployment cost, etc.) contributing to each service credit, along with their monetary value; and
 - (b) Make available to Access Seekers during the SLA Negotiation Period worked examples of use cases where SLA payments are triggered and service credits are due, to allow Access Seekers to reconcile service credit payments with the requirements of the SLA and with the service provided by Eircom over the relevant period;

³⁷¹ Outlined in Transparency, section 7.4 below.

- 7.65 SLA service credits should be fair and reasonable. It is reasonable that Access Seekers should not have to bear any administrative burden relating to the payment of service credits as such payments arise from Eircom not meeting committed service levels.
- 7.66 The calculation and justification regarding the value of service credits and how they, firstly, incentivise Eircom to deliver an efficient level of service and secondly, cover costs incurred by operators in the event of metrics not being met, does not impose any significant burden on Eircom. Moreover, appropriate levels of service credits should benefit Access Seekers in providing further assurance that they will not be at a loss due to Eircom failing to meet SLA committed service levels.
- 7.67 It is accordingly important that Eircom provides the methodology for calculating the quantum of service credits within the SLA documentation and justification for same, including how they incentivise Eircom to deliver an efficient level of service and allow Access Seekers to recoup direct costs and other loss of value, along with associated supporting evidence. The SLA documentation should contain an itemised list of direct costs and other losses of value contributing to the service credit and the associated monetary value as well as worked examples of use cases where SLA payments are triggered and service credits are due. Furthermore, Eircom should seek input on all aspects of service credits during the SLA Negotiation period and discuss same with Access Seekers.

Suspension of an SLA

- 7.68 ComReg understands that there are some circumstances under which an SLA may need to be suspended. Suspension of an SLA should be an exceptional occurrence and should not have the effect of neutralising the SLA. ComReg notes in this regard that SLA suspensions, particularly where they are prolonged or unexpected, can have a significant impact on the effectiveness of the underlying levels of Access being provided. It is essential that any suspension of an SLA is based on objective measurable criteria. Access Seekers should have an opportunity to input into the development of these objective criteria.
- 7.69 Accordingly, where Eircom wishes to provide for the possibility of suspending the SLA, as part of the terms and conditions of the SLAs, such terms and conditions should be agreed with Access Seekers during the SLA Negotiation Period. In negotiating, and providing for, the terms and conditions governing the circumstances when the SLA can be suspended, and the process to be applied for the suspension of the SLA, Eircom is required to ensure such terms and conditions are reasonable, transparent, clear and detailed, and based on objectively defined and measurable parameters. This information will be included in the published SLA documentation and Access Seekers

informed of each instance of an exclusion from the SLA together with the parameters upon which the exclusion is based.

7.3 Non-discrimination obligations

7.70 Eircom is subject under the 2020 Decision to an obligation of non-discrimination. The requirement for non-discrimination applies both as regards the treatment of Access Seekers by Eircom as between those Access Seekers, so that Eircom must apply equivalent conditions in equivalent circumstances; it also applies as regards the treatment of Access Seekers as between those Access Seekers and Eircom itself (including its subsidiaries, affiliates and partners) on an Equivalence of Outputs ('**EoO**') standard. An obligation of non-discrimination at the EoO standard means that Eircom has the choice of the systems and processes that it uses to provide access on a non-discriminatory basis, by contrast with an obligation of non-discrimination at the Equivalence of Inputs ('**EoI**') standard where Eircom is required to use the same systems and processes that it uses for its own purposes to deliver access.

7.71 Regulation 52 of the ECC Regulations provide that ComReg may impose on an SMP operator obligations of non-discrimination in relation to access or interconnection in order to ensure that the SMP operator concerned:

- (a) applies equivalent conditions in equivalent circumstances to other operators providing equivalent services; and
- (b) provides services and information to others under the same conditions and of the same quality as the SMP operator provides for its own services or those of its subsidiaries, affiliates, or partners.

7.72 Regulation 52(3) of the ECC Regulations provides further that ComReg:

"...may impose on an SMP operator obligations to supply access products and services to all undertakings, including to itself, on the same timescales, terms and conditions, including those relating to price and service levels, and by means of the same systems and processes, in order to ensure equivalence of access."

7.73 As noted in Recital 184 of the Code, the purpose of the principle of non-discrimination ensures that operators with SMP do not distort competition, in particular, where they are vertically integrated operators that supply services to operators with whom they compete in downstream markets. Non-discrimination obligations also play an important role in ensuring the effectiveness of other obligations such as those relating to access, transparency, and price control. In turn, obligations of transparency, for

example those relating to KPI metrics and performance metrics, support non-discrimination obligations.

- 7.74 In light of Eircom’s vertical integration, and Eircom’s ability and incentive to discriminate between itself and Access Seekers in relation to pre-ordering, ordering, provisioning, and service assurance of MI WDC, ComReg proposes to impose an obligation of non-discrimination on Eircom, both as regards discrimination between its wholesale customers, and between wholesale customers and its own services and/or partners. An obligation of non-discrimination is intended to ensure that Eircom does not favour itself, or unduly favour any particular Access Seeker in the provision of MI WDC products, services and information, such that it might otherwise restrict or distort competition in any downstream market, ultimately impacting on the development of sustainable retail and/or wholesale competition.
- 7.75 The European Commission notes in its Non-Discrimination and Cost Methodologies Recommendation³⁷² that one of the main obstacles to the development of a true level playing field for Access Seekers is the preferential treatment of the downstream businesses of a vertically integrated SMP operator (for example, discrimination regarding quality of service, access to information, delaying tactics, undue requirements and the strategic design of essential product characteristics). The Commission emphasises that:

“..it is particularly difficult to detect and address non-price discriminatory behaviour through the mere application of a general non-discrimination obligation. It is, therefore, important to ensure true equivalence of access by strictly applying non-discrimination obligations and employing effective means to monitor and enforce compliance”.

- 7.76 Recital 185 of the Code notes that

“..in order to address and prevent non-price related discriminatory behaviour, equivalence of inputs (EoI) is the surest way of achieving effective protection from discrimination. On the other hand, providing regulated wholesale inputs on an EoI basis is likely to trigger higher compliance costs than other forms of non-discrimination obligations...”

³⁷² Commission Recommendation 2013/466/EU of 11 September 2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment, OJEU [2013] L251/13. ([NDCM recommendation](#))

- 7.77 Given Eircom's vertical integration, it is essential in order to ensure fair competition on the retail market and that the retail market remains competitive, that Access Seekers relying on access to Eircom's MI WDC benefit from the same terms and conditions and information as Eircom provides to any Access Seeker and to its own downstream arm. In this regard, when Eircom provides Access Seekers with Access to NGN Ethernet products, services and associated facilities in the Zone B MI WDC Markets, including Access to information, Eircom is required to do so in a manner which achieves the same standards in terms of functionality, price, terms and conditions, service and quality levels as Eircom provides to itself for the purposes of providing products, services and facilities in the Zone B MI WDC Markets, albeit potentially using different systems and processes.
- 7.78 ComReg notes that to date, Eircom has used different systems and processes to supply its retail arm with access to dedicated capacity services. In particular, Eircom's downstream retail arm does not consume the Eircom wholesale NGN Ethernet service, which is a 'layer 2' service comprising of physical (WEIL, WSEA) and logical (WES) circuits. Instead, Eircom's retail arm is provided with and consumes a Layer 3 NGN Ethernet service and is not required to order the wholesale NGN Ethernet set.
- 7.79 Against this background, ComReg considered in reaching the 2020 Decision, whether Eircom should be required to meet its obligation of non-discrimination at the EoI, rather than the EoO, standard and decided that it would not be appropriate and proportionate to do so. ComReg in particular noted that requiring Eircom to use the same systems and processes would likely involve significant developments in the OSS used to deliver the NGN Ethernet suite of products and services, in order to upgrade or replace them to meet an EoI standard. In ComReg's view, this would not be justifiable or proportionate as it would likely involve costly systems re-development, the incremental benefits of which would not likely be substantial.³⁷³
- 7.80 ComReg does not believe that there have been developments in the market that would justify taking a different approach at this time and require Eircom to provide Access by way of its existing NGN Ethernet product suite in the Zone B MI WDC Markets on a non-discriminatory basis at an EoI standard. ComReg accordingly does not propose to require Eircom to deliver existing MI WDC products on an EoI basis.
- 7.81 However, ComReg does not believe that the proportionality considerations applicable in respect of Eircom's existing MI WDC product suite would apply

³⁷³ 2020 Decision, paras 10.246 to 10.257, pp. 499 to 502.

in respect of the introduction of new forms of MI WDC Access and cognisant of the EC's Recommendation, Eircom should offer any new MI WDC products that do not rely on, or are amendments to, its NGN Ethernet and WDM product suites, on a non-discriminatory basis at an EoI standard.

7.4 Transparency

7.4.1. Overview

- 7.82 Eircom is subject, under the 2020 Decision, to a general obligation of transparency. The 2020 Decision specifies a number of requirements arising under Eircom's obligation of transparency including in particular that Eircom must publish a LLRO setting out the terms and conditions applicable to access, including prices, and detailed descriptions of the products and services available from Eircom, and SLAs. Specific timelines apply in respect of the provision of advance notification to Access Seekers and to ComReg of proposed changes to the LLRO, to prices and the introduction or amendment of products, services and facilities.
- 7.83 Other specific transparency requirements include requirements regarding clarity of billing, the publication of Key Performance Indicators ('KPIs') and reporting on actual performance achieved on an aggregate basis compared to the committed service levels contained in relevant SLAs, and the publication of information with respect to the progress of access requests through the Eircom product development process as well as information on that process.
- 7.84 Finally, Eircom is required to publish in advance of implementation, information regarding its rollout plans, and information relating to wholesale products, services and facilities.
- 7.85 Regulation 51 of the ECC Regulations provides that ComReg may impose obligations to ensure transparency in relation to access or interconnection. This requires an SMP operator to make public specific information such as accounting information, technical specifications, network characteristics, prices, and terms and conditions for supply and use, including any permissible conditions limiting access to, or use of, services and applications. Regulation 51 makes it clear that the information that an operator may be required to make public includes network characteristics and expected developments.
- 7.86 Transparency of Eircom's supply of MI WDC in the Zone B MI WDC Markets is critical to ensuring fair competition at both wholesale and retail levels, given Eircom's vertical integration and the national scope of the retail market in contrast to the wholesale market which is demarcated in two main zones.

Only full transparency in the supply by Eircom of MI WDC services in the Zone B WDC Markets will ensure that there is no discrimination between Eircom and Access Seekers, including pricing discrimination by way of cross-subsidisation between Zone A and Zone B MI WDC Markets, and through to the retail market, and that there is fair competition at both wholesale and retail levels, for the benefit of end-users.

- 7.87 As such, ComReg is of the view that it is necessary to maintain Eircom's transparency obligation in order to monitor and ensure the effectiveness of the obligations of access, non-discrimination and price control obligations.
- 7.88 ComReg proposes to retain the transparency obligations as they apply under the 2020 Decision, subject to a number of adjustments, as discussed below. The obligations include the following:
- (a) A requirement to publish a Reference Offer setting out the terms and conditions including prices on which MI WDC is available to Access Seekers;
 - (b) A requirement to provide advance notice of price and non-price changes to ComReg and to Access Seekers and to have a change management process for changes to the Access Reference Offer;
 - (c) A requirement to publish information on product development;
 - (d) A requirement to publish a network rollout plan;
 - (e) A requirement to publish Key Performance Indicators; and
 - (f) A requirement to publish performance with respect to Service Level Agreements.
- 7.89 Each of these categories is considered in further detail below.

7.4.2. Reference Offer

Terms and conditions including prices applicable to Zone B MI WDC circuits

- 7.90 Section 51(5) of the ECC Regulations provides that where an operator is subject to obligations concerning wholesale access to network infrastructure, ComReg is required to ensure the publication of a reference offer takes utmost account of the BEREC guidelines on the minimum criteria for a reference offer issued in accordance with Article 69(4) of the Code. BEREC issued such guidelines³⁷⁴ on 5 December 2019. The BEREC Guidelines set

³⁷⁴ BEREC Guidelines on the minimum criteria for a reference offer, BoR (19) 238, 5 December 2019.

out four categories of information to be included in a reference offer, as follows:

- (a) Terms and conditions for the provision of network access;
- (b) Details of operational processes;
- (c) Service supply and quality conditions; and
- (d) General terms and conditions of the agreement.

7.91 ComReg proposes in this regard to maintain Eircom's obligation to publish a LLRO setting out the products, services and Associated Facilities offered on a regulated basis. In particular the terms and conditions, including price, under which regulated MI WDC is available should be transparent and clear and set out so in the LLRO. In order to ensure full transparency of the terms and conditions, including prices, applicable to regulated terminating segments, only the terms and conditions including prices that apply to MI WDC circuits terminating in Zone B WPZs should be set out in the LLRO. This means that Eircom should discontinue its current practice of publishing in addition to prices applicable to Zone B MI WDC circuits, the prices applicable to circuits terminating in Zone A WPZs.

7.92 More generally, clear and unambiguous wording must be used in all material published or to be provided to Access Seekers. In accordance with general principles governing contracts, vague or ambiguous terms will be construed in the favour of Access Seekers.

Terms and conditions for the provision of network access

7.93 A reference offer contains a description of the offer of contract for access broken down into components according to market needs. ComReg notes that this requirement will be satisfied by the LLRO taking the form of a draft contract setting out a description of the specific contractual terms and conditions, including prices, associated with each of the network access products, services and associated facilities provided in the Zone B MI WDC Markets, as well as the technical characteristics of the products, services and associated facilities offered in terms of MI WDC.

7.94 For the avoidance of doubt this includes each of the specified products and services that Eircom is required to make available as part of its obligation of access.

7.95 Also required to be published is information on any relevant ancillary, supplementary and advanced services (including interconnection and co-location as well as operational support systems, information systems or databases for pre-ordering, provisioning, ordering, maintenance and repair requests and billing), including their technical usage restrictions and

procedures to access those services; the relevant charges, terms of payment and billing procedures; and applicable requirements and processes for operator accreditation and audit.

- 7.96 As regards billing, Eircom is required to ensure that invoices for MI WDC products, services and associated facilities are sufficiently disaggregated, detailed and clearly presented so that an Access Seeker can reconcile the invoice to Eircom's LLRO and the LLRO Price List. This is to ensure that Access Seekers may monitor the wholesale charges being levied on them and facilitate an auditable means of detecting any billing anomalies and/or non-compliance with regulatory obligations. Invoices for MI WDC products, services and associated facilities include any associated documents or records provided by Eircom to Access Seekers for the purpose of billing on a recurring basis. For the avoidance of doubt, Eircom must charge the regulated price, and no other price, in respect of any products, services and associated facilities for the provision of MI WDC in the Zone B MI WDC Markets and Eircom may not quote or invoice an Access Seeker on any other basis.
- 7.97 By default, Eircom should invoice Access Seekers on a monthly basis, one month in advance of the provision of the relevant service, with credit terms set at thirty (30) calendar days. Access Seekers and Eircom may however mutually agree on alternative credit arrangements if they so wish. For the avoidance of doubt, the system and processes that Eircom implements to issue invoices to Access Seekers must not be such that reconciliation is required by it or Access Seekers on an ongoing basis and any use of reconciliation for invoices must only be by exception.

Details of operational processes

- 7.98 ComReg proposes that Eircom publish details of all relevant operational processes, including in terms of:
- (a) The process and requirements applicable to product development including information requirements; timelines; prioritisation and criteria; and decision making processes;
 - (b) The Product Development Roadmap, namely the list of all proposed, planned and in progress developments for regulated products, services and associated facilities and related information, ensuring that such Roadmap remains up-to-date;
 - (c) Pre-ordering, ordering, provisioning and service assurance;
 - (d) Information on reason codes for declined orders. Such information must be provided in sufficient detail so as to allow operators clearly understand the reason why an order was declined;

- (e) Rules of allocation of space between the parties when co-location space is limited;
- (f) Repair and maintenance;
- (g) IT systems and changes to such systems to the extent that they impact Access Seekers and publish such changes in sufficient detail to allow Access Seekers to perform independently any development that may be required to adapt to such changes;
- (h) Details of any necessary interoperability tests for service establishment;
- (i) Specification of cables and equipment to be used on the network.

7.99 ComReg notes in particular that transparency as regards Eircom's product development process and the rules used by Eircom to prioritise product developments and meet Access requests in a fair, timely and reasonable manner is a key aspect of an Access Seekers' ability to rely on access to Eircom's MI WDC. ComReg proposes to require that Eircom publish the process and criteria, including the input values and calculations, used by it for the purpose of prioritisation.

7.100 Access Seekers also need to be able to plan for the introduction of new products, services or associated facilities and therefore need information, with a reasonable degree of certainty, regarding the characteristics, timing and the availability of developed products, services or associated facilities.

7.101 Therefore, Access Seekers must:

- (a) be provided with sufficient information relating to the contents of proposed product developments;
- (b) be provided with sufficient information to understand the criteria and process used by Eircom for prioritising developments; and
- (c) be made aware of the proposed launch dates of any new products or changes to existing products.

7.102 ComReg proposes that Eircom publish, and keep updated, on its publicly available wholesale website, a description of its product development process, including a description of all process steps and activities and identifying all key points in Eircom's product development process, to include the points where Eircom decides to advance, delay or terminate the development of a product, service or facility (the '**Product Development Decision Points**') and any key stages in the analysis, design, development and launch, and the date on which the product, service or facility will be made available (together, '**Milestones**') from receipt of a written request for access to the launch of a new or amended wholesale product, service or facility.

7.103 ComReg also proposes that Eircom is required to publish the list of all proposed, planned and in progress developments for regulated products, services and associated facilities (hereafter, the '**Product Development Roadmap**') on its publicly available wholesale website and keep such Product Development Roadmap up-to-date on an ongoing basis, including the following details for each Access request, which are to be provided as soon as possible and in any event no later than within 15 working days of receipt of the request:

- (a) the unique reference to identify the Access request; and
- (b) a description of the request and copies of or links to all relevant documentation.

7.104 In addition, the Product Development Roadmap is to be kept up-to-date with the priority given by Eircom to each request.

Service supply and quality conditions

7.105 In line with the BEREC Guidelines, ComReg proposes that Eircom is required to publish on its wholesale website the SLAs that it negotiates and agrees as part of its obligation of access and the requirement to ensure fair, reasonable and timely access.

General terms and conditions of the agreement

7.106 Finally, the draft contract offer published as part of the LLRO should contain all applicable general terms and conditions, including (without limitation):

- (a) Eircom's dispute resolution procedures to be used between it and Access Seekers;
- (b) Definition and limitation of liability and indemnity;
- (c) Glossary of terms relevant to wholesale inputs and other items concerned; and
- (d) Details of duration, renegotiation and causes of termination of agreements.

7.4.3. Publication, notification and advanced publication

Form of publication

7.107 The information to be made available by Eircom under the proposed transparency obligations is, by default, to be published on Eircom's publicly available wholesale website.

7.108 ComReg proposes that in exceptional circumstances, in respect of information that is required to be made available under the proposed transparency obligations but is commercially sensitive such that it would not

be appropriate to share such information beyond the Access Seekers availing of MI WDC, or with a demonstrable intention to avail of MI WDC from Eircom, Eircom restrict access to such information. For example, this could be done by requiring a password to access a section of Eircom's wholesale website and/or subject its provision to reasonable terms and conditions such as the requirement to enter into a Non-Disclosure Agreement. ComReg reserves the right to intervene, as appropriate, including to require Eircom to make certain information publicly available where Eircom cannot provide appropriate justification for not doing so.

Changes to the LLRO

7.109 Publication or the making available of information by way of the LLRO as described above will only meet the objective of transparency if the published/available documentation remains up-to-date and Access Seekers may easily ascertain what changes have been made. The provision of clear information on what changes are made to the LLRO and when such changes are made also supports monitoring and enforcement of compliance with SMP obligations. ComReg accordingly proposes that Eircom:

- (a) Publish and keep updated on its publicly available wholesale website both clean (or unmarked) and tracked changes (or marked) searchable versions of the LLRO and LLRO Price List. The tracked change version must be sufficiently clear to allow Access Seekers to clearly identify all forthcoming amendments from the preceding version of the LLRO /LLRO Price List;
- (b) Publish and keep updated on its publicly available wholesale website an accompanying change matrix which lists all of the amendments incorporated, or to be incorporated, in any amended LLRO/LLRO Price List (the 'LLRO/LLRO Price List Change Matrix'); and
- (c) Publish and maintain on its publicly available wholesale website, a copy of historic versions of its LLRO, LLRO Price List, LLRO Change Matrix and LLRO Price List Change Matrix.
- (d) Detail effective and historical charges in separate LLRO documents.

Advance notification timeframes

7.110 In order that changes are made transparently and are clear to all, allowing Access Seekers to factor changes into their commercial decision-making activities and make any necessary adjustments or developments to systems or operational processes, ComReg proposes that changes to the LLRO and associated documentation are subject to prior notice to ComReg and separately, to Access Seekers.

- 7.111 Under the 2020 Decision, Eircom is subject to advance notification requirements with respect to amendments or changes to the LLRO or the LLRO Price List as follows: Eircom must notify ComReg five working days in advance of the proposed publication of the amendments or changes, with such publication to take place at least three months in advance of the amendments or changes coming into effect (the '5 working day + 3 month notification rule').
- 7.112 ComReg notes that applicable timelines under the 2020 Decision have differed from those applicable to other regulated markets including in particular under the 2024 PIA Decision and the 2024 WLA Decision, both of which continued in place, with some amendments, the notification rules and timelines set out in ComReg's 2018 WLA Decision. ComReg does not believe that there are any specific reason at present why different rules should apply to regulated wholesale leased lines products as compared to WLA or PIA products and believes that it would make good sense to align the notification timelines across the regulated product set (save where there are good reasons to have different rules).
- 7.113 Under the 2024 PIA and 2024 WLA Decisions, Eircom is required, by default, to notify ComReg of proposed amendments or changes at least one month in advance of the proposed publication, and that published amendments or changes then come into effect two months after publication. Proposed amendments to the LLRO Price List relating to new or amended products, services or associated facilities shall continue be made available at the same time to Access Seekers and ComReg as the relevant proposed amendments to the LLRO. ComReg proposes to adopt those timelines for the purpose of the LLRO noting that the one month advance notification allows for a more meaningful engagement between ComReg and Eircom.
- 7.114 ComReg proposes accordingly that by default, amendments to existing products, services or associated facilities or the introduction of new products, services or associated facilities (including prices) should be notified to ComReg at least three months in advance of changes coming into effect, and to Access Seekers at least two months in advance. In other words, ComReg is to be notified one month in advance of notification to Access Seekers ('the 1 + 2 advance notification rule'). While this reduces the time currently provided for publication prior to proposed amendments or changes coming into effect it provides an appropriate balance between providing a more meaningful engagement with Eircom during the notification period to ComReg and not unnecessarily extending the publication period prior to such proposed amendments or changes coming into effect.
- 7.115 As an exception to this 1 + 2 advance notification rule, ComReg also proposes that Access Seekers must be provided with an appropriate period

of notice with regards to specific changes that would require Access Seekers additional time in order to effectively compete with Eircom in downstream markets using new or amended products, services or associated facilities. The specific exceptions to the 1 + 2 notification rule are with respect to changes to Eircom's IT systems or where an Access Seeker would need to source or purchase any new equipment or update existing equipment without which it would not be possible for Access Seekers to continue to order existing, products, services or associated facilities or to be able to order new or amended products, services or associated facilities. In these circumstances, ComReg proposes that the associated changes to the LLRO and LLRO Price List should be given to ComReg at least seven months in advance of changes coming into effect, and to Access Seekers at least six months in advance. In other words, ComReg is to be notified one month in advance of notification to Access Seekers ('the 1 + 6 advance notification rule'). ComReg considers that such an approach is appropriate and proportionate and provides Access Seekers with the necessary information and notice relating to such changes.

- 7.116 The documentation to be included at notification should include the information relevant to Access Seekers with respect to the proposed IT changes. The introduction of an IT change that can impact Access Seekers, in the manner described above, should only arise in exceptional circumstances. Eircom will therefore be required to set out the objective reasons in this documentation as to why such an IT change is considered necessary.
- 7.117 Insofar as advance notification to ComReg is concerned, such advance notification, before publication, facilitates compliance monitoring by ComReg and allows ComReg to ensure, in advance of publication, that the changes are sufficiently clear and readily understandable to all Access Seekers. However, this is not an approval process and publication accordingly does not imply compliance.
- 7.118 Changes which trigger an obligation to notify and publish include for instance:
- (a) Where changes are made to the terms and conditions, including prices, associated with each of the products, services and associated facilities provided in the Zone B MI WDC Markets, or to their technical characteristics including relevant engineering or technical standards for network access;
 - (b) Where changes are made to the operational processes described in the LLRO (e.g., in the IPM);
 - (c) Where an existing product is amended or a new version introduced;
 - (d) Where a new product, service or associated facility is introduced;

- (e) Where changes are made to the general terms and conditions offered by Eircom to Access Seekers.

7.119 Finally, for the avoidance of doubt, in relation to existing contracts, text changes proposed by Eircom to the general terms and conditions will not be automatically incorporated into existing contracts. Amendments of existing contracts will require agreement of the parties to the contract as changes to Access Seeker contractual obligations. Eircom can negotiate with Access Seekers regarding any such changes. In the absence of agreement, in appropriate cases, one party or both may refer their disagreement for dispute resolution by ComReg under Regulation 67 of the ECC Regulations.

Meaning of advance notification

7.120 While the purpose of the notification to ComReg is to allow ComReg to review the proposed amendments or changes and engage with Eircom, the purpose of advance publication is to put Access Seekers on advance notice of forthcoming amendments or changes, so that they have sufficient time to anticipate or prepare for same, where and if relevant to them. For this reason, published amendments or changes should not be described by Eircom, in its correspondence with Access Seekers or on its website or documentation, as “proposed”, but rather as forthcoming and any variations to those changes or amendments once published, including their withdrawal, requires the explicit approval of ComReg.

Timeline variation with respect to advance notification timelines

- 7.121 While clear mandatory notification timelines are an essential aspect of transparency and ensuring certainty, it is also important to ensure a degree of flexibility so that the timeline may be amended in appropriate circumstances. It may be, for instance, that there is a case for immediate availability of an amended product, or that a two or six month publication timeline, as appropriate, is insufficient owing to the operational and/or technical adjustments required in order to avail of an amended products or associated with a change of operational processes.
- 7.122 ComReg proposes in this regard to maintain the approach followed to date, allowing notification timelines to be varied, either on Eircom’s application or on ComReg’s own initiative, where justified and appropriate.

Advance notification of technical developments and information

7.123 Eircom is currently subject to an obligation with respect to making information available regarding the introduction of, changes to, or technical developments relating to, Eircom’s network, infrastructure or new technologies, as well as providing sufficient information which could

reasonably be expected to support products, services or associated facilities falling within scope of its access and conditions of access obligations.³⁷⁵

- 7.124 Examples of such information include but are not limited to information relating to changes to the topology or architecture of Eircom's network, the hardware or software upgrade or replacement of equipment or infrastructure that introduce new capabilities and informing Access Seekers of existing capabilities of Eircom's network, equipment and infrastructure. Where however Eircom is proposing to make changes to the above that would result in the loss to Access Seekers of access previously granted then a submission would need to be made by Eircom to ComReg to consider such a withdrawal.
- 7.125 ComReg considers that such information continues to be relevant to Access Seekers so as to allow them to put in place business or operational plans and to assist in informing them of what access requests may be relevant to raise regarding new or existing capabilities. Such an obligation does not however preclude Access Seekers from submitting access requests for new capabilities not yet proposed by Eircom. ComReg proposes to maintain this obligation so that such information is made available to Access Seekers at least six months in advance of implementation. The timeline by which such information is to be made available may be varied with agreement with Eircom or at the discretion of ComReg.

7.4.4. Network rollout plans

- 7.126 ComReg also proposes to maintain Eircom's obligation to provide information to Access Seekers with respect to network roll out plans. This ensures that Access Seekers are provided with up-to-date and accurate information with respect to network rollout allowing them to efficiently and effectively plan for and deliver products and services on a wholesale basis or to end-users.
- 7.127 On a monthly basis, Eircom is currently required to provide information with respect to the roll out of MI WDC (NGN Ethernet and WDM). ComReg is of the view that this information continues to be key to Access Seekers planning, execution and timing of Access and/or Interconnection (products, services and associated facilities). It is ComReg's view that the availability of such information is important for the development of competition as it is a key input into Access Seekers business planning.
- 7.128 For example, in the context of an Access Seeker planning to offer services in an area or areas where the Access Seeker has not previously had a presence, then consideration of Access and Interconnection is a key element

³⁷⁵ As set out in Section 17.21 of the 2020 Decision.

in the planning process. Therefore, it is ComReg's view that in order to ensure competition, it is essential that information sharing with respect to MI WDC availability is provided to a sufficient degree of granularity that allows Access Seekers to plan to offer new services. Such data needs to be made available to Access Seekers in a timely, efficient, transparent and non-discriminatory manner.

- 7.129 ComReg proposes that Eircom should, in particular, meet the following requirements with respect to the making available of a MI WDC rollout plan (which shall include NGN Ethernet and WDM):
- (a) publish at least three (3) months in advance (unless otherwise agreed or directed by ComReg) - any forthcoming changes to the MI WDC rollout plan;
 - (b) publish the MI WDC rollout plan within the first ten (10) calendar days of each month; and
 - (c) publish the WDC rollout plan with sufficient detail to allow Access Seekers to determine:
 - (i) Active MI WDC nodes;
 - (ii) The services offered at each MI WDC node;
 - (iii) Planned MI WDC nodes (including forecast dates); and
 - (iv) The services to be offered at each planned MI WDC node.

7.4.5. Key Performance Indicators

7.130 Key Performance Indicators ('KPIs') can support the monitoring of non-discrimination obligations (outlined in Section 7.3 above) and, in so doing, provide assurances to Access Seekers regarding the levels of service provided by Eircom to its downstream arm relative to that provided to Access Seekers.

7.131 The "Revised 2012 BEREC Common Position"³⁷⁶ states that

"NRAs should impose a generic requirement on SMP operators to provide Key Performance Indicators (KPIs) as a means to monitor compliance with a non-discrimination obligation and ensure that SMP operators fulfil their SLAs"

³⁷⁶ Revised BEREC Common Position on best practices in remedies as a consequence of a SMP position in the relevant markets for wholesale leased lines, BoR (12) 126, page 12.

- 7.132 ComReg’s view is that Access Seekers should be assured that the quality of upstream inputs provided to Access Seekers for the provision of retail (and other) services are comparable with upstream inputs used in the provision of Eircom’s own services. For this reason, the publication of KPIs, for both wholesale and equivalent retail services, is necessary in order to facilitate transparency on information on the relative quality of wholesale and retail services and, in turn be supportive of non-discrimination and access obligations.
- 7.133 ComReg proposes to require Eircom to continue to publish KPIs. The requirements regarding KPIs were previously specified in the 2011 KPI Decision³⁷⁷ and amended by the 2020 Decision (Section 17 of the Decision Instrument, Annex 8), which specified a range of Metrics for various categories of LLs against which Eircom would report. KPIs are defined as a measure(s) of MI WHQA products and services in the Zone B MI WHQA Markets, provided by Eircom to Access Seekers and by Eircom to itself through self-supply.
- 7.134 Eircom currently publish its Leased Line (WHQA) quarterly KPI report with the following classifications:
- (a) Table 5: Supply of Zone B MI High Quality Access (**‘HQA’**)/WHQA Access Services KPIs;
 - (b) Table 6: Order Designation of Zone B MI HQA/WHQA Access Services KPIs;
 - (c) Table 7 (7.2, 7.3(i) and 7.3(ii)): Repair of HQA/WHQA services;
 - (d) Table 8: Supply of Retail MI HQA Services versus MI WHQA Interconnection Services KPIs;
 - (e) Table 9: Order Designation of Retail MI HQA Services versus MI WHQA Interconnection Services KPIs.
- 7.135 ComReg proposes that Eircom continue to publish these KPIs, on a quarterly basis, on its publicly available wholesale website. Having regard to recent updates to the KPI reporting regime in respect of WLA and PIA products, services and Associated Facilities, ComReg proposes that in respect of the reporting of WDC KPI Metrics, Eircom should follow the same processes and procedures as set out in ComReg Decision D04/22, “*Access Products and Services: Key Performance Indicator (KPI) Metrics*”, dated 29 June 2022, including setting out in full the rules (also known as ‘business rules’) applied

³⁷⁷ “Introduction of Key Performance Indicators for Regulated Markets”, Response to Consultation and Decision, ComReg Document No. 11/45, Decision D05/11, 29 June 2011 (the ‘**2011 KPI Decision**’).

to the data to arrive at the KPI metrics and make such business rules available in line with the requirements of D04/22. The relevant KPI Tables referenced above have been updated (Zone A MI WHQA Interconnection services and Zone B MI WHQA Interconnection services combined as MI WDC Interconnection services, repair times in clock hours for MI WDC Interconnection services) and are more particularly set out at Schedule 4 and Schedule 5 of the draft Decision Instrument (Annex: 1). The terms HQA and WHQA have the same meaning as Dedicated Capacity ('DC') and WDC respectively.

- 7.136 Regulation 51(5) of the ECC Regulations provides that where an undertaking has obligations concerning wholesale access to network infrastructure, NRAs should ensure that KPIs are specified where relevant, as well as corresponding service levels, and closely monitor and ensure compliance with them. While for the time being ComReg does not propose to intervene by way of setting applicable service levels and proposes to leave levels of service for negotiation between Eircom and Access Seekers, ComReg does reserve the right to intervene in accordance with the requirements of Regulation 51 of the ECC Regulations where SLAs prove inadequate in ensuring an appropriate level of service.
- 7.137 ComReg also notes the importance of the Physical Infrastructure Market as a means of facilitating Access Seekers in climbing the ladder of investment and improving competition in the MI WDC Markets. ComReg considers that key characteristics of the physical infrastructure products that Eircom makes available in the Physical Infrastructure Market, and which have important implications for downstream markets, is firstly that Access Seekers are unhindered from both provisioning and restoring service to their customers so that they may do so in as short a time period as possible and secondly the timeframes by which physical infrastructure is repaired. In this context, ComReg will monitor whether the products offered by Eircom in the Physical Infrastructure Market provide appropriate performance in relation to these characteristics and reserves its right to intervene, if appropriate, to specify requirements with respect to provisioning, service restoration and repair of physical infrastructure.
- 7.138 ComReg also proposes that Eircom should publish, on a quarterly basis, a Performance Metric Report setting out, by reference to the service levels the subject of SLAs, the actual service levels achieved in each of the three previous months in respect of all operators on an aggregate basis. This Performance Metric Report should include at a minimum the following parameters:

- (a) the name and relevant identifiers of the service metrics that will allow Access Seekers to identify the specific activities and processes, along with associated process times, for the products being reported on; and
- (b) the performance targets and actual performance achieved for each activity.

7.139 ComReg proposes further that the report details the methodology and the source data used to determine the actual performance achieved. It should also describe how the source data was processed by Eircom and include worked examples as to how the processed source data relates to the actual performance achieved.

Q. 8 Do you agree with ComReg’s proposals in respect of non-pricing remedies in the Zone B MI WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views.

7.5 Price control and cost accounting obligations

- 7.140 In this section ComReg outlines the proposed price control and cost accounting obligations that should be imposed on Eircom for MI WDC products, services and associated facilities in Zone B MI WDC Markets in order to address the competition problems identified in Section 6.
- 7.141 The pricing concepts and terms used in this section of the Consultation are defined in Annex: 10.

7.5.1. Existing pricing remedies

- 7.142 In the 2020 Decision ComReg imposed an obligation of cost orientation on Eircom in relation to the provision of access to MI WHQA products, services and associated facilities in the then Zone B MI WHQA Markets and on Eircom’s LB TI WHQA products, services and associated facilities.
- 7.143 In addition, in the 2020 Decision, ComReg further specified that the prices for the MI WHQA products, services and associated facilities in Zone B should be determined by Eircom based on a bottom-up long run average incremental costs plus a contribution to common costs (**‘BU-LRAIC+’**) methodology³⁷⁸, calculated with reference to the Revised Copper Access

³⁷⁸ Reusable Assets (like duct and poles) are based on Top Down Historic Cost Accounts (TD HCA).

Model ('**Revised CAM**')³⁷⁹ and the Next Generation Network ('**NGN**') Core Model³⁸⁰.

- 7.144 In the 2020 Decision, ComReg removed the obligation not to cause a margin squeeze on the basis that the pricing freedom given to Eircom in Zone A of the MI WHQA Market in the absence of regulatory obligations – in particular no price control or non-discrimination obligations – was likely to undermine the effectiveness of a margin squeeze test and so a margin squeeze obligation was not considered appropriate.³⁸¹
- 7.145 The current prices charged by Eircom for access to its regulated WHQA services are published on Eircom's website in its LLRO.

7.5.2. Proposed pricing remedies

- 7.146 As discussed in Section 6, absent regulation, and where Eircom has SMP in relation to MI products, services and associated facilities in Zone B of the MI WDC Markets, Eircom has the potential to engage in exploitative behaviours, such as excessive pricing or practices leading to inefficiency and/or inertia, to the detriment of both competition and consumers. Alternatively, and in the absence of regulation, Eircom could foreclose competition by lowering prices in certain areas of Zone B where alternative infrastructure providers have built their own networks.
- 7.147 Eircom charging excessive prices would raise the input costs to those operators that purchase Eircom's MI WDC products and services, which may be passed on by operators to their retail customers by way of higher prices and/or wholesale customers which could in turn pass on the higher prices to downstream customers. This could be a deterrent to entry and/or lead to the exclusion of competitors from the downstream retail and/or wholesale markets and ultimately hinder effective competition in downstream retail and/or wholesale markets.
- 7.148 Eircom, as a vertically integrated operator with SMP in Zone B of MI WDC Markets, may have the incentive to charge lower prices in certain parts of Zone B for a period of time, with the intention of deterring market entry or pushing alternative network providers out of the market. This would enable Eircom to further increase its market power and subsequently raise prices. While consumers may benefit in the short run from lower prices, consumer welfare is reduced in the long run due to the elimination of competition and

³⁷⁹ [ComReg_1639.pdf](#)

³⁸⁰ [ComReg-1895.pdf](#)

³⁸¹ See paragraph 10.397 of the 2020 Decision.

consumer choice in the market. A consequence of excessively low prices is that it can prevent efficient competing alternative networks, in particular networks that may only be present at specific locations, from competing profitably using their own WDC products/services. As a result, the entry/expansion barriers in the Zone B MI WDC Markets and related markets are reinforced which can foreclose entry or investment by other efficient alternative network providers.

- 7.149 Having regard to the competition problems outlined above, the purpose of a price control obligation is to ensure:
- (a) Appropriate build-or-buy incentives are provided to Eircom and other operators for efficient network investment;
 - (c) Eircom and other operators are given price certainty and predictability;
 - (d) Eircom cannot price excessively nor foreclose other alternative operators who either have invested or who may be considering investing; and
 - (e) Eircom can recover no more than its efficient costs together with a reasonable rate of return.
- 7.150 ComReg's regulatory objectives, in line with Section 12 of the Communications Regulation Act 2002, include the promotion of competition, to encourage efficient investment and innovation, to contribute to the development of the internal market and to promote the interests of users by encouraging access to the internet at a reasonable cost to end-users.
- 7.151 Regulation 4 of the ECC also provides for the promotion of competition, the desirability of technological neutrality, the development of the internal market and the application of objective, transparent, non-discriminatory and proportionate regulatory principles. Regulation 4 also provides for regulatory predictability, efficient investment, and due consideration for the variety of conditions relating to competition and consumers that exist in various geographic areas.
- 7.152 ComReg must also take into consideration the requirements of Regulation 56 of the ECC Regulations, when imposing a price control obligation, as follows:
- (a) Regulation 56(2) provides that ComReg shall take into account the investment made by the operator and allow the operator a reasonable rate of return on adequate capital employed.
 - (b) Regulation 56(4) provides that ComReg shall take account of the benefits of predictable and stable wholesale prices in ensuring efficient market entry and sufficient incentives for all undertakings to deploy new and enhanced networks.

- (c) Regulation 56(5) provides that ComReg shall ensure that any cost recovery mechanism or pricing methodology that it imposes under this Regulation serves to promote efficiency and sustainable competition and maximise consumer benefits.

- 7.153 In light of the proposed designation of Eircom with SMP in Zone B of the MI WDC Markets, and the potential competition problems described in Section 6, in particular excessive pricing and/or lowering of prices by Eircom, ComReg proposes that forbearance as regards a price control is not an appropriate option in Zone B, except for those premises in the Intervention Area (IA).
- 7.154 In the rest of this section ComReg discusses in the first instance the proposal to have differentiated remedies for those premises in the IA in Zone B to reflect the fact that NBI's presence is likely to constrain Eircom's behaviour. Second, ComReg discusses the proposed price control obligation (and the implementation of it) for the remaining premises in Zone B of the MI WDC Markets. The remainder of the discussion in this section then looks at the pricing approach for associated facilities and the proposed obligations of cost accounting and accounting separation.

No price control in the IA in the Zone B MI WDC Markets

- 7.155 In the Zone B MI WDC Markets there is a small subset of CPs in the IA (i.e., c. 10% of premises in Zone B or c. 519 premises), which can be served by either Eircom or NBI. As discussed in Section 6, NBI has an obligation as part of its NBP contract with the Irish Government to provide leased lines services in the IA using its subsidised network. Furthermore, the NBP contract specifies that the price that NBI charges its customers for leased lines services shall not exceed the benchmark reference price which is set based on Eircom's equivalent regulated price.³⁸²
- 7.156 As a result, ComReg considers that going forward Eircom may face greater constraints at those premises falling within the NBP IA (and for which there is demand for WDC) given NBI's benchmarked price in this area. This means Eircom would potentially face a greater degree of constraint at the IA premises and so it is less likely to set excessive prices in the IA in Zone B to the detriment of downstream competition and consumers.
- 7.157 Therefore, ComReg proposes that the price control obligation of cost orientation does not apply to Eircom in the IA in Zone B of the MI WDC Markets. This means that Eircom will have pricing freedom in this area.

³⁸² It should be noted that NBI's product offering and pricing structure is not directly comparable to Eircom's Ethernet offering.

The premises to which the price control obligation would not apply are those premises in Zone B that are in the Intervention Area, and which can be identified by the associated Eircodes in the Amber Areas on the NBP Map³⁸³ set out and updated by DECC.

- 7.158 ComReg considers that other forms of price control are not appropriate in the IA. A price control obligation of cost orientation (similar to the one proposed below for the remaining areas of Zone B) might not be proportionate or justified on the basis that there is a reduced risk of excessive pricing by Eircom in the IA for the reasons discussed above. The option of a price floor mitigates the risk to competing networks of excessively low prices by Eircom. However, ComReg considers that the presence of NBI, in addition to Eircom, has the potential to reduce the likelihood of an alternative (third) network operator being present at those IA premises in Zone B (although it cannot be ruled out). In addition, these premises represent a small proportion of the overall premises in Zone B for which the cost to serve is expected to be higher than in the rest of Zone B. As a result, ComReg considers that the option of imposing a price floor in respect of those premises in the IA would be disproportionate.
- 7.159 Hence, ComReg is of the view that it is proportionate and justified to differentiate the remedies applicable to Eircom where NBI is present and is likely to constrain Eircom's behaviour. In particular, ComReg proposes not to subject Eircom to a price control obligation regarding the premises in the IA in Zone B of the MI WDC Markets.
- 7.160 Notwithstanding the above, ComReg notes the very small volume of MI WDC services currently being sold by NBI and the relatively high level of prices for these services on NBI's network. There is consequently a residual concern that removal of all regulatory constraints on Eircom's MI WDC pricing in the IA might lead to competitive distortions if for example Eircom were able to self supply MI WDC services at more favourable prices than available to other operators. For this reason, ComReg proposes not to differentiate the remedies further and in particular Eircom's obligations of access, non-discrimination and transparency should apply across the IA premises in Zone B MI WDC Markets in the same way as they do outside the IA.
- 7.161 In particular, this means, in line with Eircom's obligation of non-discrimination, that Eircom should charge the same price to all operators accessing its MI WDC products and services in the IA in Zone B MI WDC

³⁸³ gov.ie - National Broadband Plan Map

Markets including Eircom itself. This would help ensure, in conjunction with the potential to avail of NBI services, sufficient competition for those who bid for MI WDC services in the IA.

- 7.162 This also means that Eircom should notify any price changes for its MI WDC products and services in the IA in Zone B in line with its transparency obligations, discussed earlier in this section. ComReg considers that the transparency obligation also provides a means of observing that discrimination is not occurring.

Q. 9 Do you agree with ComReg’s view that a differentiated pricing remedy (of no price control) should apply to Eircom with respect to MI WDC products and services in the IA in the Zone B MI WDC Markets, while the obligations of access, non-discrimination and transparency will continue to apply to the MI WDC products and services in the IA? Please provide reasons for your response.

Price control obligation in the rest of Zone B MI WDC Markets

- 7.163 This section outlines the proposed price control obligation that will apply to the rest of Zone B of the MI WDC Markets i.e., outside the IA in the Zone B MI WDC Markets.
- 7.164 In addressing the pricing related competition problems outlined earlier in relation to Zone B, a range of price control options are available to ComReg³⁸⁴, including:
- (a) Benchmarking³⁸⁵;
 - (b) Retail minus;
 - (c) Margin squeeze test; and
 - (d) Cost orientation.
- 7.165 In determining the appropriate price control to adopt for MI WDC products, services and associated facilities, including WDM services, outside the IA in Zone B, ComReg considers that it needs to strike the right balance between:
- (a) setting the correct build-or-buy price signal to help inform efficient investment decisions by alternative operators who may wish to rollout their own network;

³⁸⁴ See Annex: 10, Table 1 for a description of the various price controls.

³⁸⁵ Benchmarking is provided for in Regulation 56(5) of the ECC Regulations.

- (b) providing protection to those operators purchasing (or buying) WDC services from Eircom; and
 - (c) allowing Eircom to recover no more than its efficient investment costs and a reasonable rate of return.
- 7.166 For the reasons set out below, ComReg is of the view that only an obligation of cost orientation will address the competition problems identified in Section 6 and summarised at paragraphs 7.147-7.148. In particular, the cost orientation obligation addresses concerns of excessive pricing by Eircom in relation to MI WDC products, services and associated facilities, including WDM services, outside the IA in Zone B.
- 7.167 Hence, ComReg proposes to maintain the obligation of cost orientation for MI WDC products, services and associated facilities, including for WDM and interconnection services, outside the IA in Zone B of the MI WDC Markets.
- 7.168 A cost orientation obligation should ensure that operators (using Eircom's WDC services) and consumers are not at risk of facing excessive prices. If the appropriate cost methodology or pricing approach is applied, it can also provide the correct investment and build-or-buy signals to Eircom and other alternative operators. Setting wholesale prices by way of a cost orientation obligation helps to ensure greater predictability and regulatory certainty regarding the level of access prices for Access Seekers, thereby allowing them to make investment decisions and develop business plans with a greater degree of confidence.
- 7.169 One of ComReg's objectives in setting the prices for Eircom's MI WDC services outside the IA in Zone B, is to provide alternative operators with appropriate build-or-buy investment signals so as to encourage the rollout of their own infrastructure consistent with Regulation 56(4) of the ECC Regulations. Business consumers are best served over the medium to long term where competition is present by way of other alternative operators providing WDC services over their own infrastructure. Control over their own infrastructure means that competing operators can more easily make their own service portfolios, compared to relying on the SMP operator's wholesale product portfolio. This leads to greater differentiation in services and products in downstream markets to the benefit of end-users.
- 7.170 In addition, cost orientation should ensure that the SMP operator (Eircom) can recover no more than its efficient investment costs plus a reasonable rate of return, consistent with Regulation 56(2) of the ECC, in order to address the competition concern of excessive pricing. The absence of a cost orientation obligation may allow Eircom to set excessive wholesale charges which would raise the input costs for those operators that purchase Eircom's

WDC services. Hence, the cost orientation obligation should prevent Eircom charging excessive prices and causing harm to competition.

- 7.171 Cost orientation also provides Eircom with certainty of recovering its efficient costs plus a rate of return over the long-term, and so it encourages continued investment by the SMP operator in its regulated services.
- 7.172 ComReg's proposal to maintain the obligation of cost orientation is also in line with the costing approach adopted in the 2020 Decision and so it ensures regulatory consistency and predictability across market review periods, which can benefit ongoing investment by alternative operators in line with ComReg's strategic objectives. Furthermore, the fact that ComReg is maintaining the form of the price control obligation means that the incremental burden to Eircom is not likely to be significant and it provides Eircom with price certainty which allows them to make informed investment decisions.
- 7.173 ComReg considers that the other forms of price control, including benchmarking, retail minus or margin squeeze tests, are not sufficient to ensure that prices for MI WDC products, services and associated facilities outside the IA in Zone B MI WDC Markets are not excessive and are set in a way that supports efficient investment incentives. This is consistent with ComReg's position taken in the 2020 Decision.
- 7.174 Benchmarking is not considered appropriate given the complexity to establish a like-for-like benchmarked price for WDC services. There can be differences in price due to underlying differences in local access and transmission networks' technologies (e.g. Ethernet, XGS PON), demand density and geographical distances across the leased lines network, as well as differences that arise due to the choices made regarding the adopted pricing models. Furthermore, the fact that Eircom offers a large suite of WDC products and services also makes it difficult to establish and maintain with a reasonable degree of predictability a price benchmark for all MI WDC products and services.
- 7.175 Retail minus price control is not deemed appropriate for MI WDC services because of the difficulty in identifying the retail price associated with a particular regulated wholesale service i.e., the one-to-one relationship between a retail and wholesale WDC service. WDC services are often bundled with other unregulated services, including MI WDC services provided in Zone A (unregulated area) and it is also often the case that retail bundles include regulated and unregulated services offered on a bespoke bid basis. Hence, it is not always possible to determine the retail and wholesale WDC service prices and so a retail minus approach is not considered appropriate.

- 7.176 For similar reasons to those outlined above for the retail minus price control, a margin squeeze obligation is not deemed appropriate. In addition, the pricing freedom allowed to Eircom in the Zone A MI WDC Markets in the absence of regulatory obligations – in particular no price control or non-discrimination obligations – is likely to undermine the effectiveness of a margin squeeze test as leased lines (WDC services) are often provided as part of multi-site contracts,³⁸⁶ comprising of sites located in both Zone A and Zone B of the MI WDC Markets. Therefore, a margin squeeze obligation is not deemed appropriate and this is consistent with the conclusion reached in the 2020 Decision (see paragraph 7.144).
- 7.177 For the reasons outlined above, ComReg proposes to maintain the price control obligation of cost orientation for MI WDC products, services and associated facilities, including WDM services, outside the IA in the Zone B MI WDC Markets.

Q. 10 Do you agree with ComReg’s view that a cost orientation price control obligation should be maintained for Eircom’s MI WDC products, services and associated facilities, including WDM services, outside the IA in Zone B of the MI WDC Markets? Please provide reasons for your response.

7.5.3. Implementing the cost orientation obligation

- 7.178 In this section ComReg considers how the cost orientation obligation should be implemented in order to determine the rental prices for Eircom’s MI WDC products, services and associated facilities outside the IA in Zone B MI WDC Markets.
- 7.179 As discussed in section 7.5.2, ComReg’s objectives in deriving the regulated WDC prices includes setting the correct build-or-buy price signal to help inform efficient investment decisions by alternative operators, providing protection to those operators purchasing MI WDC services from Eircom and allowing Eircom to recover no more than its efficient costs and a reasonable rate of return.

Implementation options

- 7.180 To implement the cost orientation obligation, ComReg has considered a number of options:
- (a) Pricing continuity approach;

³⁸⁶ Which also may be bundled with other services.

- (b) Updated BU-LRAIC+³⁸⁷ prices set by reference to a ComReg model;
 - (c) Updated BU-LRAIC+ prices set by reference to an Eircom model.
- 7.181 Pricing continuity means Eircom continues to charge its existing MI WDC rental prices, including WDM and interconnection rental prices, as fixed price points. In other words, Eircom charges the rental prices for MI WDC products, and services, including WDM services, outside the IA in Zone B, according to the current Zone B rental prices listed in Eircom's published LLRO price list. For the associated interconnection services, Eircom would charge the current rental prices in its published LLRO price list. This means that the current maximum prices determined by way of the 2020 Decision would become fixed price points going forward, and so Eircom could not charge above or below the fixed prices.
- 7.182 For the reasons set out below, ComReg proposes that pricing continuity is appropriate to determine the relevant wholesale rental prices for Eircom's regulated MI WDC services, including the associated Eircom interconnection services, while meeting ComReg's regulatory objectives outlined above.
- 7.183 Given the competition concern of market foreclosure by Eircom and ComReg's objective to encourage investment by alternative operators, ComReg considers that a fixed price point provides an additional safeguard to those alternative operators investing in WDC networks. This is because Eircom does not have the flexibility to lower wholesale rental prices for MI WDC services outside the IA in Zone B MI WDC Markets when the price is fixed and so it protects alternative operators' investments in WDC networks.³⁸⁸ In other words, the fixed price point acts as a price floor³⁸⁹ when Eircom and another WDC provider are competing outside the IA in Zone B.
- 7.184 Safeguarding alternative operators' investments could also be achieved by establishing the economic space between MI WDC services (leased lines) and the wholesale inputs provided by Eircom upstream from leased lines (e.g. PIA), which would be less limiting on Eircom's pricing flexibility. However, designing an economic replicability test brings practical implementation difficulties including the need for a cost modelling exercise to determine the wholesale and network inputs. This would also increase the monitoring burden on Eircom and could undermine pricing certainty.

³⁸⁷ This term is described at Annex: 10, Table 2.

³⁸⁸ By in large, Eircom has not reduced its MI WDC prices in Zone B since the 2020 Decision.

³⁸⁹ This term is described at Annex: 10, Table 1.

ComReg considers that this option is not proportionate or appropriate at this time.

- 7.185 A key benefit of the pricing continuity approach is the fact that it avoids changes to existing prices and so it provides price stability and predictability in the market, consistent with Regulation 56(4) of the ECC. This is particularly relevant in the case of alternative operators investing or considering investing in WDC networks, as price instability can be a deterrent to alternative operator investments and competition in general. For business consumers, greater wholesale pricing certainty should also help facilitate stable retail prices.
- 7.186 It is also the case that a pricing continuity approach maintains the same level of protection to existing operators purchasing regulated WDC services from Eircom outside the IA in Zone B MI WDC Markets. In the case of prices for terminating ends of Ethernet-based leased lines, i.e., Eircom's WSEA Physical services, Eircom removed the geographically differentiated prices subsequent to the 2020 Decision, and so continuing with the current prices allows for the status quo and the benefits of national pricing to continue.
- 7.187 For Eircom, the pricing continuity approach should not undermine its ability to recover its efficient investment costs. While it is possible that services provided in Zone B have higher costs than those provided in Zone A (competitive area) due to lower economies of scale and density,³⁹⁰ a price continuity approach aligns with Eircom's decision to remove the geographically differentiated prices for terminating segments, as noted above, where such economies can be more prevalent.
- 7.188 Furthermore, based on the returns reported in Eircom's HCAs,³⁹¹ there is no evidence to suggest that at the existing price levels Eircom's ability to recover its costs in Zone B has eroded since the last market review. Based on the Additional Financial Information ('AFI') submitted by Eircom to ComReg, since 2020 Eircom's Ethernet revenues have increased. As a result, Eircom's total revenues (for TI and MI WDC services) published in the WHQA Income Statement in Eircom's HCAs for the financial year 2023 is c.€100m, with a profit/return of c.€68.8m and a return on capital employed of 45% on capital of c.€152.7m. While the level of returns shows that the profits earned by Eircom in providing these services is above the current regulated WACC of

³⁹⁰ By way of illustration, the percentage of Zone A connected premises in the IA is circa 5%, while in Zone B it is 10%.

³⁹¹ The returns reported by Eircom for the existing WHQA Market as part of its published HCA Separated Accounts includes both regulated and unregulated Traditional and Modern Interface leased lines services.

5.07%,³⁹² the majority of the MI WDC lines are in the unregulated area (Zone A) of the MI WDC market where Eircom has complete pricing flexibility.

- 7.189 In addition, the price control adopted in the 2020 Decision is predominantly based on a BU-LRAIC+ costing methodology, with assets valued at their current replacement cost,³⁹³ to reflect the objective of encouraging efficient investment by alternative network operators, and not at their historic cost, which is the approach adopted in Eircom's HCAs. It is also the case that these differences can be accentuated when the invested capital is not maintained and Eircom sweat their assets.
- 7.190 The alternative two options of updating the BU-LRAIC+ prices for MI WDC products and services outside the IA in Zone B, using either a model derived by ComReg (i.e. the approach taken in the 2020 Decision) or Eircom, are not deemed appropriate or justified at this point in time.
- 7.191 While ComReg recognises that updating the BU-LRAIC+ prices for MI WDC services may in principle better reflect current efficient costs, any changes to prices may affect price stability and predictability, which is not consistent with Regulation 56(4) of the ECC Regulations. Updating the prices to reflect current BU-LRAIC+ costs may lead to uncertainty for market players who are investing or considering investing, and so this could impact the investment decisions of alternative operators who may want to build their own network (or rely on Eircom's regulated PIA) and compete with Eircom.
- 7.192 Furthermore, there is the added complexity and burden of modelling a subset of regulated leased lines that are scattered across the area outside the IA in Zone B, which seems disproportionate at this time. While ComReg could rely on its FTTP cost model,³⁹⁴ further development of this model is required to allow the capability of estimating the cost of fibre based leased lines, and to geographically differentiate between the costs in Zone A and Zone B of the WDC market.
- 7.193 Nevertheless, the FTTP cost model when completed could be used to assess the costs of WDC services, as appropriate. In particular, Regulation 56(6) of the EEC Regulations provides that the burden of proof that charges are derived from costs, including a reasonable rate of return on investment lies

³⁹² ComReg Information Notice 24/49, "Weighted Average Cost of Capital ("WACC") Annual update – 2024", 26 June 2024.

³⁹³ Except for PIA (ducts and poles), which are considered reusable assets, are valued based on historic costs.

³⁹⁴ ComReg, with the assistance of advisers Axon Partners, is developing a BU-LRAIC+ network cost model to assess the costs of a FTTP passed premises network (the 'FTTP Cost Model'), as outlined in ComReg Document 24/07.

with the undertaking concerned i.e., Eircom, and ComReg may issue a direction requiring an undertaking to provide full justification for its prices and may where appropriate require prices to be adjusted. In any such costing assessment, ComReg will rely on BU-LRAIC+ costing principles, consistent with ComReg's objective of encouraging investment, which should apply across the complete set of MI WDC services offered in the Zone B MI WDC Markets. Hence, the FTTP cost model can be useful in that context.

- 7.194 Notwithstanding the above, and for the reasons outlined earlier, in particular the objective to provide price stability and predictability in the market, ComReg proposes that the pricing continuity approach i.e., to continue with the existing rental prices in Eircom's LLRO price list, is the appropriate measure to determine the relevant rental prices for Eircom's MI WDC products and services, including WDM services, outside the IA in Zone B of the MI WDC Markets, and the existing rental prices in Eircom's LLRO price list for the associated Eircom interconnection services.

Q. 11 Do you agree with ComReg's view that Eircom should charge the current Zone B rental prices in the LLRO price list (i.e., the pricing continuity approach), as fixed price points, for Eircom's MI WDC products and services, including WDM services, outside the IA in Zone B of the MI WDC Markets, and the current rental prices in the LLRO price list for the associated Eircom interconnection services? Please provide reasons for your response.

7.5.4. Pricing of Associated Facilities

- 7.195 Earlier in Section 7, ComReg requires Eircom to provide a range of ancillary services and facilities to operators, including co-location services and interconnection services associated with the WDC services in Zone B of the MI WDC Markets. These are described as part of the access obligations earlier in Section 7. All of these associated facilities are required to support the development of infrastructure competition and continue to be essential to investments, to enable and support provision of WDC services and to allow other operators to provide and differentiate their services as well as promoting effective downstream competition.
- 7.196 The existing price control for ancillary services and facilities in the 2020 Decision was in the form of a cost orientation obligation where Eircom could recover no more than its efficient costs plus a reasonable rate of return for co-location services and connection fees while interconnection services were set based on BU-LRAIC+ methodology.

- 7.197 ComReg's objective is that these services are not priced in an excessive and/or discriminatory manner, and that the charges set for these services enable a level playing field for efficient operators to compete. Hence, for the reasons outlined above, ComReg considers that the existing cost orientation obligation should be maintained for these services.
- 7.198 In this section ComReg further specifies the appropriate costing/pricing approach for co-location services and the upfront (non-recurring) connection fees associated with WDC services, as the pricing of Eircom's interconnection services has been addressed earlier in section 7.5.3.
- 7.199 There are two main costing options available to ComReg for determining the prices for ancillary related charges, including:
- (a) BU-LRAIC+ methodology; or
 - (b) Top down historic cost accounting ('**TD HCA**')³⁹⁵ methodology.
- 7.200 For the reasons set out below, ComReg proposes that the TD HCA methodology is appropriate for determining the charges for co-location services and for upfront (non-recurring) connection fees.
- 7.201 TD HCA is an appropriate methodology to adopt where ComReg's objective is to address concerns of excessive pricing by Eircom while at the same time ensuring Eircom recovers no more than its actual efficiently incurred costs plus a reasonable rate of return consistent with Regulation 56(2) of the ECC.
- 7.202 Co-location services and connections are generally one-off activities caused by the operator (or access seeker) and so the objective is to ensure that Eircom can recover the efficient costs they incur in carrying out the related activity, plus a reasonable rate of return.
- 7.203 Hence, the TD HCA approach ensures cost recovery for Eircom while other network operators are not subject to excessive costs and have a level playing field to compete. A TD HCA approach is also consistent with the methodology specified for co-location services and connection charges in the WLA Market. Regulation 56(6) of the ECC Regulations, states that where prices are subject to a cost orientation price control, the burden of proof that charges are derived from costs, including a reasonable rate of return lies with the undertaking concerned i.e., Eircom. In addition, ComReg may issue a direction requiring Eircom to justify its charges for co-location services and the upfront/non-recurring connection fees associated with WDC services and where appropriate require prices to be adjusted.

³⁹⁵ This term is described in Annex: 10, Table 2.

7.204 Alternatively, the BU-LRAIC+ approach is an option where ComReg's objective is to address concerns of excessive pricing by the SMP operator while also providing alternative operators with the appropriate build-or-buy investment incentives. In other words, the BU-LRAIC+ methodology promotes efficient infrastructure investment by alternative operators who may wish to replicate the assets in question. Given the nature of co-location services and connection charges, ComReg's objective is to ensure the recovery of Eircom's efficient costs (which preserves its investment incentives), which is best achieved by a TD HCA methodology. Hence, ComReg proposes that the TD HCA methodology should apply to the charges for co-location services and to upfront connection fees.

Q. 12 Do you agree with ComReg's view that the charges for co-location services and the upfront (non-recurring) charges for connections should reflect no more than the actual efficient costs incurred by Eircom plus a reasonable rate of return? Please provide reasons for your response.

7.5.5. Cost accounting obligation

- 7.205 To ensure the effectiveness of the price control obligations, ComReg considers that it is necessary to have a clear and comprehensive understanding of the costs of Eircom's provision of WDC services. Obligations to maintain appropriate cost accounting systems generally support obligations of price control and accounting separation and can also help ComReg in monitoring the obligation of non-discrimination.
- 7.206 The purpose of imposing an obligation to implement or maintain a cost accounting system is to ensure that fair, objective and transparent criteria are followed by the SMP operator in allocating their costs to services in situations where they are subject to price control obligations, in particular a cost orientation remedy.
- 7.207 In the case where a cost orientation obligation is imposed, Regulation 56(6) of the ECC Regulations provides that the burden of proof rests with the SMP operator to justify that its prices/charges are derived from costs. Furthermore, Regulation 56(6) of the ECC Regulations provides that ComReg may use cost accounting methods independent of those used by the SMP operator in the market and it may issue a direction requiring the SMP operator to provide full justification for its prices, and may, where appropriate, require prices to be adjusted.
- 7.208 Having regard to the need to support the effectiveness of the price control obligations above and to enable monitoring of Eircom's compliance with its price control obligation, accounting separation obligation and non-

discrimination obligation, ComReg considers that the continued imposition of cost accounting obligations on Eircom for MI Wholesale Dedicated Capacity services is justified and proportionate. In particular, ComReg requires Eircom to maintain appropriate cost accounting systems to justify its costs (and prices) for MI WDC products, services, and associated facilities, in particular in Zone B of the MI WDC Markets. As a result, Eircom should ensure that its cost accounting systems are capable of providing the level of granularity and transparency necessary to demonstrate compliance with its obligations arising from a finding of SMP for MI WDC products, services and associated facilities in the Zone B MI WDC Markets, including its price control and accounting separation obligations and in particular ComReg Decision D08/10³⁹⁶ (**'2010 Accounting Separation Decision'**)³⁹⁷.

Q. 13 Do you agree with ComReg's view that Eircom should maintain its cost accounting obligation in relation to its Modern Interface Wholesale Dedicated Capacity products, services and associated facilities? Please provide reasons for your response.

7.6 Accounting separation obligation

7.6.1. Existing accounting separation obligation

7.209 In the 2020 Decision ComReg imposed an obligation of accounting separation on Eircom with respect to Zone B MI WHQA products, services and associated facilities. Pursuant to the 2020 Decision, Eircom publishes a consolidated Income Statement and a consolidated Statement of Mean Capital Employed for the WHQA market annually. ComReg recognised in the 2020 Decision that although part of the WHQA market i.e., Zone A, was no longer subject to regulation, Eircom should be required to provide the consolidated financial results for the WHQA market.³⁹⁸

7.210 In addition, and as part of Eircom's Additional Financial Information (AFI) statements, Eircom is currently required to provide a Wholesale Leased Lines Income Statement and, if and when required by ComReg, a statement outlining the total annual revenues and volumes realised from terminating

³⁹⁶ As per the ComReg annual action plan, a consultation on Accounting Separation is planned for Q4 2024. Any proposals in this Consultation regarding the accounting separation obligation for WDC will also be taken into account in the separate accounting separation consultation.

³⁹⁷ Response to Consultation, and Final Decision: Accounting Separation and Cost Accounting Review of Eircom Limited, ComReg Document 10/67, dated 31 August 2010.

³⁹⁸ Paragraphs 10.453-10.455 of the 2020 Decision.

segments in the Zone B MI WHQA Markets, pursuant to the 2020 Decision.³⁹⁹

7.6.2. Proposed accounting separation obligation:

- 7.211 The purpose of an accounting separation obligation is to provide a greater level of detail of information from that of the statutory financial statements of the SMP operator. The objective is to reflect, as closely as possible, the performance of those parts of the operator's business, if they were to operate on a standalone basis. In the case of vertically integrated undertakings, it can also support non-discrimination obligations, prevent unfair cross-subsidies to other services, and help monitor compliance with pricing and other obligations. Having such detailed information enables ComReg to understand the information related to the costs, volumes and associated revenues of products, services and facilities offered by Eircom.
- 7.212 Allocating costs to the appropriate and relevant products and services of an SMP operator is an important factor to consider when regulating multiple products and services carried over the same network. This is particularly true for Eircom, where its fixed access network and core network are common infrastructures that are used to provide a range of retail and wholesale services, some of which are subject to regulation. Therefore, when setting price controls for WDC products, services and facilities (and in ensuring compliance with pricing and other obligations) in the Zone B MI WDC Markets, information is required about the costs and revenues associated with Eircom's provision of its regulated WDC products and services, with such costs and revenues distinct from the costs and revenues associated with other services provided over Eircom's network.
- 7.213 In Section 6, ComReg identified that Eircom has the ability and incentive to engage in a range of anti-competitive pricing behaviours in the Zone B MI WDC Markets, absent regulation. As discussed above, the competition problems identified by ComReg include the risk of Eircom charging excessive prices for its MI WDC services in Zone B. Furthermore, in the case where Eircom has SMP in the Zone B MI WDC Markets, the imposition of an accounting separation obligation should ensure that sufficient and robust information is provided to help ComReg monitor regulation of those markets where Eircom has been found to have SMP.
- 7.214 In particular, the accounting separation obligation should assist ComReg in assessing the level of returns that Eircom is earning on a regulated wholesale

³⁹⁹ Paragraphs 10.453-10.455 of the 2020 Decision.

market given the obligation of cost orientation on MI WDC services in the Zone B markets. In other words, publication of the HCA separated accounts is intended to provide stakeholders, including ComReg with some assurance that Eircom is complying with its SMP obligations, and that Eircom is recovering its efficient costs.

- 7.215 ComReg proposes that Eircom should retain the current process from the 2020 Decision whereby Eircom publishes a national consolidated Income Statement and a consolidated Statement of Mean Capital Employed for the WDC market, but for Modern Interface WDC services only. ComReg considers that it is no longer justified or proportionate to require Eircom to report on TI services as part of its HCA statements, as it is proposed that all TI services will no longer be subject to regulation and in any event the demand for these services is in decline. In addition, given ComReg's proposal that the relevant WDC product market should include dark fibre, in addition to Ethernet and WDM services, ComReg proposes that Eircom's HCAs should report the revenues and costs associated with dark fibre as part of the consolidated MI WDC market.
- 7.216 For MI WDC services, Eircom provides these services across the entire market i.e. in Zone A and Zone B. While Eircom is not subject to regulation in Zone A, there is a need for ongoing price regulation of MI WDC products, services and associated facilities in Zone B, and so a consolidated set of HCAs for MI WDC services allows a reasonable degree of transparency for all stakeholders. ComReg considers that there should be no incremental burden to Eircom, given that it currently provides the WDC financial information at a consolidated level in their HCA separated accounts.
- 7.217 Having an accounting separation obligation in conjunction with a cost accounting obligation also means that ComReg can place greater reliance on any cost accounting information it receives from Eircom in respect of MI WDC services, including in respect of shared network costs or common cost attributions or between leased line services which are regulated and those which are not. This is because under the accounting separation obligations set out in the 2010 Accounting Separation Decision Eircom is required to publish HCA separated accounts with a high level audit opinion⁴⁰⁰ provided by an external party, with the assurance that costs are allocated in a fair, transparent and objective way.
- 7.218 For these reasons, ComReg considers that the continued imposition of an accounting separation obligation on Eircom for MI WDC services seems

⁴⁰⁰ "Fairly presents in accordance with" or FPIA audit opinion.

justified and proportionate, in addition to the imposition of the price control obligation of cost orientation and the obligation of cost accounting.

7.6.3. Implementation of accounting separation obligation

7.219 The detailed nature of the accounting separation obligations currently imposed on Eircom is specified in the 2010 Accounting Decision. However, ComReg is proposing to update some of the reporting requirements regarding the accounting separation obligation to reflect changes in the services that are regulated. These proposed changes are discussed further below.

Historic Cost Accounting ('HCA') statements:

7.220 As discussed above, ComReg proposes that Eircom should continue to be required to publish in its HCA Statements a consolidated Income Statement and consolidated Statement of Mean Capital Employed for the provision of MI WDC products and services (excluding TI services and including dark fibre services). These obligations are consistent with the 2010 Accounting Decision.

7.221 In addition, and pursuant to Regulation 53 of the ECC Regulations, ComReg can, inter alia, require a vertically-integrated SMP operator, to make its wholesale prices transparent and its internal transfer prices transparent, so as, for example, to ensure compliance with any non-discrimination obligation or, where necessary, to prevent unfair cross-subsidy. In this regard, ComReg has already specified in the PIA Decision (D03/24) at paragraph 7.484 that *"...all duct and pole costs should be allocated to the PIA market statement, with Eircom's internal use of ducts and poles captured by cost-based (or an appropriate) transfer to the other downstream markets in Eircom's HCAs."* Hence, Eircom must ensure that the PIA transfer charges are reflected in the WDC statements in the HCAs going forward.

7.222 ComReg may consider further necessary enhancements to the HCA separated accounts, as part of the annual engagement with Eircom, as set out in the 2010 Accounting Decision.

Additional Financial Information:

7.223 Additional financial information ('**AFI**') can contain both profit and loss accounts and volumes, fixed asset investments, and further breakdown of cost information. AFIs are not subject to external audit.

7.224 On an annual basis, ComReg discusses the AFI requirements with Eircom. ComReg is proposing to continue with this annual review, thereby ensuring that the number and format of the AFI reports continue to be relevant, and

that the production of such reports does not amount to an undue burden on Eircom.

- 7.225 In terms of the current AFI statements provided by Eircom on WDC, ComReg considers that it is no longer proportionate to require Eircom to report separately on TI services. As discussed above, TI services will no longer be subject to regulation and so TI services should be excluded from the AFI WDC statements. Given ComReg’s proposal that the relevant WDC product market should now include dark fibre, ComReg proposes that Eircom should report dark fibre in its WDC AFI statements. Hence, ComReg proposes that the AFI WDC “Income Statement”⁴⁰¹ should be split according to “Modern Interface Rentals”, “Modern Interface Connections”, “Dark Fibre Rentals” and “Dark Fibre Connections”. The same split of services should also be applied in the AFI “Statement of Average Cost and Revenues”.⁴⁰²
- 7.226 In addition, ComReg proposes that Eircom should provide an additional AFI statement which provides a split of the WDC revenues by Zone A and Zone B. In other words, Eircom should provide its WDC revenues split by “External”, “Internal – Inter”, “Internal – Intra”, for Zone A and for Zone B regions. This should assist ComReg in understanding the profile of Eircom’s revenues between services provided in Zone B compared with services provided in Zone A. ComReg considers that Eircom’s cost accounting and billing systems should have the capability to determine the split between Zone A and Zone B given that a similar demarcation in the two regions has been in place since the 2020 Decision.
- 7.227 ComReg expects that these changes, and any other necessary changes, can be progressed further as part of the annual engagement with Eircom, as set out in the 2010 Accounting Decision.

Q. 14 Do you agree with ComReg’s view that Eircom should continue to maintain its accounting separation obligation in relation to its Modern Interface Wholesale Dedicated Capacity products, services and associated facilities, and for the avoidance of doubt this means the inclusion of dark fibre in the MI WDC HCA statements and AFI statements? Please provide reasons for your response.

⁴⁰¹ In the 2020 Decision, ComReg decided to include the Income Statement within the AFI Statements instead of the Additional Financial Statements (see Section 8.10, paragraph 8.285).

⁴⁰² From the point of view of transparency, Eircom should ensure that the HCA and AFI statements are renamed in accordance with the newly defined market i.e., Wholesale Dedicated Capacity market (rather than Wholesale High Quality Access market).

7.7 Regulatory Governance

7.7.1. Requirement for effective regulatory governance

- 7.228 A key objective of ComReg in selecting appropriate remedies to prevent potential anti-competitive behaviours arising from Eircom's SMP in regulated markets to date, has been to ensure that Access Seekers have the option to choose what level of access they want depending on the scale of their operation, while encouraging efficient infrastructure-based competition (including through price control obligations). Further to Eircom's obligations of non-discrimination and transparency in particular, a critical aspect in the effectiveness of WDC products in facilitating effective competition is the regulatory governance arrangements that are or need to be in place for the purpose of ensuring, and giving confidence to Access Seekers, that Eircom provides access to its network in accordance with its regulatory obligations (including compliance where obligations can differ across geographic zones). This includes in particular the management of matters such as order provisioning and service assurance; the development of the WDC products and services; the manner in which Eircom investment decisions are made, by whom and the criteria used; and the management of confidential regulated information.
- 7.229 Eircom's regulatory governance arrangements are currently overseen by ComReg in two principal ways.
- 7.230 First, Eircom is required under the 2020 Decision, and the 2024 WLA and PIA Decisions, to prepare and provide to ComReg, Statements of Compliance ('SoC') which detail and explain Eircom's risk assessment and control procedures. The function of the SoC is to require Eircom to demonstrate how it ensures compliance with SMP obligations, more particularly by reference to the regulatory governance measures and arrangements put in place in order to identify and manage risks of non-compliance. Eircom uses its Regulatory Governance Model ('RGM') to develop and provide SoCs to ComReg. The RGM in turn relies on Eircom's expertise and knowledge of its processes, systems and procedures to identify, manage and control the risks of non-compliance with its regulatory obligations.
- 7.231 Second, on 10 December 2018, ComReg and Eircom entered into a settlement of a number of High Court proceedings ('Settlement Agreement'). As part of this Settlement Agreement, Eircom agreed to a set of commitments which, when fully implemented, was to result in the establishment and operation of an enhanced RGM in Eircom.

- 7.232 In its Electronic Communications Strategy Statement 2023-2025, ComReg indicated that it continued to have some concerns around the state of competition and the culture of compliance within Eircom in the presence of the enhanced RGM, and that it would continue to review the effectiveness of the RGM and Settlement Agreement and consider if more regulatory action is required.
- 7.233 A key aspect in assessing Eircom's regulatory governance arrangements and whether additional measures are required in this respect, is to understand in the presence of WDC products available to Access Seekers, whether they are effective in terms of facilitating effective competition and establishing that there is a level playing field for all users, including how Eircom supplies itself and other Access Seekers with WDC products.
- 7.234 In light of the above, ComReg is of the view that Eircom should be required to ensure that it has in place effective regulatory governance arrangements ensuring compliance with its obligations of access, non-discrimination, transparency, accounting separation, cost accounting and price control. ComReg further proposes that this obligation be further specified for the time being by reference to a requirement to prepare and provide to ComReg, an SoC, as further described below. ComReg is of the view that this is the least intrusive measure which ComReg may impose on Eircom at this point in time. However, Eircom's obligations may be respecified or complemented by further requirements, including non-standard remedies where and if justified, depending on the outcome of ComReg's review of the effectiveness of Eircom's RGM as referred to in the Electronic Communications Strategy Statement. This will include consideration of the effectiveness of Eircom's WDC products in terms of facilitating effective competition and how competition has developed to date.

7.7.2. Statement of Compliance

- 7.235 ComReg proposes to continue to require Eircom to provide, and keep up to date, a Statement of Compliance that details and explains Eircom's risk assessment and control and governance measures.
- 7.236 The function of the SoC is to require Eircom to demonstrate how it ensures compliance with the regulatory obligations imposed on it in the Zone B MI WDC Markets. The SoC obligation requires Eircom to explain the regulatory governance measures and arrangements that it has put in place in order to identify and manage risks of non-compliance with its SMP obligations, thereby providing reasonable assurances to ComReg that Eircom effectively manages risks of non-compliance in the Zone B MI WDC Markets. This includes the scenario where products from Zone B MI WDC are bundled with unregulated products, in particular Zone A MI WDC.

Information to be provided in the SoC

- 7.237 The implementation of effective regulatory governance structures and arrangements by Eircom requires the identification and management of risks of non-compliance with Eircom's regulatory obligations in the Zone B MI WDC Markets, and in turn transparency as regards Eircom's approach to risk identification and the development of controls including an explanation of the scope and output of the risk review, the processes reviewed, the material considered and how Eircom employed subject matter experts in the risk analysis and control development processes.
- 7.238 This requires assessments to be carried out by Eircom of, inter alia, systems, processes and activities that have relevance for Eircom's compliance in order to determine where and how regulatory risk might arise. For example, the business processes and associated systems that underpin the development of WDC products and services or service assurance may give rise to regulatory risk. A structured and systematic approach to the assessment of risk is required in order to identify potential risks of non-compliance. A similar approach is necessary for the effective design and operation of controls in order to manage the identified risks of non-compliance.
- 7.239 It also requires that the output of the risk analysis is documented adequately, including a description of the potential regulatory issues which could give rise to regulatory risk, together with an outline of the consideration given to potential regulatory issues and the reasons why the conclusion that issues identified do or do not give rise to regulatory risk as the case may be.
- 7.240 Eircom's risk analysis process, which it currently applies in the existing WHQA (now WDC), WLA and PIA Markets is structured such that it produces the information outlined above and that the output from each risk assessment is stored by Eircom. Therefore, ComReg considers that to continue the existing requirement, with respect to the Zone B MI WDC Markets, will not result in an undue additional burden on Eircom. Furthermore, the provision of this information to ComReg has the potential to increase confidence in the scope and comprehensiveness of Eircom's regulatory governance and oversight in the WDC Market.
- 7.241 This information is required in order for ComReg to understand Eircom's approach to risk management and the extent to which it has fully evaluated risks and has developed, and is operating, controls. This information demonstrates the extent to which identified risks of non-compliance with obligations are being managed by Eircom in a manner that provides reasonable assurances to ComReg with respect to Eircom's compliance with its regulatory obligations in the Zone B MI WDC Markets. It also provides information which supports the Directors' confirmation that, in their opinion,

the governance arrangements in place provide reasonable assurance that Eircom is in compliance with its regulatory obligations in the WDC Market.

Activities particularly relevant to the WDC Market

- 7.242 ComReg has identified categories of activities which it considers are particularly relevant to the delivery and availability of regulated wholesale products and services in the WDC Market. ComReg considers that non-compliance by Eircom with regulatory obligations associated with these activities has the potential to have a significant impact on Access Seekers. Effective regulatory governance in general, including with respect to these activities, will assist Eircom to be compliant with its regulatory obligations resulting in benefits to competition and, ultimately, end users.
- 7.243 For the avoidance of doubt, ComReg is not proposing that these are the only categories or areas where the proposed SoC obligation requires Eircom to provide information on the implementation and operation of regulatory governance. It is reasonable to expect that appropriate and effective governance and oversight of the management of Confidential Regulated Information as required by Eircom's regulatory obligations in the Zone B MI WDC Markets will apply throughout the Eircom organisation.
- 7.244 The proposed SoC obligation is required with respect to all of Eircom's activities and processes i.e., all areas where Eircom's regulatory obligations apply in the Zone B MI WDC Markets. ComReg expects that Eircom has the knowledge and expertise to make a determination as to the scope, extent and potential impact of its activities on its compliance with its regulatory obligations in the WDC Market and should address the requirements of the SoC obligation accordingly and in a comprehensive manner.
- 7.245 ComReg notes that many of Eircom's activities and processes are consistent across products and markets. To that end, and to avoid undue regulatory burden to Eircom, ComReg is proposing to maintain the existing SoC obligations as set out for the PIA and WLA markets⁴⁰³.
- 7.246 However, in this Consultation ComReg is proposing that, due to their significance and relevance, the consideration given to the management of regulatory risk arising from Eircom's activities, processes and systems associated with these categories should be explicitly included in the proposed SoC obligations:
- (a) Development of WDC Products and Services;

⁴⁰³ ComReg Decisions D03/24 and D05/24, both published 23 January 2024.

- (b) Provisioning and Service Assurance
 - (c) Eircom's investment decisions; and
 - (d) Management of Confidential Regulated Information.
- 7.247 The proposed obligation requires that the SoC be signed by a person of appropriate authority within Eircom such that assurances can be provided to ComReg that regulatory governance and oversight is afforded the necessary oversight and attention by Eircom.
- 7.248 Furthermore, ComReg considers that the signatory needs to be a person within Eircom who is sufficiently independent from day-to-day operational activity and decision-making, in relation to the development, and supply of wholesale regulated products and services, in order to be able to objectively confirm Eircom's compliance with its regulatory obligations.
- 7.249 ComReg considers that the SoC should be signed by a Director or Directors of Eircom on behalf of the Board of Directors, of Eircom Limited and should include a statement acknowledging the Directors' responsibility in ensuring Eircom's compliance with its regulatory obligations and confirmation that the governance arrangements in place provide reasonable assurance that Eircom has taken all necessary steps to ensure compliance with its regulatory obligations in the Zone B MI WDC Markets. ComReg considers that this requirement emphasises the importance of the SoC and reinforces the need for, and increases the likelihood of the establishment, by Eircom, of appropriately robust oversight and governance measures relating to the implementation and operation of regulatory governance in Eircom.
- 7.250 ComReg also notes that, under Section 225 of the Companies Act 2014, Company Directors have specific obligations with which they must comply with relating to securing compliance with relevant obligations under that Act, as follows:
- “... (2) The directors of a company to which this section applies shall also include in their report under section 325 a statement—*
- (a) acknowledging that they are responsible for securing the company's compliance with its relevant obligations; and*
 - (b) with respect to each of the things specified in subsection (3), confirming that the thing has been done or, if it has not been done, specifying the reasons why it has not been done.*
- (3) The things mentioned in subsection (2)(b) are—*
- (a) the drawing up of a statement (to be known, and in this Act referred to as, a “compliance policy statement”) setting out the company's policies (that, in*

the directors' opinion, are appropriate to the company) respecting compliance by the company with its relevant obligations;

(b) the putting in place of appropriate arrangements or structures that are, in the directors' opinion, designed to secure material compliance with the company's relevant obligations; and

(c) the conducting of a review, during the financial year to which the report referred to in subsection (2) relates, of any arrangements or structures referred to in paragraph (b) that have been put in place.”

- 7.251 While the obligations referred to above in respect of the Companies Act 2014 do not include regulatory obligations, in ComReg's view it is relevant and instructive that the Companies Act 2014 requires Directors to prepare a statement that, inter alia, confirms that, in their opinion, arrangements are designed and put in place that secure material compliance with the company's relevant obligations.
- 7.252 ComReg's view is that, in order to ensure that the signatory has the required independence and authority, the signatory should be a Director authorised to represent the Board of Directors (defined in the Companies Act 2014) of Eircom.
- 7.253 ComReg is aware from SoCs previously received from Eircom that there are various certification processes in place as part of the RGM which Eircom has implemented in order to govern compliance with its regulatory obligations generally. ComReg understands that these include self-certification processes by Eircom Managers certifying, for example the operation of the governance processes in their areas of responsibility.
- 7.254 ComReg proposes that the SoC describes both the processes followed and the information relied upon by the signatory to the SoC who are required to certify the correct operation of the governance process. Similarly, ComReg proposes that the SoC includes a description and explanation of the governance measures implemented in Business Areas and activities which have relevance to Eircom's compliance with its regulatory obligations. ComReg also proposes that the SoC includes a description and explanation of the processes followed by Eircom's management, in particular Senior Managers in relevant Business Areas, in order to assess the operation and effectiveness of the processes used to identify, prevent and mitigate risks of non-compliance.
- 7.255 As some form of verification process must currently be carried out by the SoC Signatory and the staff who provide certification, ComReg considers that it is reasonable that it should understand and review the verification process followed by the SoC Signatory and Eircom Management in order for ComReg

to reasonably satisfy itself that Eircom has adequate governance and oversight arrangements in order to ensure compliance with its regulatory obligations. ComReg considers that providing this information should not be an additional undue burden and is reasonable and proportionate.

- 7.256 A key element of Eircom's RGM is the analysis, development, management and documentation of the risk and control framework. This includes the production of data and information, some of which can be used when preparing a SoC. A significant portion of the information required for the SoC is generated as an output from the risk assessment processes executed as part of the implementation of Eircom's RGM. In the proposed SoC obligation, ComReg requires Eircom to produce information on the output generated from the risk analysis and control development process. ComReg considers that the requirement to provide such information, relating to the execution of its risk analysis process in the proposed SoC, will not result in an additional burden being placed on Eircom as this information is currently being generated by Eircom as it operates its RGM.

7.7.3. Timeframe for Provision of the SoC to ComReg

- 7.257 ComReg proposes that Eircom will be required to provide an SoC for the WDC Market within three (3) months from the Effective Date of the final decision (arising from this Consultation) where there is no offer of a new WDC product or change to an existing WDC product.
- 7.258 ComReg considers that it would be appropriate that the SoC is provided to ComReg in the case of any offer of a new WDC product, service or facility, or a change to an existing WDC product, service or facility, three (3) months in advance of it being made available to industry (one month in advance of publication of the SoC), or as otherwise may be required by ComReg, as part of the product notification (including amendment). In this regard the notification will only be considered to be complete if it includes the updated SoC.
- 7.259 ComReg notes that the timeframes specified above are aligned to the proposed transparency obligations discussed in this Consultation with respect to advance notification timeframes for proposed changes/amendments by Eircom to its LLRO and LLRO Price List.
- 7.260 In all cases, SoC and associated updates should include version control information including a revision history in order to allow the reader of the SoC to easily identify changes and when they were made

7.7.4. Publication of the Statement of Compliance

- 7.261 ComReg has considered whether the SoC should be published and available to Access Seekers and is of the view that it should be. The SoC is primarily concerned with the degree of governance Eircom applies to meeting its regulatory obligations in the Zone B MI WDC Markets.
- 7.262 In ComReg's view the provision of the SoC to Access Seekers gives greater visibility to Access Seekers of the processes Eircom has put in place to ensure it complies with its regulatory obligations in the Zone B MI WDC Markets and improves Access Seekers confidence that they are receiving the same wholesale product or service that, for example, Eircom is supplying to its own downstream arm and is beneficial to providing regulatory certainty, facilitating competition and ultimately greater choice to end users.
- 7.263 However, ComReg recognises that some information to be published as part of the proposed SoC may be considered confidential by Eircom. In these circumstances, where a request is made by Eircom to ComReg not to publish aspects of the SoC then ComReg will apply its rules relating to the publication of confidential information when assessing any such request.
- 7.264 ComReg proposes that Eircom should make the SoC available on its publicly available wholesale website one month after provision of the SoC to ComReg, unless otherwise agreed by ComReg.
- 7.265 ComReg also does not consider that the additional step of providing the SoC to Access Seekers to be unduly burdensome as the SoC is required to be provided to ComReg.

Q. 15 Do you agree with ComReg's view that Eircom should continue to maintain its statement of compliance obligation in relation to its MI WDC products, services and associated facilities in the WDC market? Please provide reasons for your response.

Chapter 8

8. Withdrawal of obligations

8.1 Introduction

8.1 In this Section, ComReg sets out its views in relation to the withdrawal of obligations:

- (a) In the LB TI WDC Market; and
- (b) For WPZs transferring from the Zone B MI WDC Markets to the Zone A MI WDC Markets (these WPZs are listed in Annex: 9 (Workplace Zones B to A)).

8.2 Withdrawal of obligations in the LB TI WDC Market

8.2 To allow Eircom's wholesale customers sufficient time to seek out alternative arrangements for the supply of LB TI WDC services (should they decide to change supplier), ComReg's view is that a sunset period of six months is appropriate. During this sunset period:

- (a) Eircom is required to maintain access at existing prices;
- (b) Eircom is not required to provide access to new orders for LB TI WDC services, although it is free to do so on a commercial basis; and
- (c) Eircom is not required, from the effective date of the Decision, to meet other obligations (for example, in relation to transparency, non-discrimination, etc.).

8.3 Withdrawal of obligations in WPZs transferring from the Zone B MI WDC Markets to the Zone A MI WDC Markets

8.3 To allow Eircom's wholesale customers sufficient time to seek out alternative arrangements for the supply of MI WDC products (should they decide to change supplier), whilst maintaining service continuity, thus ultimately minimising any impact of the de-regulation of certain WPZs on SPs and ultimately end-users, ComReg's view is that a sunset period of nine months is appropriate.

8.4 During the sunset period Eircom is required to maintain access at existing prices.

- 8.5 During the first three months of this sunset period, Eircom is required to provide access to new orders, at prices as set by regulation at the commencement of the sunset period, for MI WDC LLs given the need to protect currently ongoing tendering processes.
- 8.6 However, Eircom is not required, from the effective date of this Decision, to meet other obligations (for example, in relation to transparency, non-discrimination, etc.).

Q. 16 Do you agree with ComReg’s proposals on the withdrawal of SMP remedies on Eircom in the LB TI WDC Market and in WPZs that have moved from Zone B MI WHQA Markets in the 2020 Decision to Zone A MI WDC Markets in this Consultation? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views.

9. Next Steps

- 8.7 ComReg invites all interested parties to respond to the questions set out in this Consultation. The consultation period will run 31 January 2025, providing a nine week consultation period.
- 8.8 ComReg will then review and assess the responses to this Consultation and prepare a final decision having regard to any other developments. ComReg is aware that developments in the Irish market such as the change in the ownership of SPs could impact the assessment of the MI WDC Market and the trunk market. ComReg will monitor the situation closely and reflect any relevant developments in its final decision.
- 8.9 After the decision, ComReg also intends to continue to closely monitor developments in the MI WDC markets over the market review period and if market outcomes appear to be materially different ComReg may, at its sole discretion, decide whether to commence a fresh market review earlier than planned.

Annex: 1 Decision Instrument

1. STATUTORY POWERS GIVING RISE TO THIS DECISION INSTRUMENT

1.1 This Decision Instrument (“Decision Instrument”) is made by the Commission for Communications Regulation (“ComReg”):

- (i) Pursuant to and having had regard to Sections 10 and 12 of the Communications Regulation Act 2002 (as amended); Regulation 4 and Regulation 42 of the ECC Regulations;
- (ii) Having, where applicable, pursuant to Section 13 of the Communications Regulation Act 2002 (as amended) complied with Ministerial Policy Directions;
- (iii) Having taken the utmost account of the 2020 Recommendation, the SMP Guidelines and Explanatory Note, the 2013 Recommendation and where applicable, the Gigabit Connectivity Recommendation;
- (iv) Noting that the 2020 Recommendation identifies as a market susceptible for ex ante regulation the market for wholesale dedicated capacity;
- (v) Having taken account of the submissions received in response to ComReg Document No. 24/92 [*this Consultation Document*] as part of the public consultation held pursuant to Regulation 101 of the ECC Regulations;
- (vi) Having consulted with the Competition and Consumer Protection Commission, further to Regulation 49 of the ECC Regulations;
- (vii) Having notified the draft measure and the reasoning on which the measure is based to the European Commission, BEREC and the national regulatory authorities in other EU Member States pursuant to Article 32 of the Code/Regulation 17 of the ECC Regulations and having taken utmost account of any comments made by them;
- (viii) Having regard to the provisions of the Agreement entered between the Minister for Communications and NBI on 19 November 2019 in respect of the rollout of a network in the Intervention Area as part of the National Broadband Plan;
- (ix) Having regard to ComReg Decision D10/20;
- (x) Pursuant to Regulations 45, 46, 49, 50, 51, 52, 53, 55 and 56 of the ECC Regulations;

- (xi) Pursuant to Regulation 104 of the ECC Regulations;
- (xii) Pursuant to Regulation 99 of the ECC Regulations; and
- (xiii) Having regard to the analysis and reasoning set out in ComReg YY/NN [*the Decision and Response to Consultation document*].

1.2. This Decision Instrument shall where appropriate be construed consistently with ComReg YY/NN [*the Response to Consultation and Final Decision document*]. For the avoidance of doubt, to the extent that there is any conflict between a decision instrument dated prior to the Effective Date (as defined in Section 2.1 of this Decision Instrument) and this Decision Instrument, this Decision Instrument shall prevail.

PART I - GENERAL PROVISIONS

2. DEFINITIONS

2.1 In this Decision Instrument, unless the context otherwise suggests:

“**Access**” has the same meaning as under Regulation 2 of the ECC Regulations;

“**Access Path**” means the connection from the NTU in the End User’s premises to the serving Aggregation Node;

“**Access Seeker**” means an Undertaking other than Eircom;

“**Aggregation Area**” means the geographical area served by an Aggregation Node;

“**Aggregation Node**” or “**Agg Node**” means a network concentration point for Access Paths that is located in an Eircom Exchange;

“**Aggregation Region**” means a group of Aggregation Areas where each Aggregation Node is connected to the same pair of Eircom Exchanges containing Provider Edge (‘PE’) Node(s) or equivalent;

“**Associated Facilities**” has the same meaning as under Regulation 2 of the ECC Regulations;

“**BAFO**” means Best and Final Offer made by Eircom to Undertakings in respect of a new or amended SLA;

“**BEREC**” means the Body of European Regulators for Electronic Communications, as established pursuant to Regulation (EU) 2018/1971 of the European Parliament and of the Council of 11 December 2018 amending Regulation (EU) 2015/2120 and repealing Regulation (EC) No. 1211/2009;

“BU-LRAIC+” stands for Bottom-Up Long Run Average Incremental Cost Plus, the methodology used to estimate average efficiently incurred directly attributable variable and fixed costs including an appropriate apportionment of joint and common costs;

“Communications Regulation Act 2002” means the Communications Regulation Act 2002 (No. 20 of 2002), as amended;

“Competition and Consumer Protection Commission” means the body established under section 9 of the Competition and Consumer Protection Act 2014;

“ComReg” means the Commission for Communications Regulation, established under Section 6 of the Communications Regulation Act 2002;

“ComReg Document 24/92” means [*this Consultation Document*];

“ComReg Decision D08/10” means ComReg Document No. 10/67, entitled “Response to Consultation Document and Final Direction and Decision, Response to Consultation Document No. 09/75 and Final Direction and Decision: Accounting Separation and Cost Accounting Review of Eircom Limited”, dated 31 August 2010;

“ComReg Decision D03/20” or **“the 2020 WHQA Decision”** means ComReg Document No. 20/06, entitled “Market Review – Wholesale High Quality Access at a Fixed Location: Response to 2018 Further Consultation and Decision”, dated 24 January 2020;

“ComReg Decision D10/20” means ComReg Document No. 20/96, entitled “Review of Weighted Average Cost of Capital (WACC) – Response to Consultation and Final Decision; Mobile Telecommunications, Fixed Line Telecommunications, Broadcasting Transmission”, dated 14 October 2020;

“ComReg Decision D04/22” means ComReg Document No. 22/49, entitled “Access Products and Services; Key Performance Indicator (KPI) Metrics”, dated 29 June 2022;

“ComReg DNN/YY” means [*the Response to Consultation and Final Decision*];

“Decision Instrument” means this decision instrument;

“Dark Fibre” means an unlit optical fibre strand(s) between two designated points;

“Director” has the same meaning as under Section 2 of the Companies Act 2014;

“Effective Date” means the date set out in Section 21 of this Decision Instrument;

“Eircom” means Eircom Limited, a company incorporated in Jersey (Number 116389), registered as a Branch in Ireland (Number 907674), with an Irish registered

Branch Office at 2, Heuston South Quarter, St Johns Road West, Dublin 8, D08 Y42N;

“Electronic Communications Network” or **“ECN”** has the same meaning as under Regulation 2 of the ECC Regulations;

“Electronic Communications Service” or **“ECS”** has the same meaning as under Regulation 2 of the ECC Regulations;

“End User” has the same meaning as under Regulation 2 of the ECC Regulations;

“European Electronic Communications Code” or the **“Code”** means Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code;

“European Union (Electronic Communications Code) Regulations 2022” or **“ECC Regulations”** means Statutory Instrument No. 444 of 2022;

“Ethernet” means a technology that supports data transfer between network Nodes at Layer 2 of the OSI reference model;

“Exchange” means an Eircom network premises or equivalent facility used to house network and associated equipment;

“Explanatory Note” means the European Commission 2020 Recommendation – Staff Working Document/Explanatory Note SWD (2020) 337 final, dated 18 December 2020;

“Gigabit Connectivity Recommendation” means Commission Recommendation (EU) 2024/539 of 6 February 2024 on the regulatory promotion of gigabit connectivity;

“Intervention Area” or **“IA”** means the geographic areas for State intervention for the National Broadband Plan comprising the premises and delivery points in respect of which NBI has contracted with the Minister to deliver high-speed broadband services;

“Interconnection” has the same meaning as under Regulation 2 of the ECC Regulations;

“Key Performance Indicator(s)” or **“KPI(s)”** means a measure(s) of the standard(s) of product, service or facility provided by Eircom to an Undertaking and by Eircom to itself;

“KPI DI” means the decision instrument set out in Appendix 1 of ComReg Decision D04/22;

“LLRO Price List” means the document published by Eircom setting out the prices and charges applicable to the products and services it is required to provide under

the within Decision or, for the purpose of Section 14 of this Decision Instrument, Decision D03/20;

“Low Bandwidth TI WHQA” means wholesale Leased Lines provided over wired infrastructure over a Time Division Multiplexing (TDM) interface at bandwidths less than or equal to 2Mb/s;

“Metropolitan Point of Presence” or **“MPoP”** means the point of inter-connection between the access and core networks of an Undertaking;

“MI WDC” means wholesale dedicated capacity, of any bandwidth, provided over wired infrastructure over modern interfaces including Ethernet, xWDM and other such interfaces;

“Ministerial Policy Directions” means the policy directions made by Dermot Ahern TD, then Minister for Communications, Marine and Natural Resources, dated 21 February 2003 and 26 March 2004;

“Milestones” means the key points in Eircom’s product development process that would be reasonably relied upon by Undertakings to track the progress of an Access request in that process, including, *inter alia*, Product Development Decision Points and points of transition associated with analysis, design, development and launch stages for meeting the Access request and the date on which the product, service, facility or Associated Facility will be made available for Undertakings;

“NBP” stands for National Broadband Plan;

“NBI” means the Authorised Undertaking NBI Infrastructure Designated Activity Company, a company registered in Ireland with number 631656 whose registered office at the date of this Decision instrument is at 3009, Lake Drive, Citywest Business Campus, Citywest, Dublin 24, D24H6RR, Ireland;

“Network Termination Unit” or **“NTU”** means the physical interface which provides the service demarcation or Point of Handover of the wholesale service within the customer premises;

“Node” means any location or concentration point in the access network (excluding termination points at End Users’ premises) which houses equipment;

“Non-Trunk Node” means an Eircom Exchange that is not a Trunk Node Exchange so listed in Schedule 2;

“Non-Disclosure Agreement” means an agreement for protecting the disclosure of commercially sensitive, competition sensitive or confidential information and governing its use or reliance;

“OSS” stands for Operational Support Systems;

“Point of Handover” means the physical point at which an Access Seeker’s network interconnects with Eircom’s to allow traffic to pass;

“Product Development Decision Point” means a point during the development process at which Eircom takes or is due to take a decision to advance, park, or terminate the development of a product, service, facility or Associated Facility;

“Product Development Roadmap” means a document containing a list of all proposed, planned and in progress developments for regulated products, services, facilities and Associated Facilities, and related information, as required from Eircom in accordance with Section 9.6 of this Decision Instrument;

“Service Credit(s)” means the amount of money owed by Eircom to an Access Seeker in circumstances where Eircom has failed to meet the service levels which Eircom commits to in its SLA, or on the occurrence of specified events or the application of criteria specified in the SLA;

“Service Level Agreement(s)” or **“SLA(s)”** means a legally binding contract between Eircom and an Access Seeker in relation to the service levels which Eircom commits to from time-to-time;

“SLA Negotiation Period” means the duration of time required by Eircom to close negotiations with Access Seekers and make a BAFO in respect of an amended or new SLA;

“SMP Guidelines” means the European Commission guidelines of 7 May 2018 on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services (2018/C 159/01) (OJ C 159, 7.5.2018, p.1);

“Trunk Node” means one of the 191 Eircom Exchanges passed within 100 metres by at least two alternative networks as listed in Schedule 2;

“Undertaking” has the same meaning as under Regulation 2 of the ECC Regulations;

“WDM” or **“xWDM”** means Wavelength-Division Multiplexing, a technology which multiplexes multiple optical carrier signals onto a single optical fibre by using different wavelengths;

“WDC” or **“Wholesale Dedicated Capacity”** means a service that involves the supply of dedicated transmission capacity between fixed locations;

“Workplace Zone” means any of the 7,219 geographic areas delimited by the Central Statistics Office (CSO) by reference to daytime population which includes anyone commonly present in that area during daytime for any reason including work or study;

“**WPZ**” stands for Workplace Zone;

“**2013 Recommendation**” means the 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);

“**2020 Recommendation**” means the European Commission Recommendation of 18 December 2020 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (C (2020) 8750).

3. SCOPE AND APPLICATION

- 3.1 This Decision is concerned with the provision between Undertakings of symmetric, dedicated, high quality connectivity over any ECN including Dark Fibre; it withdraws subject to conditions the decision instrument appended to ComReg Decision D03/20 and amends the decision instrument appended to ComReg Decision D04/22.
- 3.2 This Decision Instrument is binding upon Eircom and applies to Eircom and its subsidiaries and any related companies, and any Undertaking which owns or controls Eircom, and its successors, affiliates and assigns and all shall comply with it in all respects.

PART II – RELEVANT MARKET AND SMP OBLIGATIONS

4. MARKET DEFINITION

- 4.1 The following markets are relevant markets for the purpose of this Decision Instrument:
- 4.1.1 The market for the provision of low bandwidth traditional interface high quality access (“the LB TI WHQA Market”) as defined in ComReg Decision D03/20; and
- 4.1.2 The following four markets for the provision of Modern Interface Wholesale Dedicated Capacity between a location in a Workplace Zone and a Point of Handover within the relevant Aggregation Region located at any Non-Trunk Node Exchange up to and including the serving Trunk Node Exchanges (the “MI WDC Markets”):
- 4.1.2.1 MI WDC Market 1, comprising locations within the 2,565 Workplace Zones listed in Schedule 1;

- 4.1.2.2 MI WDC Market 2, comprising locations within the 2,455 Workplace Zones listed in Schedule 1;
 - 4.1.2.3 MI WDC Market 3, comprising locations within the 1,079 Workplace Zones listed in Schedule 1;
 - 4.1.2.4 MI WDC Market 4, comprising locations within the 1,120 Workplace Zones listed in Schedule 1.
- 4.2 For the purpose of this Decision Instrument, MI WDC Market 1 and MI WDC Market 3 are referred together as the **Zone A MI WDC Markets**, and MI WDC Market 2 and MI WDC Market 4 are referred to together as the **Zone B MI WDC Markets** and the Aggregation Regions are as set out in Schedule 2.

5. COMPETITION ASSESSMENT AND SMP DESIGNATION

- 5.1 ComReg hereby finds that Eircom no longer holds SMP in the LB TI WHQA Market and Eircom's designation with SMP in the LB TI WHQA Market, pursuant to ComReg Decision D03/20, is hereby withdrawn.
- 5.2 ComReg hereby finds that, on a forward-looking basis, the Zone A MI WDC Markets are effectively competitive, and no undertaking has SMP in those markets.
- 5.3 ComReg hereby finds that, on a forward-looking basis, the Zone B MI WDC Markets are not effectively competitive and designates Eircom as having SMP in those markets.

6. REQUIREMENT FOR SMP OBLIGATIONS

- 6.1 In light of the competition issues arising in connection with Eircom's SMP in the Zone B MI WDC Markets, and subject to Section 6.2, ComReg finds that it is necessary to impose on Eircom in respect of the Zone B MI WDC Markets, obligations of access, non-discrimination, transparency, cost-orientation, cost accounting and accounting separation as set out in, and further specified as the case may be, in Sections 7 to 15.

Geographic differentiation

- 6.2. The obligation of cost-orientation shall not apply to Eircom's provision of Access required under this Decision at premises in the Zone B MI WDC Markets that are in the Intervention Area, as identified by the associated Eircodes in the Amber Areas in the National Broadband Plan Map as published and updated by the Department of Environment, Climate and Communications on its website from time to time.

- 6.3 For the avoidance of doubt, all other obligations as set out in this Part II apply in respect of the provision of Access at any premises in the Zone B MI WDC Markets including premises in the Intervention Area and for the further avoidance of doubt, this includes in particular obligations of transparency and non-discrimination requirements as regards prices applicable to the provision of Access to premises in the Zone B MI WDC Markets that are in the Intervention Area.

7. ACCESS

Reasonable requests for Access to terminating segments

- 7.1 Eircom shall meet all reasonable requests for active products and services providing Access to Wholesale Dedicated Capacity between a fixed location in a Zone B WPZ and any Point of Handover located within the Aggregation Area and, in the case of a Non-Trunk Node, up to any Point of Handover located within the Aggregation Area of any of the two Trunk Nodes (as set out in Schedule 2) within that Aggregation Region, and shall make available any interconnection services and Associated Facilities required to avail of the Access. For the avoidance of doubt, Eircom is not required to meet requests for Access to Dark Fibre.
- 7.2 For the purpose of Section 7.1, and in accordance with Section 7.4, all requests for Access including Associated Facilities shall be deemed reasonable, subject always to reasonable terms and conditions, and a request for Access may only be rejected, refused or otherwise denied for objective reasons such as where Access, as per the request, is not technically feasible or threatens network integrity and concerns in this respect may not be objectively mitigated satisfactorily by way of suitable terms and conditions, which reasons shall be communicated without delay to the Access Seeker concerned.
- 7.3 Within one calendar month following the Effective Date, and monthly thereafter, Eircom shall provide ComReg with a list of all requests for Access to products, services and Associated Facilities in the Zone B MI WDC Markets, whether by way of requests for the development of new products, services or Associated Facilities or amendments to existing products, services or Associated Facilities (including for the avoidance of doubt, SLAs) which have been accepted or refused/declined within the month, together where applicable, with the reasons for refusing/declining to meet an Access request.

Conditions for Access

- 7.4 Eircom shall at all times grant Access in a fair, reasonable, timely, transparent and non-discriminatory manner, as may be further specified by ComReg from time to time.

- 7.5 Without prejudice to the generality of Section 7.4, Eircom shall ensure that requirements imposed in respect of accreditation, audits and supervision are reasonable, proportionate and non-discriminatory by reference to the task concerned and the circumstances pertaining to the Access such that they do not result in unjustifiable impediments to the work of, or unwarranted costs for, Access Seekers. In particular, save where a material risk to national security, public safety or public health presents, or taking into account the nature of the work involved, there is a serious risk to the integrity of Eircom's network, Eircom shall ensure that any supervision requirements are applied in such a way that they do not have the effect of delaying or preventing Access Seekers from commencing or continuing work in the absence of an Eircom supervisor.
- 7.6 Eircom shall:-
- 7.6.1 negotiate in good faith with Undertakings requesting Access;
 - 7.6.2 not withdraw Access to facilities already granted without the prior approval of ComReg and in accordance with terms and conditions as may be determined by ComReg;
 - 7.6.3 grant open access to technical interfaces, protocols or other key technologies that are indispensable for the interoperability of products, services, facilities or Associated Facilities,
 - 7.6.4 provide Access to OSS or similar software systems necessary to ensure fair competition in the provision of services (including those products, services and facilities described in this Section 7).

Specified forms of Access including Associated Facilities

- 7.7 Without prejudice to the generality of Section 7.1, and subject to Section 7.6.2 and Section 9.9, Eircom shall continue to make available Wholesale Dedicated Capacity using its existing Modern Interface leased lines products and Associated Facilities, comprising, for the avoidance of doubt, the following:

NGN Ethernet

- 7.7.1 Wholesale Dedicated Capacity over NGN Ethernet comprising Wholesale Symmetric Ethernet Access ("WSEA") Access Paths and Wholesale Ethernet Service ("WES") logical connections; and
- 7.7.2 Wholesale Ethernet Interconnect Links ("WEILs") including variants for:
 - 7.7.2.1 Handover within the Exchange ("In-Building Handover" ("IBH"));
 - 7.7.2.2 Handover at an Access Seeker's nominated Point of Handover ("In-Span Handover" (ISH));

7.7.2.3 Handover at a premises nominated by the Access Seeker (“Customer-Sited Handover” (“CSH”);

7.7.2.4 Handover through a dedicated Aggregation Node (installed at the Access Seeker’s MPoP) (“Edge-Node Handover (“ENH”)), and

in each case allowing Interconnection Sharing whereby two or more Access Seekers agree to have access to the same WEIL.

Wavelength-Division Multiplexing (WDM)

7.7.3 WDM access circuits; and

7.7.4 WDM Interconnection Services, including variants for handover within the Exchange (IBH) and for handover at a premises nominated by the Access Seeker (CSH).

Co-Location

7.7.5 Access to any Eircom Exchange and their resources including space and power for the purpose of housing and connecting Access Seeker’s equipment, to include without limitation—:

7.7.5.1 Access to space and power;

7.7.5.2 Co-location Resource Sharing allowing an Access Seeker to share the resources (including space, power and co-location racks) allocated to it with another Access Seeker;

7.7.5.3 Co-Location Rack Interconnection allowing connection between two or more co-location equipment racks belonging to two or more separate Access Seekers at an Eircom Exchange;

7.7.5.4 Permission for Access Seekers to use shared services within or between co-location racks.

8. NON-DISCRIMINATION

8.1. Eircom shall, as regards the provision of Access required in Section 7 of this Decision Instrument, ensure that it does not discriminate between Access Seekers, and between Access Seekers and itself, its subsidiaries, affiliates or partners, and to that effect shall more particularly:

8.1.1 apply equivalent conditions in equivalent circumstances to other Undertakings requesting, or being provided with Access (or requesting or being provided with information in relation to such Access); and

- 8.1.2 provide Access and information in relation to such Access to all other Undertakings under the same conditions and of the same quality as Eircom provides to itself or to its subsidiaries, affiliates or partners, as further specified in Section 8.2.
- 8.2. For the purpose of Section 8.1, Eircom shall provide Access and information to all Undertakings including itself, its subsidiaries, affiliates or partners on the same timescales, terms and conditions including prices and service levels using the same systems and processes, with the following exceptions:—
- 8.2.1 Eircom may continue to provide the existing products and services specified in Section 7.7 using different systems and processes for Access Seekers from those it uses for itself provided always that Access offered to Access Seekers has the same functionality, price, terms and conditions, service and quality levels as it provides to itself, that is at an Equivalence of Outputs standard of non-discrimination;
- 8.2.2 Eircom has shown to ComReg's satisfaction that the use of the same systems and processes would be disproportionate in the circumstances and ComReg has provided its prior approval that different systems and processes may be used.

9. TRANSPARENCY

- 9.1 Eircom shall ensure transparency in its provision of Access required under this Decision Instrument.

Publication

- 9.2 Subject to Section 9.3, and save where otherwise specified by ComReg, a requirement to publish in this Decision Instrument shall be met where Eircom has made the information that it is required to publish, available on its publicly available wholesale website.
- 9.3 Where the information which Eircom is required to publish under this Decision Instrument is of a confidential and/or commercially/competition sensitive nature, Eircom shall restrict access to Access Seekers directly or indirectly availing of WDC Access from Eircom or those who have a demonstrable intention to do so and shall restrict access to such information using appropriate means, such as publication on a password-protected or restricted section of its website and subject to such reasonable terms and conditions as may be required in light of the nature of the information concerned, including a requirement to enter into a Non-Disclosure Agreement, and in accordance with any directions which ComReg may make.

LLRO and other information to be published

- 9.4 Without prejudice to the generality of Section 9.1, Eircom shall continue to publish and keep updated on its publicly available wholesale website, a LLRO which shall include the following:
- 9.4.1 a description of the offer of contract for Access broken down into components according to market needs including without limitation relevant charges, terms of payment and billing procedures;
 - 9.4.2 a description of any associated contractual or other terms and conditions for supply of Access and use including a description of each product offered (“Product Description”) and an “LLRO Price List” setting out applicable prices, for each of the products, services and Associated Facilities provided further to Section 7;
 - 9.4.3 subject to Section 9.3 as the case may be, a description of technical characteristics and engineering or technical standards for network Access, including any technical usage restrictions and other security issues, to include accreditation and audit requirements, that are relevant to Access to products, services or Associated Facilities in the Zone B MI WDC Markets;
 - 9.4.4 SLAs;
 - 9.4.5 detailed description of operational processes, including in particular:
 - (a) pre-ordering, ordering, provisioning and service assurances processes;
 - (b) reason codes and their descriptions for declined orders;
 - (c) rules for the allocation of space when co-location space is limited;
 - (d) repair and maintenance processes;
 - (e) IT systems in such detail that Access Seekers may independently perform any development that they require to avail of Access;
 - (f) interoperability tests, and
 - (g) specification of cables and equipment to be used on the network.
- 9.5 Eircom shall ensure that invoices for products in the Zone B MI WDC Markets including Associated Facilities that Eircom is required to provide under this

Decision Instrument are sufficiently disaggregated, detailed and clearly presented and in particular,

- 9.5.1 where an invoice includes products other than products that Eircom is required to provide under this Decision Instrument, that the products that Eircom is required to provide under this Decision Instrument including Associated Facilities are clearly identifiable as such and that the charges invoiced are the applicable charges under Section 14;
 - 9.5.2 that the prices charged for products that Eircom is required to provide under this Decision Instrument are readily reconcilable to the LLRO and LLRO Price Lists, and
 - 9.5.3 that absent agreement with the Access Seeker concerned on alternative billing arrangements, are issued monthly, one month in advance of the provision of the relevant service, with credit terms set at thirty (30) calendar days.
- 9.6 Without prejudice to the generality of Section 9.1 and by way of further specification, Eircom shall publish and thereafter keep up to date, subject to Section 9.3 as the case may be, the following information:
- 9.6.1 A full, true and accurate description of the product development process (the “Product Development Process”) relied upon by Eircom to meet Access requests including a description of all process steps and activities to include the points where Eircom decides to advance, delay or terminate the development of a product, service or Associated Facility (the “Product Development Decision Points”) and any key stages in the analysis, design, development and launch, and the date on which the product, service or Associated Facility will be made available (together, “Milestones”) from receipt of a written request for Access to launch;
 - 9.6.2 The list of all proposed, planned and in progress developments, along with associated Milestone timelines and the priority level granted in respect of each Access request identified by their unique reference, a summary and a link to relevant documentation (hereafter, the “Product Development Roadmap”), which Eircom shall keep up to date on an ongoing basis;
 - 9.6.3 The prioritisation process and the criteria used by Eircom in reaching decisions with respect to the prioritisation of product developments relative to each other (“Prioritisation information”).

Amendments, Notification and publication timelines/Change control

- 9.7 Subject to Section 9.3 and Section 9.9, or where applicable, Section 9.10, Eircom shall keep the LLRO, LLRO Price List, Product Development Process, Product Development Roadmap and Prioritisation information up to date on its publicly available website.
- 9.8 Eircom shall ensure that the following, in searchable format, is available on its publicly available website:—
- 9.8.1 A current, unmarked, version of the LLRO and LLRO Price List;
- 9.8.2 A marked version of the LLRO and LLRO Price List tracking changes as against the previous version such that all changes are readily identifiable;
- 9.8.3 A LLRO Change Matrix listing all of the amendments made to the LLRO over time, including dates at which amendments were made;
- 9.8.4 A LLRO Price List Change Matrix listing all of the amendments made to the LLRO Price List including dates at which amendments were made; and
- 9.8.5 A copy of historic versions of its LLRO, LLRO Price List, LLRO Change Matrix and LLRO Price List Change Matrix.
- 9.9 Subject also to Section 9.10, or save as otherwise agreed in writing with or directed by ComReg, Eircom shall not introduce new products, services or Associated Facilities or make amendments to existing products, services or Associated Facilities without first amending accordingly the documents that it is required to publish under this Decision Instrument including without limitation, the LLRO, LLRO Price List, Product Development Process, Product Development Roadmap and the Prioritisation information, as relevant, and publishing at least two (2) months in advance of coming into effect, any proposed amendments or changes, following notification to ComReg in writing of the information to be published (together with a pricing Statement of Compliance where changes concern prices) at least one (1) month in advance of any such publication taking place.
- 9.10 By way of exception to the requirements set out in Section 9.9, the minimum two (2) month advance publication requirement shall be extended to at least six (6) months, save as otherwise agreed in writing with or directed by ComReg, where:-
- 9.10.1 Availing of the new or amended product, service or Associated Facility to deliver dedicated capacity services necessitates an Access Seeker to deploy or update equipment including End User equipment not

previously required in respect of any form of Access offered by Eircom in the Zone B MI WDC Markets; or

- 9.10.2 Availing of the new or amended product, service or Associated Facility or continuing to avail of WDC Access from Eircom on a like for like basis requires Access Seeker to carry out development work to their own IT systems as a result of changes to Eircom's IT systems;

Eircom having provided ComReg in writing, one month in advance of publication, together with the information to be published, a justification for the changes necessitating Access Seekers to carry out development work to their own IT systems where applicable or to deploy or update their equipment.

- 9.11 In respect of the advance publication requirements set out in Sections 9.9 and 9.10, following publication of the documentation and notification to Access Seekers, Eircom shall not further amend or withdraw such documentation without the prior agreement of ComReg.
- 9.12 Eircom shall make available, and keep updated, on its publicly available wholesale website at least six (6) months in advance of implementation, or as otherwise agreed with or directed by ComReg, information regarding the introduction of, or changes to, or technical developments relating to, Eircom's network, infrastructure or new technologies, as well as sufficient information regarding products, services, or Associated Facilities which could reasonably be expected to support such products, services, or Associated Facilities that Eircom is required to provide under this Decision Instrument.

WDC Rollout Plan

- 9.13 Without prejudice to the generality of Section 9.1, and subject to Section 9.3, Eircom shall make information regarding the rollout of Zone B MI WDC products and services ("WDC Rollout Plan") available on its publicly available wholesale website. Eircom shall, unless otherwise agreed with ComReg:
- 9.13.1 publish, on its publicly available wholesale website, at least three (3) months in advance, any proposed changes to the WDC (including NGN Ethernet and WDM) Rollout Plan;
- 9.13.2 publish, on its publicly available wholesale website, the WDC Rollout Plan within the first ten (10) calendar days of each month; and
- 9.13.3 publish the WDC Rollout Plan with sufficient detail to allow Access Seekers to determine:
- (a) the Nodes where WDC products and services are available,
 - (b) the WDC products and services offered at each of those Nodes,

- (c) the Nodes where Eircom plans to make WDC products and services available (including forecast dates), and
- (d) the WDC products and services to be offered at each of those planned Nodes.

9.14 For the avoidance of doubt, during the period from the Effective Date until three (3) months after the Effective Date, Eircom shall continue to publish and update the Rollout Plan in accordance with its obligations under Section 17.25 of Annex 8 of ComReg Decision D03/20.

10. PRODUCT DEVELOPMENT PROCESS REQUIREMENTS

10.1 Eircom shall make available a clear, non-discriminatory and transparent process for the development of new forms of Access in the Zone B MI WDC Markets required under this Decision Instrument, including new products, services or Associated Facilities including SLAs and amendments to existing products, services and Associated Facilities including SLAs and such process shall apply, for the avoidance of doubt, to requests for SLAs or amendments to SLAs made independently of a request for a new or amended product, service or Associated Facility.

10.2 For the purposes of Section 10.1 and in respect of any developments requested by an Access Seeker, or by Eircom, its subsidiaries or partners, Eircom shall make available a product development process which meets the following requirements:

10.2.1 Access requests are made in writing;

10.2.2 Information is exchanged as soon as practicable and at appropriate times, with the Undertaking that has made the written request (“the requestor”) and other Undertakings including at the minimum in all cases:

- (a) An acknowledgement to the requester of receipt of the request providing a unique reference number identifying the request;
- (b) Provision of a copy of the request to Access Seekers with the allocated reference number of the request and a description of the key features and functionality requested;
- (c) A description of the matter or matters in respect of SLAs that require negotiations and the timelines governing the negotiations (the “SLA Negotiation Period”);
- (d) A status update including:

- I. An outline of the product, service or Associated Facility proposed in response to the Access request including, as the case may be, any aspects which do not fully meet the requestor's requirements and the objective reasons therefor;
 - II. The product development timelines including expected notification, publication and launch dates, and where Eircom anticipates at that stage that IT developments or equipment deployment or updates on the part of Access Seekers may be required, the objective reasons therefor;
 - III. The priority level granted to the request with detail of the input values and calculations used by Eircom for the prioritisation of the request, any impact on the development timelines for other Access requests and where other Access requests are reprioritised as a result, the objective reasons therefor;
- (e) A timetable for engagement and negotiations ("the engagement timetable") as regards the Access request noting as follows:
- I. Where the Access request is for a new or amended product, service or Associated Facility, the engagement timetable shall indicate the manner and times in which Eircom will consult and seek inputs from the requestor and other Undertakings on the product requirements;
 - II. Where the Access request is for a new or amended SLA, the engagement timetable shall define the SLA Negotiation Period and indicate times at which the requestor and other Undertakings are required to provide requirements, information, clarifications or comments regarding the Access request, subject always that the SLA Negotiation Period is deemed to commence on the day the Access request is received.

10.2.3 In respect of the matters described in Section 10.2.2 (a) to (e), save where otherwise agreed with, or directed by ComReg, Eircom shall ensure the information is provided as soon as practicable and in any event within the timelines below:

- (a) An Access request is acknowledged, and a unique reference provided, within no more than three (3) working days from receipt of the Access request;

- (b) The information set out in Section 10.2.2 (b), 10.2.2 (c) (where the Access request is for a new or amended SLA), and 10.2.2 (e) are provided within no more than fifteen (15) working days of receipt of the Access request;
- (c) The information set out in Section 10.2.2 (c) (where the Access request is for a new or amended product, service or Associated Facility) and the status update referred to in Section 10.2.2 (d) is provided within no more than eighty five (85) working days of receipt of the Access request;
- (d) The product development timelines notified by Eircom under Section 10.2.2(d)(II) shall be adhered to and may only be deviated from with ComReg's consent;
- (e) In the absence of agreement between the negotiating parties, the SLA Negotiation Period shall last for no more than six months from the start of the SLA Negotiation Period (which is the receipt of the Access request where the request is for a new or amended SLA or as per Eircom's SLA Negotiation Period in the case of a request for a new or amended product, service or Associated Facility) and ends with Eircom making a Best and Final Offer ("BAFO"); and,
- (f) The agreed SLA or BAFO shall enter into force on the date the new or amended product, service or Associated Facility is launched.

11. SERVICE LEVEL AGREEMENTS

11.1 Without prejudice to the generality of, and for the purpose of further specifying the requirements of the obligation at Section 7.4, Eircom shall ensure that a legally binding, fit-for-purpose, SLA which encourages an efficient level of performance on the part of Eircom is attached to each product, service and Associated Facility made available in accordance with this Decision Instrument from the time that the product, service and Associated Facility is available and subsequently kept up to date and fit for purpose.

11.2 In meeting its obligation under Section 11.1, Eircom shall:

11.2.1 Negotiate proactively, in good faith, with Undertakings, on their requirements be it in respect of a new SLA or an amendment to an existing SLA and to that purpose meet the further requirements set out in Section 11.3 as may be amended or further specified by ComReg from time to time;

11.2.2 Ensure that SLAs are sufficiently detailed and include, without limitation, the following provisions:

- (a) An obligation on Eircom to compensate failure to meet agreed service levels by way of payment of Service Credits such that the Service Credits cover, at a minimum, the direct costs and any other reasonable loss of value incurred by the Access Seeker concerned and provide Eircom with sufficient and adequate incentives to meet agreed service levels;
- (b) Details of the specific circumstances upon which Service Credits must be paid by Eircom and the methodology used to calculate the amount of Service Credits owed, including an itemised list of the direct costs and other losses contributing to the Service Credit calculation, supported by clear examples demonstrating the practical application of Service Credits;
- (c) An obligation on Eircom to apply Service Credits, where payable, automatically and in a timely manner;

11.2.3 Ensure, where provision is made in an SLA for its suspension, that suspension may only be triggered on the basis of objectively defined and measurable parameters, that full details are set out as to the specific circumstances which may trigger such suspension, all the terms and conditions governing the suspension, and the procedural requirements to be followed for suspension including that Eircom shall be required where suspension occurs, to report to the Access Seekers on the basis for each such suspension and the parameters relied upon.

11.3 Eircom shall ensure that negotiations for the conclusion or amendment of an SLA as the case may be, are conducted in a fair, reasonable and timely manner and that the matters of Service Credits and SLA suspension are the subject of negotiations during the SLA Negotiation Period.

11.4 Where no agreement is reached, the SLA Negotiation Period shall conclude with Eircom making available to the requestor or Undertakings involved in the negotiation its best and final offer (“BAFO”) within the timelines set out in Section 10.2.3(b) or Section 10.2.3(c) as the case may be, and the BAFO or the agreed SLA shall enter into force and replace as the case may be any SLA it amends, within three (3) months of its notification to ComReg in accordance with Section 9.9, or within seven (7) months of its notification to ComReg in accordance with Section 9.10 as the case may be, save where Eircom has applied, setting out reasons therefor, for an extension and ComReg, at its sole discretion, has granted same, or in the case of an SLA or an amendment to

an SLA for a new product or an amendment to a product, on the date the new or amended product, service or Associated Facility is launched.

11.5 Further to its obligation of transparency set in Section 9, Eircom shall:

11.5.1 Publish concluded SLAs or when no SLA is formally agreed, the SLA reflecting the BAFO required under Section 11.4;

11.5.2 Within two (2) months of the end of each Quarter, publish a report setting out the actual performance achieved in each of the three (3) previous months in respect of all Access Seekers compared to the committed service levels contained in the relevant SLA for the products, services and Associated Facilities required under this Decision Instrument (the “performance metric report”) to include at a minimum:

11.5.2.1 Details of the service metrics allowing Access Seekers identify the specific activities and processes, along with associated process times, for the products, services and Associated Facilities being reported on; and

11.5.2.2 The performance targets and actual performance achieved for each activity.

11.5.3 Having regard to Section 11.5.2, publish and maintain on its publicly available website a performance metric report detailing the methodology applied, the source data used and explanations on how the source data was processed by Eircom including worked examples as to how the processed source data relates to the actual performance achieved.

12. KEY PERFORMANCE INDICATORS

12.1 Further to Eircom’s obligations under Sections 7, 8, 9, 10 and 11, Eircom shall publish Key Performance Indicators (“KPI”) on its publicly available wholesale website in respect of its provision of WDC products, services and Associated Facilities in the Zone B MI WDC Markets, as may be further specified by ComReg.

12.2 For the purpose of complying with Section 12.1, and by way of further specification, Eircom shall comply with the requirements set out in ComReg Decision D04/22, as amended, and to that purpose:—

12.2.1 References in the KPI DI to ComReg Decision D10/18 shall be construed as including a reference to this Decision and Decision Instrument;

12.2.2 Section 4.2 of the KPI DI shall not apply; and

12.2.2 References to the Effective Date and Implementation Date in the KPI DI shall be understood as a reference to the Effective Date of this Decision Instrument, and the timeline set out in the second line of Section 4.3 of the KPI DI, set aside.

Amendments to ComReg Decision D04/22

12.3 Schedule 1 of the KPI DI is hereby amended by adding at paragraph 2, the following definitions inserted in alphabetical order:

“Interconnection Services” means the Associated Facilities and Services which enable or facilitate the handover of the MI WDC products and services which Eircom is required to provide under Decision DXX/YY [*the Final Decision*] and includes in particular WEILs and Retail Equivalents;

“Non-Standard Order” means in respect of a WDC Order, that there are impediments (documented in Eircom’s SLA) to Eircom delivering the order;

“Project Order” means in respect of a WDC Order, an order accepted by Eircom as part of an agreed project and Eircom assigns a project manager to implement the project;

“Standard Order” in respect of a WDC Order, means there are no impediments to Eircom delivering the order;

“WDC Order” means an order for an MI WDC product or service which Eircom is required to provide under ComReg Decision XX/YY [*the Final Decision*] and includes WDM, WSEA, WES and Retail Equivalents;

“WDM” or **“xWDM”** means Wavelength-Division Multiplexing, a technology which multiplexes multiple optical carrier signals onto a single optical fibre by using different wavelengths;

“WEIL” means Wholesale Ethernet Interconnect Links;

“WES” means Wholesale Ethernet Service;

“WSEA” means Wholesale Symmetric Ethernet Access.

12.4 Schedule 3 of the KPI DI is hereby amended by adding the paragraphs set out in Schedule 4 of this Decision Instrument.

12.5 Schedule 4 of the KPI DI is hereby amended by adding the tables set out in Schedule 5 of this Decision Instrument.

13. ACCOUNTING SEPARATION

- 13.1 Eircom shall maintain separated accounts in respect of its provision of Modern Interface Wholesale Dedicated Capacity.
- 13.2 For the purpose of Section 13.1 and by way of further specification, Eircom shall comply with the requirements set out in ComReg Decision D08/10 (as may be amended or replaced from time to time).

14. PRICE CONTROL AND COST ACCOUNTING

Cost Accounting

- 14.1 Eircom shall maintain appropriate cost accounting systems in respect of its provision of Modern Interface Wholesale Dedicated Capacity.

Cost orientation

- 14.2 Subject to Section 6.2, the Eircom prices for Access to, or use of, the products, services, facilities or Associated Facilities which Eircom is required to provide under Section 7 shall be cost orientated, as may be further specified by ComReg from time to time.
- 14.3 For the purpose of Section 14.2, and by way of further specification of Eircom's obligation of cost orientation:-
- 14.3.1 Eircom shall continue to recover the costs of its NGN Ethernet and WDM wholesale dedicated capacity product suites as specified in Sections 7.7.1 to 7.7.4 by way of an annual rental charge and a connection fee;
- 14.3.2 The annual rental charges applicable to the NGN Ethernet and WDM wholesale dedicated capacity product suites as set out in the LLRO Price List on the Effective Date shall be deemed to be cost-oriented and allow Eircom to recover the cost of efficient provision of services and Eircom shall apply no more and no less than the published annual rental charges save where Eircom demonstrates to ComReg's satisfaction that adjustments are necessary in order to allow Eircom to recover its efficient costs calculated on a BU-LRAIC+ standard including a reasonable return on investment and ComReg directs such adjustments;
- 14.3.3 Charges for Access to Associated Facilities under Section 7, including Interconnection Services and co-location services, shall be set as follows:—

- 14.3.3.1 The annual rental charges for Interconnection Services as set out in the LLRO Price List on the Effective Date shall be deemed to be cost-oriented and allow Eircom to recover the cost of efficient provision of services and Eircom shall apply no more and no less than such published annual charges subject that ComReg may allow adjustments to such charges where Eircom demonstrates to ComReg's satisfaction that such adjustments are necessary in order to allow Eircom to recover its efficient costs calculated on a BU-LRAIC+ standard including a reasonable return on investment and ComReg directs such adjustments.
- 14.3.3.2 Eircom shall ensure that connection fees associated with Interconnection Services and charges for other Associated Facilities services, including co-location, recover no more than the actual costs incurred (adjusted for efficiencies) allowing a reasonable rate of return and ComReg may at its discretion and in accordance with Regulation 56(6) of the ECC Regulations, require full justification for any fees or charges and direct, where appropriate, adjustments.

15. REGULATORY GOVERNANCE

- 15.1 Eircom shall have in place transparent regulatory governance arrangements, which facilitate effective and non-discriminatory provision of Access by Eircom to the products, services or Associated Facilities in the Zone B MI WDC Markets in accordance with the requirements of this Decision Instrument.
- 15.2 Without prejudice to the generality of Section 15.1, within three (3) months of the Effective Date, subject to any requirement to submit earlier, for example, due a change to an existing or new WDC product, service or Associated Facility, Eircom shall submit to ComReg a full written statement of compliance ("Statement of Compliance") signed by a Director or Directors of Eircom authorised to provide such statements on behalf of the Board of Directors of Eircom, which includes the following:
- 15.2.1 A statement:
- (a) That the Directors acknowledge that they are responsible for Eircom securing compliance with its regulatory obligations;
 - (b) Confirming that, in their opinion, arrangements, structures and internal controls are in place that provide reasonable assurance

that Eircom is compliant with its obligations as set out in this Decision Instrument;

- (c) Explaining the basis upon which the confirmation in subparagraph (b) above is made, including a description of the information relied upon, and the process followed, by the Directors for that purpose;
- 15.2.2 A description and explanation of the governance measures implemented by Eircom to ensure that it is, and remains, in compliance with the obligations set out in this Decision Instrument;
- 15.2.3 A description of the methodology followed to identify risks of noncompliance with the obligations imposed in Sections 7 to 14 (the “regulatory risks”) and to develop the controls required to manage the regulatory risks including in particular by reference to identifying, employing and relying on adequate expertise, material and information.
- 15.2.4 A detailed description of the regulatory risks identified utilising the methodology described in Section 15.2.3 above for all WDC products, services and Associated Facilities in the Zone B MI WDC Markets, including without limitation, in respect of the following activities:
- (a) Pre-provisioning, provisioning and service assurance;
 - (b) Product development including product enhancements, and pre-product development screening of Access requests;
 - (c) Product prioritisation and investment decisions;
 - (d) Access to shared resources including IT and product development resources, and
 - (e) The management of confidential information, in conformance with regulatory requirements.
- 15.2.5 A detailed description of the controls developed to manage the regulatory risks, including:
- (a) A description of the relationship of each control to the underlying regulatory risk;
 - (b) A description of the process used to assess the adequacy and effectiveness of the controls;

- (c) A description of the operation of controls including the method employed by Eircom to record and store the data produced when controls are operated;
- (d) The identification and description of the repository in which the data from the operation of each control is recorded and stored.

15.2.6 For each of the products, services and Associated Facilities reviewed for the purpose of Section 15.2.1 and 15.2.5, a description of the risk analysis and control development process carried out (the "Process"), to include the following:

- (a) The scope of the Process, including in particular:
 - I. A description of the expertise relied upon to identify the regulatory risk and develop the controls required to manage the regulatory risks, by reference to the description of the expertise of the Eircom personnel engaged in the Process, and
 - II. A list of all the material used to identify the regulatory risks and develop the controls required to manage the regulatory risks including without limitation, relevant product documentation, internal process information, risk analysis documentation.
- (b) The outcome of the Process in respect of the identification of regulatory risks, and the justification for the outcome;
- (c) The outcome of the Process in respect of the development of the controls required to address the regulatory risks identified, and the justification for the outcome, to include:
 - I. A description of the operation of the control, including the frequency of its operation, and
 - II. A description of the directory / path details for repository for control evidence.

15.3 The documentation referred to in this Section 15 shall be of sufficient clarity and detail to enable ComReg to assess whether Eircom's risk assessment and control and governance measures provide reasonable assurance as to Eircom's compliance with the obligations set out in this Decision Instrument.

15.4 Eircom shall keep the Statement of Compliance up to date. In particular, and without prejudice to the generality of this obligation, Eircom shall update, and submit to ComReg, an updated Statement of Compliance, duly dated and

signed and meeting the requirements of Section 15.2.1 above, in the following circumstances:

- 15.4.1 Where a material change or material changes are made to any of the documentation and information detailed in this Section 15, within three (3) months of such change or changes being made;
 - 15.4.2 Where a new WDC product, service or Associated Facility, or an amendment to an existing WDC product, service or Associated Facility which falls within the scope of the Zone B MI WDC Markets is introduced, having regard in particular to the requirements in Sections 15.2.4, 15.2.5 and 15.2.6, and in accordance with the timeline set out in, and as part of the documentation required for the purpose of Section 9.9, or as otherwise may be required or agreed by ComReg.
- 15.5 Eircom shall ensure that updates or changes to the Statement of Compliance are easily identifiable. For that purpose, Eircom shall operate a standardised regime for the management of changes to the documents contained in, and including, the Statement of Compliance whereby:
- 15.5.1 Different versions of the Statement of Compliance are identified by a number, letter or code, associated with a date and timestamp; and
 - 15.5.2 A record of all changes made to versions of the Statement of Compliance is maintained and incorporated in a dedicated and indexed section in each Statement of Compliance.
- 15.6 Eircom shall publish the Statement of Compliance, and updates to the Statement of Compliance, within one (1) month of providing it to ComReg, unless otherwise agreed with ComReg.

PART III - OPERATION AND EFFECTIVE DATE

16. STATUTORY POWERS NOT AFFECTED

- 16.1 Nothing in this Decision Instrument shall operate to limit ComReg in the exercise and performance of its statutory powers or duties conferred on it under any primary or secondary legislation (in force prior to or after the Effective Date of this Decision Instrument).

17. WITHDRAWAL OF SMP OBLIGATIONS

- 17.1 Without prejudice to Section 9.14 and Section 18, ComReg Decision D03/20 shall be withdrawn on the Effective Date.

18. SUNSET PROVISIONS

LB TI WHQA Market

- 18.1 Eircom shall not withdraw Access to connected premises by way of LB TI WHQA products, services and facilities where orders for Access were placed prior to the Effective Date, or amend the terms and conditions of such Access, for a period of six (6) months from the Effective Date.

Workplace Zones ('WPZ') transferring from Zone B to Zone A

- 18.2 In respect of those WPZs included in a Zone B MI WHQA Market pursuant to ComReg Decision D03/20 and included in a Zone A MI WDC Market under this Decision, as set out in Table A of Schedule 3, Eircom shall:-
- 18.2.1 not withdraw Access availed of under Decision D03/20 where orders for Access were placed prior to the Effective Date, or amend the terms and conditions of such Access, for a period of nine (9) months from the Effective Date;
- 18.2.2 meet new orders for Access for MI WDC products, services and facilities where placed within a period of three (3) months from the Effective Date.

19. MAINTENANCE OF OBLIGATIONS

- 19.1 Unless expressly stated otherwise in this Decision Instrument, all obligations and requirements contained in Decision Notices and Directions made by ComReg, applying to Eircom, and in force immediately prior to the Effective Date of this Decision Instrument, continue in force and Eircom shall comply with the same.
- 19.2 For the avoidance of doubt, to the extent that there is any conflict between a Decision Instrument dated prior to the Effective Date and Eircom's obligations set out herein, it is the latter which shall prevail.
- 19.3 If any Section(s), clause(s), or provision(s), or portion(s) thereof, contained in this Decision Instrument is(are) found to be invalid or prohibited by the Constitution, by any other law or judged by a court to be unlawful, void or unenforceable, that(those) Section(s), clause(s), or provision(s), or portion(s) thereof shall, to the extent required, be severed from this Decision Instrument and rendered ineffective as far as possible without modifying the remaining Section(s), clause(s), or provision(s), or portion(s) thereof, of this Decision Instrument, and shall not in any way affect the validity or enforcement of this Decision Instrument or other Decision Instruments.

SCHEDULES

SCHEDULE 1
WDC MARKETS WORKPLACE ZONES

1.1 MI WDC MARKET 1

MI WDC Market 1							
CC0009	CK0317	DC0501	DC0982	FL0239	KK0103	LS0080	SO0043
CC0010	CK0323	DC0503	DC0983	FL0241	KK0107	LS0081	SO0044
CC0011	CK0333	DC0504	DC0984	FL0242	KK0110	LS0082	SO0045
CC0012	CK0336	DC0509	DC0985	FL0250	KK0111	LS0083	SO0047
CC0013	CK0338	DC0510	DC0986	FL0254	KK0112	LS0084	SO0048
CC0014	CK0339	DC0511	DC0987	FL0255	KK0153	LS0086	SO0049
CC0015	CK0340	DC0513	DC0988	FL0257	KK0154	LS0087	TY0028
CC0016	CK0349	DC0516	DC0989	FL0259	KY0002	LS0088	TY0029
CC0017	CK0368	DC0523	DC0990	FL0261	KY0007	LS0089	TY0030
CC0018	CK0410	DC0526	DC0991	FL0264	KY0008	LS0090	TY0032
CC0019	CK0411	DC0528	DC0995	FL0265	KY0009	LS0091	TY0033
CC0020	CK0416	DC0538	DC0996	FL0270	KY0019	LS0092	TY0035
CC0022	CK0424	DC0539	DC0999	FL0271	KY0020	LS0093	TY0036
CC0023	CK0428	DC0540	DC1003	FL0275	KY0021	MH0001	TY0039
CC0026	CK0454	DC0541	DC1008	FL0281	KY0022	MH0004	TY0085
CC0028	CK0470	DC0542	DC1009	FL0287	KY0023	MH0005	TY0086
CC0029	CK0471	DC0543	DC1010	FL0290	KY0025	MH0007	TY0090
CC0030	CK0472	DC0544	DC1011	FL0292	KY0027	MH0008	TY0093
CC0031	CK0476	DC0545	DC1012	FL0293	KY0028	MH0009	TY0101
CC0033	CK0478	DC0546	DC1013	FL0295	KY0040	MH0010	TY0117
CC0035	CK0479	DC0547	DC1015	FL0296	KY0043	MH0011	TY0118
CC0036	CK0483	DC0548	DC1017	FL0297	KY0044	MH0012	TY0123
CC0038	CK0484	DC0549	DC1021	FL0298	KY0047	MH0013	TY0124
CC0041	CK0496	DC0550	DC1023	FL0299	KY0049	MH0015	TY0125
CC0042	CK0497	DC0551	DC1026	FL0300	KY0050	MH0019	TY0126
CC0043	CK0499	DC0552	DC1027	FL0301	KY0051	MH0021	TY0127
CC0044	CK0500	DC0553	DC1029	FL0302	KY0052	MH0022	TY0131
CC0045	CK0502	DC0554	DC1030	FL0303	KY0053	MH0023	TY0132
CC0046	CK0503	DC0555	DC1032	FL0304	KY0054	MH0024	TY0133
CC0047	CK0526	DC0556	DC1034	FL0305	KY0056	MH0025	TY0134
CC0048	CK0530	DC0557	DL0001	FL0306	KY0059	MH0027	TY0137
CC0049	CN0001	DC0558	DL0002	FL0308	KY0061	MH0028	TY0138
CC0051	CN0004	DC0559	DL0003	FL0309	KY0062	MH0036	TY0139
CC0053	CN0005	DC0560	DL0004	FL0310	KY0065	MH0037	TY0140
CC0054	CN0006	DC0562	DL0005	FL0311	KY0067	MH0053	TY0141
CC0055	CN0007	DC0563	DL0007	FL0312	KY0070	MH0055	TY0142

CC0056	CN0009	DC0564	DL0008	FL0313	KY0145	MH0059	TY0143
CC0058	CN0011	DC0566	DL0011	FL0314	KY0147	MH0062	TY0144
CC0059	CN0012	DC0567	DL0012	FL0317	KY0148	MH0063	TY0145
CC0060	CN0013	DC0568	DL0014	FL0318	KY0150	MH0064	TY0147
CC0061	CN0014	DC0569	DL0015	FL0319	KY0208	MH0065	TY0148
CC0062	CN0028	DC0570	DL0016	FL0321	KY0224	MH0066	TY0149
CC0064	CN0083	DC0571	DL0017	FL0322	KY0225	MH0070	TY0150
CC0065	CN0086	DC0572	DL0018	FL0323	KY0229	MH0072	TY0151
CC0066	CN0087	DC0573	DL0020	FL0324	KY0230	MH0073	TY0152
CC0069	CN0089	DC0574	DL0021	FL0325	KY0232	MH0082	TY0155
CC0070	CN0090	DC0575	DL0022	FL0326	KY0235	MH0083	TY0156
CC0071	CN0091	DC0579	DL0023	FL0327	KY0236	MH0084	TY0157
CC0072	CN0092	DC0581	DL0024	FL0328	KY0237	MH0085	TY0159
CC0073	CN0094	DC0582	DL0025	FL0329	KY0238	MH0090	TY0162
CC0074	CN0095	DC0583	DL0027	FL0331	KY0240	MH0096	TY0168
CC0075	CW0003	DC0585	DL0028	FL0332	KY0245	MH0098	TY0170
CC0076	CW0004	DC0586	DL0029	FL0333	KY0246	MH0102	TY0182
CC0077	CW0005	DC0587	DL0030	FL0334	KY0247	MH0127	TY0209
CC0078	CW0007	DC0588	DL0031	FL0335	KY0248	MH0136	TY0214
CC0079	CW0008	DC0589	DL0035	FL0336	LD0001	MH0150	TY0223
CC0081	CW0009	DC0590	DL0037	FL0337	LD0002	MH0158	TY0224
CC0082	CW0012	DC0591	DL0038	FL0340	LD0003	MH0174	TY0227
CC0083	CW0013	DC0592	DL0039	FL0341	LD0004	MH0176	TY0228
CC0084	CW0014	DC0593	DL0041	FL0342	LD0005	MH0178	TY0229
CC0085	CW0015	DC0594	DL0042	FL0344	LD0006	MH0179	TY0230
CC0086	CW0016	DC0595	DL0055	FL0345	LD0008	MH0180	TY0231
CC0087	CW0017	DC0596	DL0056	FL0346	LD0009	MH0181	TY0232
CC0089	CW0035	DC0597	DL0057	FL0347	LD0011	MH0182	WD0001
CC0092	CW0036	DC0598	DL0058	FL0348	LD0012	MH0184	WD0002
CC0093	CW0038	DC0599	DL0059	FL0349	LD0013	MH0185	WD0003
CC0094	CW0039	DC0600	DL0060	FL0350	LD0016	MH0187	WD0004
CC0095	CW0040	DC0601	DL0061	FL0353	LD0047	MH0189	WD0005
CC0096	CW0041	DC0602	DL0062	FL0354	LD0048	MH0190	WD0007
CC0097	CW0042	DC0603	DL0124	FL0355	LD0049	MH0192	WD0008
CC0099	CW0043	DC0604	DL0157	FL0356	LD0050	MH0204	WD0009
CC0100	CW0044	DC0605	DL0169	FL0357	LD0055	MH0235	WD0010
CC0101	CW0046	DC0606	DL0170	FL0358	LD0058	MH0253	WD0011
CC0102	CW0049	DC0607	DL0171	GC0002	LD0059	MH0257	WD0012
CC0103	CW0050	DC0608	DL0172	GC0004	LH0002	MH0258	WD0013
CC0104	CW0051	DC0609	DL0174	GC0007	LH0003	MH0259	WD0014
CC0105	CW0053	DC0610	DL0176	GC0010	LH0009	MH0260	WD0015
CC0106	DC0018	DC0611	DL0177	GC0011	LH0010	MH0261	WD0016
CC0107	DC0019	DC0612	DL0178	GC0012	LH0013	MN0004	WD0017
CC0108	DC0022	DC0613	DL0179	GC0013	LH0015	MN0005	WD0018
CC0109	DC0023	DC0614	DL0182	GC0014	LH0016	MN0008	WD0019

CC0110	DC0024	DC0615	DL0183	GC0015	LH0017	MN0011	WD0020
CC0111	DC0032	DC0616	DL0186	GC0016	LH0018	MN0014	WD0024
CC0113	DC0033	DC0617	DL0228	GC0017	LH0021	MN0015	WD0026
CC0114	DC0043	DC0618	DL0229	GC0018	LH0026	MN0016	WD0031
CC0115	DC0049	DC0619	DL0230	GC0019	LH0027	MN0018	WD0032
CC0116	DC0051	DC0620	DL0231	GC0020	LH0028	MN0019	WD0033
CC0119	DC0052	DC0621	DL0232	GC0021	LH0030	MN0020	WD0034
CC0120	DC0053	DC0622	DL0233	GC0022	LH0036	MN0028	WD0036
CC0121	DC0054	DC0623	DR0014	GC0023	LH0037	MN0029	WD0037
CC0122	DC0060	DC0624	DR0019	GC0024	LH0038	MN0051	WD0038
CC0123	DC0061	DC0625	DR0022	GC0025	LH0041	MO0001	WD0039
CC0125	DC0064	DC0626	DR0025	GC0026	LH0042	MO0003	WD0040
CC0126	DC0072	DC0627	DR0028	GC0028	LH0043	MO0006	WD0041
CC0127	DC0074	DC0628	DR0030	GC0029	LH0045	MO0007	WD0042
CC0128	DC0077	DC0629	DR0032	GC0031	LH0046	MO0009	WD0043
CC0130	DC0078	DC0630	DR0034	GC0032	LH0047	MO0010	WD0044
CC0131	DC0084	DC0631	DR0035	GC0036	LH0049	MO0011	WD0046
CC0136	DC0086	DC0632	DR0038	GC0037	LH0050	MO0012	WD0047
CC0138	DC0087	DC0633	DR0039	GC0038	LH0051	MO0013	WD0048
CC0139	DC0093	DC0634	DR0040	GC0043	LH0054	MO0014	WD0049
CC0140	DC0094	DC0636	DR0041	GC0045	LH0055	MO0016	WD0050
CC0141	DC0095	DC0637	DR0045	GC0046	LH0056	MO0017	WD0051
CC0142	DC0098	DC0638	DR0053	GC0047	LH0057	MO0019	WD0052
CC0144	DC0100	DC0639	DR0054	GC0048	LH0058	MO0028	WD0056
CC0145	DC0107	DC0646	DR0055	GC0049	LH0059	MO0031	WD0057
CC0146	DC0109	DC0648	DR0056	GC0050	LH0060	MO0035	WD0058
CC0147	DC0110	DC0649	DR0057	GC0051	LH0062	MO0038	WD0059
CC0148	DC0111	DC0651	DR0058	GC0053	LH0063	MO0039	WD0063
CC0149	DC0112	DC0654	DR0059	GC0054	LH0064	MO0064	WD0067
CC0150	DC0125	DC0655	DR0061	GC0055	LH0065	MO0085	WD0068
CC0151	DC0129	DC0657	DR0070	GC0056	LH0066	MO0088	WD0071
CC0152	DC0132	DC0661	DR0073	GC0057	LH0067	MO0131	WD0072
CC0153	DC0134	DC0662	DR0074	GC0058	LH0068	MO0133	WD0073
CC0157	DC0137	DC0664	DR0075	GC0060	LH0070	OY0009	WD0074
CC0158	DC0138	DC0667	DR0077	GC0061	LH0071	OY0011	WD0075
CC0159	DC0139	DC0668	DR0078	GC0062	LH0072	OY0012	WD0076
CC0160	DC0150	DC0669	DR0079	GC0063	LH0073	OY0014	WD0077
CC0161	DC0158	DC0670	DR0080	GC0067	LH0074	OY0015	WD0078
CC0162	DC0160	DC0671	DR0081	GC0068	LH0075	OY0016	WD0079
CC0163	DC0161	DC0685	DR0085	GC0069	LH0076	OY0017	WD0080
CC0164	DC0162	DC0688	DR0089	GC0070	LH0086	OY0020	WD0082
CC0165	DC0166	DC0690	DR0090	GC0072	LH0087	OY0023	WD0083
CC0166	DC0167	DC0691	DR0091	GC0073	LH0091	OY0024	WD0084
CC0168	DC0169	DC0697	DR0092	GC0075	LH0114	OY0027	WD0085
CC0169	DC0175	DC0698	DR0106	GC0076	LH0126	OY0028	WD0086

CC0170	DC0176	DC0699	DR0107	GC0077	LH0131	OY0084	WD0087
CC0171	DC0178	DC0700	DR0108	GC0078	LH0132	OY0096	WD0088
CC0172	DC0182	DC0702	DR0109	GC0079	LH0133	RN0001	WD0089
CC0173	DC0183	DC0703	DR0110	GC0080	LH0135	RN0003	WD0090
CC0174	DC0184	DC0704	DR0111	GC0081	LH0136	RN0004	WD0091
CC0175	DC0186	DC0705	DR0112	GC0082	LH0137	RN0005	WD0092
CC0176	DC0187	DC0706	DR0113	GC0083	LH0138	RN0006	WD0094
CC0177	DC0188	DC0708	DR0115	GC0085	LH0140	RN0007	WD0095
CC0178	DC0189	DC0709	DR0116	GC0086	LH0141	RN0031	WD0096
CC0182	DC0190	DC0710	DR0123	GC0087	LH0142	RN0056	WD0097
CC0183	DC0191	DC0711	DR0124	GC0088	LH0145	RN0071	WD0098
CC0186	DC0192	DC0712	DR0143	GC0089	LH0146	RN0074	WD0100
CC0187	DC0193	DC0713	DR0144	GC0091	LH0147	RN0076	WD0103
CC0188	DC0194	DC0714	DR0145	GC0092	LH0148	RN0077	WD0104
CC0189	DC0195	DC0715	DR0146	GC0094	LH0149	RN0079	WD0105
CC0190	DC0196	DC0716	DR0147	GC0096	LH0150	RN0080	WD0106
CC0191	DC0197	DC0719	DR0149	GC0098	LH0151	RN0081	WD0108
CC0192	DC0199	DC0720	DR0150	GC0100	LH0152	RN0082	WD0118
CC0193	DC0201	DC0721	DR0151	GC0101	LH0153	RN0084	WD0162
CC0194	DC0203	DC0722	DR0152	GC0102	LH0156	SD0003	WD0163
CC0195	DC0206	DC0723	DR0153	GC0104	LH0157	SD0008	WH0002
CC0196	DC0212	DC0724	DR0154	GC0105	LH0159	SD0016	WH0003
CC0197	DC0213	DC0725	DR0155	GC0106	LH0187	SD0017	WH0004
CC0198	DC0217	DC0726	DR0156	GC0107	LH0188	SD0020	WH0005
CC0199	DC0218	DC0727	DR0157	GC0108	LH0189	SD0021	WH0006
CC0200	DC0219	DC0728	DR0158	GC0109	LH0190	SD0022	WH0007
CC0201	DC0226	DC0729	DR0159	GC0110	LH0191	SD0030	WH0008
CC0202	DC0227	DC0732	DR0160	GC0111	LH0192	SD0033	WH0009
CC0203	DC0232	DC0733	DR0161	GC0113	LK0001	SD0036	WH0010
CC0204	DC0236	DC0734	DR0162	GC0114	LK0002	SD0037	WH0011
CC0205	DC0237	DC0735	DR0163	GC0118	LK0004	SD0039	WH0012
CC0206	DC0240	DC0736	DR0164	GC0120	LK0005	SD0041	WH0013
CC0209	DC0242	DC0737	DR0165	GC0121	LK0007	SD0050	WH0015
CC0210	DC0243	DC0738	DR0166	GC0122	LK0008	SD0052	WH0016
CC0212	DC0244	DC0739	DR0167	GC0123	LK0010	SD0053	WH0018
CC0213	DC0245	DC0740	DR0168	GC0124	LK0012	SD0054	WH0019
CC0214	DC0248	DC0741	DR0169	GC0125	LK0013	SD0055	WH0020
CC0217	DC0250	DC0742	DR0170	GC0126	LK0014	SD0056	WH0021
CE0005	DC0252	DC0743	DR0171	GC0127	LK0015	SD0061	WH0027
CE0006	DC0253	DC0744	DR0172	GC0128	LK0017	SD0079	WH0028
CE0008	DC0255	DC0745	DR0173	GC0129	LK0018	SD0080	WH0029
CE0014	DC0257	DC0746	DR0174	GC0130	LK0019	SD0082	WH0031
CE0035	DC0258	DC0747	DR0175	GC0132	LK0020	SD0084	WH0032
CE0038	DC0259	DC0748	DR0176	GC0133	LK0022	SD0085	WH0033
CE0039	DC0260	DC0749	DR0177	GC0134	LK0023	SD0086	WH0034

CE0040	DC0261	DC0750	DR0178	GC0135	LK0024	SD0090	WH0035
CE0041	DC0262	DC0751	DR0179	GC0136	LK0025	SD0091	WH0036
CE0042	DC0263	DC0752	DR0185	GC0137	LK0026	SD0092	WH0037
CE0043	DC0264	DC0756	DR0195	GC0139	LK0027	SD0095	WH0038
CE0046	DC0265	DC0758	DR0196	GC0140	LK0029	SD0106	WH0039
CE0047	DC0270	DC0761	DR0197	GC0141	LK0030	SD0108	WH0051
CE0048	DC0271	DC0770	DR0198	GC0142	LK0031	SD0119	WH0052
CE0049	DC0275	DC0772	DR0199	GC0145	LK0032	SD0144	WH0053
CE0050	DC0277	DC0774	DR0200	GC0146	LK0033	SD0162	WH0084
CE0051	DC0278	DC0776	DR0201	GC0147	LK0034	SD0181	WH0099
CE0052	DC0279	DC0779	DR0205	GC0148	LK0035	SD0182	WH0100
CE0053	DC0280	DC0780	DR0206	GC0149	LK0036	SD0183	WH0101
CE0054	DC0281	DC0791	DR0234	GC0150	LK0038	SD0185	WH0106
CE0055	DC0282	DC0792	DR0235	GC0151	LK0039	SD0186	WH0111
CE0056	DC0284	DC0794	DR0236	GC0152	LK0040	SD0187	WH0112
CE0057	DC0285	DC0797	DR0238	GC0153	LK0041	SD0188	WH0113
CE0058	DC0286	DC0799	DR0239	GY0001	LK0042	SD0193	WH0115
CE0059	DC0291	DC0800	DR0240	GY0005	LK0044	SD0194	WH0116
CE0060	DC0292	DC0802	DR0241	GY0006	LK0045	SD0206	WH0117
CE0061	DC0293	DC0804	DR0242	GY0007	LK0046	SD0229	WH0119
CE0065	DC0295	DC0805	DR0243	GY0008	LK0047	SD0235	WH0121
CE0066	DC0296	DC0809	DR0245	GY0011	LK0050	SD0249	WH0122
CE0067	DC0297	DC0818	DR0246	GY0044	LK0051	SD0250	WH0123
CE0068	DC0298	DC0819	DR0247	GY0045	LK0052	SD0252	WH0124
CE0069	DC0299	DC0820	DR0249	GY0047	LK0054	SD0253	WH0125
CE0070	DC0300	DC0821	DR0251	GY0048	LK0055	SD0255	WH0126
CE0071	DC0301	DC0825	DR0265	GY0049	LK0056	SD0256	WH0127
CE0072	DC0302	DC0829	DR0266	GY0050	LK0057	SD0257	WH0128
CE0073	DC0303	DC0830	DR0270	GY0052	LK0058	SD0258	WH0129
CE0076	DC0304	DC0833	DR0271	GY0088	LK0059	SD0259	WH0132
CE0081	DC0305	DC0834	DR0272	GY0089	LK0060	SD0264	WH0133
CE0088	DC0306	DC0837	DR0273	GY0090	LK0062	SD0265	WH0134
CE0095	DC0307	DC0840	DR0274	GY0094	LK0063	SD0266	WH0136
CE0096	DC0308	DC0841	DR0275	GY0095	LK0065	SD0267	WH0138
CE0097	DC0310	DC0842	DR0276	GY0096	LK0067	SD0268	WH0139
CE0098	DC0312	DC0843	DR0277	GY0097	LK0068	SD0269	WW0001
CE0101	DC0314	DC0844	DR0278	GY0098	LK0069	SD0270	WW0005
CE0102	DC0316	DC0845	DR0279	GY0099	LK0070	SD0271	WW0010
CE0108	DC0317	DC0846	DR0280	GY0128	LK0071	SD0272	WW0013
CE0111	DC0319	DC0847	DR0281	GY0141	LK0072	SD0273	WW0018
CE0154	DC0320	DC0848	DR0282	GY0144	LK0075	SD0274	WW0022
CE0155	DC0324	DC0849	DR0290	GY0161	LK0076	SD0275	WW0023
CK0023	DC0325	DC0850	DR0292	GY0163	LK0077	SD0276	WW0025
CK0024	DC0326	DC0851	DR0293	GY0164	LK0078	SD0277	WW0026
CK0025	DC0328	DC0852	DR0296	GY0165	LK0079	SD0278	WW0027

CK0035	DC0329	DC0853	DR0301	GY0166	LK0080	SD0279	WW0028
CK0036	DC0330	DC0854	DR0305	GY0167	LK0081	SD0280	WW0030
CK0037	DC0331	DC0855	DR0306	GY0169	LK0082	SD0281	WW0031
CK0038	DC0332	DC0857	FL0001	GY0170	LK0083	SD0282	WW0032
CK0039	DC0333	DC0858	FL0002	GY0172	LK0084	SD0285	WW0033
CK0040	DC0334	DC0860	FL0003	KE0002	LK0085	SD0286	WW0034
CK0041	DC0336	DC0861	FL0004	KE0003	LK0086	SD0290	WW0035
CK0045	DC0337	DC0863	FL0005	KE0007	LK0087	SD0291	WW0036
CK0046	DC0338	DC0864	FL0006	KE0009	LK0088	SD0293	WW0037
CK0047	DC0339	DC0865	FL0007	KE0020	LK0090	SD0308	WW0038
CK0049	DC0340	DC0866	FL0008	KE0021	LK0092	SD0310	WW0042
CK0051	DC0341	DC0867	FL0009	KE0030	LK0093	SD0311	WW0043
CK0054	DC0342	DC0868	FL0010	KE0032	LK0094	SD0312	WW0044
CK0055	DC0343	DC0869	FL0011	KE0033	LK0095	SD0313	WW0045
CK0056	DC0344	DC0871	FL0012	KE0036	LK0096	SD0314	WW0047
CK0057	DC0345	DC0872	FL0013	KE0037	LK0097	SD0315	WW0049
CK0059	DC0346	DC0873	FL0014	KE0038	LK0098	SD0316	WW0051
CK0061	DC0347	DC0875	FL0015	KE0039	LK0102	SD0317	WW0052
CK0062	DC0348	DC0877	FL0016	KE0040	LK0103	SD0318	WW0053
CK0064	DC0349	DC0882	FL0017	KE0042	LK0104	SD0320	WW0054
CK0065	DC0350	DC0888	FL0018	KE0044	LK0105	SD0321	WW0064
CK0067	DC0351	DC0889	FL0019	KE0045	LK0107	SD0322	WW0066
CK0069	DC0352	DC0891	FL0020	KE0053	LK0109	SD0323	WW0067
CK0116	DC0353	DC0892	FL0021	KE0056	LK0110	SD0324	WW0078
CK0120	DC0354	DC0895	FL0022	KE0057	LK0112	SD0325	WW0082
CK0153	DC0355	DC0896	FL0023	KE0058	LK0115	SD0330	WW0093
CK0155	DC0356	DC0897	FL0024	KE0063	LK0117	SD0331	WW0094
CK0156	DC0357	DC0899	FL0036	KE0088	LK0118	SD0332	WW0096
CK0160	DC0358	DC0900	FL0037	KE0089	LK0119	SD0333	WW0097
CK0170	DC0359	DC0901	FL0041	KE0090	LK0122	SD0334	WW0098
CK0171	DC0360	DC0902	FL0042	KE0102	LK0169	SD0335	WW0100
CK0172	DC0361	DC0903	FL0044	KE0111	LK0178	SD0336	WW0103
CK0175	DC0362	DC0904	FL0046	KE0112	LK0184	SD0337	WW0111
CK0176	DC0363	DC0905	FL0049	KE0119	LK0185	SD0338	WW0112
CK0178	DC0364	DC0906	FL0053	KE0122	LK0186	SD0339	WW0113
CK0179	DC0365	DC0907	FL0054	KE0124	LK0187	SD0341	WW0114
CK0181	DC0366	DC0908	FL0057	KE0125	LK0188	SD0342	WW0115
CK0182	DC0367	DC0909	FL0058	KE0127	LK0189	SD0346	WW0116
CK0191	DC0368	DC0910	FL0062	KE0138	LK0190	SD0348	WW0117
CK0192	DC0369	DC0911	FL0064	KE0140	LK0191	SD0349	WW0119
CK0195	DC0370	DC0912	FL0068	KE0141	LK0192	SD0350	WW0120
CK0200	DC0371	DC0913	FL0070	KE0143	LK0193	SD0353	WW0140
CK0201	DC0372	DC0914	FL0072	KE0145	LK0194	SD0354	WW0152
CK0202	DC0373	DC0915	FL0073	KE0147	LK0195	SD0355	WW0153
CK0203	DC0376	DC0916	FL0074	KE0148	LK0196	SD0356	WW0155

CK0204	DC0378	DC0917	FL0080	KE0149	LK0197	SD0358	WW0162
CK0205	DC0380	DC0918	FL0083	KE0187	LK0198	SD0359	WW0163
CK0206	DC0381	DC0919	FL0084	KE0188	LK0199	SD0362	WW0164
CK0210	DC0382	DC0920	FL0104	KE0199	LK0200	SD0363	WX0001
CK0211	DC0383	DC0921	FL0105	KE0200	LK0202	SD0364	WX0002
CK0212	DC0385	DC0922	FL0106	KE0203	LK0203	SD0365	WX0003
CK0214	DC0386	DC0923	FL0107	KE0204	LK0204	SD0366	WX0005
CK0215	DC0387	DC0924	FL0108	KE0205	LK0205	SD0367	WX0008
CK0216	DC0388	DC0927	FL0109	KE0206	LK0206	SD0368	WX0009
CK0217	DC0389	DC0929	FL0113	KE0213	LK0210	SD0369	WX0017
CK0218	DC0390	DC0930	FL0114	KE0214	LK0212	SD0371	WX0018
CK0219	DC0391	DC0931	FL0118	KE0215	LK0214	SD0372	WX0019
CK0220	DC0392	DC0932	FL0119	KE0217	LK0217	SD0374	WX0020
CK0221	DC0393	DC0933	FL0120	KE0221	LK0218	SD0375	WX0021
CK0222	DC0394	DC0934	FL0121	KE0223	LK0219	SD0376	WX0022
CK0223	DC0397	DC0935	FL0122	KE0224	LK0220	SD0377	WX0023
CK0224	DC0399	DC0938	FL0123	KE0225	LK0221	SD0378	WX0024
CK0225	DC0401	DC0939	FL0130	KE0226	LK0222	SD0379	WX0025
CK0227	DC0406	DC0940	FL0132	KE0230	LK0223	SD0383	WX0026
CK0228	DC0413	DC0941	FL0134	KE0232	LK0224	SD0386	WX0027
CK0229	DC0417	DC0942	FL0135	KE0233	LK0225	SD0387	WX0028
CK0230	DC0418	DC0943	FL0137	KE0247	LK0226	SD0388	WX0029
CK0234	DC0420	DC0944	FL0138	KE0248	LK0227	SD0389	WX0030
CK0237	DC0421	DC0945	FL0139	KE0249	LK0228	SD0397	WX0031
CK0238	DC0422	DC0946	FL0140	KE0251	LK0229	SD0402	WX0032
CK0239	DC0423	DC0947	FL0142	KE0255	LK0230	SO0001	WX0033
CK0244	DC0425	DC0948	FL0143	KE0277	LK0231	SO0002	WX0034
CK0261	DC0426	DC0949	FL0144	KE0283	LK0233	SO0003	WX0035
CK0268	DC0427	DC0950	FL0145	KE0290	LK0243	SO0005	WX0036
CK0281	DC0428	DC0951	FL0146	KK0001	LK0244	SO0006	WX0063
CK0282	DC0430	DC0952	FL0168	KK0003	LK0245	SO0007	WX0066
CK0284	DC0431	DC0953	FL0169	KK0004	LK0246	SO0008	WX0107
CK0285	DC0433	DC0954	FL0170	KK0005	LK0247	SO0009	WX0109
CK0289	DC0434	DC0955	FL0172	KK0007	LK0248	SO0012	WX0112
CK0290	DC0436	DC0956	FL0174	KK0008	LK0261	SO0013	WX0113
CK0291	DC0448	DC0957	FL0175	KK0011	LK0280	SO0014	WX0114
CK0292	DC0449	DC0958	FL0178	KK0012	LK0283	SO0015	WX0115
CK0293	DC0450	DC0959	FL0179	KK0013	LK0284	SO0016	WX0153
CK0294	DC0451	DC0960	FL0180	KK0016	LK0286	SO0017	WX0155
CK0295	DC0452	DC0961	FL0181	KK0018	LK0287	SO0019	WX0156
CK0296	DC0453	DC0962	FL0182	KK0019	LK0290	SO0020	WX0157
CK0297	DC0454	DC0963	FL0185	KK0020	LK0292	SO0021	WX0158
CK0298	DC0455	DC0964	FL0195	KK0021	LK0293	SO0022	WX0173
CK0299	DC0456	DC0965	FL0198	KK0023	LM0010	SO0023	WX0188
CK0300	DC0457	DC0966	FL0199	KK0026	LM0016	SO0024	WX0189

CK0301	DC0458	DC0967	FL0210	KK0027	LS0032	SO0025	WX0197
CK0302	DC0459	DC0968	FL0212	KK0030	LS0037	SO0026	WX0199
CK0303	DC0460	DC0969	FL0213	KK0031	LS0060	SO0027	WX0200
CK0304	DC0461	DC0970	FL0214	KK0032	LS0063	SO0028	WX0204
CK0305	DC0462	DC0971	FL0215	KK0036	LS0066	SO0030	WX0205
CK0306	DC0463	DC0972	FL0216	KK0039	LS0067	SO0031	WX0206
CK0307	DC0464	DC0973	FL0217	KK0040	LS0068	SO0032	WX0207
CK0308	DC0465	DC0974	FL0218	KK0070	LS0069	SO0033	WX0208
CK0309	DC0466	DC0975	FL0219	KK0083	LS0072	SO0034	WX0209
CK0310	DC0474	DC0976	FL0220	KK0085	LS0074	SO0035	WX0211
CK0311	DC0480	DC0977	FL0223	KK0087	LS0075	SO0036	WX0212
CK0312	DC0493	DC0978	FL0224	KK0089	LS0076	SO0037	WX0213
CK0313	DC0496	DC0979	FL0226	KK0091	LS0077	SO0038	
CK0315	DC0497	DC0980	FL0234	KK0097	LS0078	SO0040	
CK0316	DC0498	DC0981	FL0235	KK0101	LS0079	SO0042	

1.2 MI WDC MARKET 2

MI WDC Market 2							
CC0002	CK0511	DC0686	FL0166	KE0294	LK0277	MO0152	TY0021
CC0004	CK0512	DC0687	FL0167	KE0295	LK0278	MO0153	TY0022
CC0006	CK0514	DC0689	FL0171	KE0296	LK0281	MO0154	TY0023
CC0007	CK0515	DC0692	FL0173	KE0299	LK0282	MO0155	TY0024
CC0024	CK0521	DC0693	FL0177	KK0002	LK0289	MO0156	TY0025
CC0025	CK0522	DC0694	FL0184	KK0025	LK0294	MO0159	TY0026
CC0027	CK0525	DC0695	FL0186	KK0029	LK0297	MO0162	TY0027
CC0037	CK0527	DC0696	FL0187	KK0038	LK0299	MO0166	TY0031
CC0039	CK0528	DC0717	FL0188	KK0043	LK0300	MO0169	TY0037
CC0098	CK0529	DC0730	FL0189	KK0044	LK0307	MO0172	TY0040
CC0129	CK0531	DC0731	FL0190	KK0045	LK0309	MO0173	TY0042
CC0135	CK0534	DC0753	FL0193	KK0046	LK0310	MO0174	TY0044
CC0155	CK0535	DC0754	FL0196	KK0047	LK0311	MO0175	TY0046
CC0179	CK0537	DC0757	FL0197	KK0057	LK0312	MO0176	TY0054
CC0180	CK0538	DC0759	FL0200	KK0058	LK0314	MO0177	TY0056
CC0184	CK0542	DC0763	FL0203	KK0059	LK0318	MO0178	TY0059
CC0185	CK0547	DC0765	FL0204	KK0060	LM0001	MO0179	TY0060
CC0208	CK0548	DC0767	FL0205	KK0061	LM0002	MO0180	TY0064
CC0211	CK0550	DC0768	FL0206	KK0062	LM0003	MO0181	TY0067
CC0215	CK0551	DC0771	FL0207	KK0063	LM0005	MO0184	TY0068
CC0216	CK0552	DC0773	FL0208	KK0064	LM0006	MO0185	TY0069
CC0219	CK0553	DC0777	FL0209	KK0065	LM0007	MO0190	TY0073
CE0001	CK0554	DC0778	FL0211	KK0074	LM0008	MO0192	TY0075
CE0002	CK0555	DC0784	FL0221	KK0076	LM0009	MO0194	TY0076
CE0003	CK0556	DC0785	FL0222	KK0080	LM0011	MO0197	TY0077

CE0004	CK0557	DC0786	FL0225	KK0084	LM0012	MO0198	TY0082
CE0009	CK0559	DC0787	FL0227	KK0086	LM0013	MO0201	TY0083
CE0011	CK0560	DC0795	FL0228	KK0090	LM0015	OY0001	TY0084
CE0012	CK0561	DC0801	FL0230	KK0093	LM0017	OY0002	TY0087
CE0016	CK0562	DC0803	FL0231	KK0095	LM0019	OY0003	TY0088
CE0017	CK0563	DC0812	FL0232	KK0098	LM0020	OY0004	TY0091
CE0018	CK0564	DC0822	FL0238	KK0099	LM0021	OY0005	TY0092
CE0019	CK0567	DC0836	FL0246	KK0100	LM0023	OY0006	TY0096
CE0020	CK0568	DC0839	FL0247	KK0104	LM0024	OY0007	TY0097
CE0021	CK0570	DC0856	FL0253	KK0105	LM0028	OY0008	TY0098
CE0022	CK0572	DC0859	FL0258	KK0108	LM0030	OY0013	TY0104
CE0023	CK0573	DC0862	FL0263	KK0116	LM0031	OY0018	TY0106
CE0024	CK0575	DC0870	FL0268	KK0117	LM0032	OY0021	TY0111
CE0027	CK0579	DC0874	FL0273	KK0121	LM0033	OY0022	TY0112
CE0028	CK0580	DC0878	FL0274	KK0124	LM0034	OY0025	TY0113
CE0032	CK0583	DC0879	FL0278	KK0127	LM0035	OY0030	TY0114
CE0033	CK0585	DC0880	FL0279	KK0128	LM0036	OY0031	TY0115
CE0034	CK0586	DC0881	FL0283	KK0129	LM0038	OY0032	TY0116
CE0037	CN0002	DC0883	FL0284	KK0135	LM0040	OY0033	TY0119
CE0044	CN0003	DC0884	FL0285	KK0136	LM0041	OY0035	TY0129
CE0045	CN0010	DC0885	FL0286	KK0137	LM0043	OY0042	TY0130
CE0062	CN0015	DC0886	FL0288	KK0139	LM0047	OY0043	TY0135
CE0063	CN0019	DC0893	FL0294	KK0140	LS0001	OY0045	TY0136
CE0074	CN0021	DC0894	FL0307	KK0142	LS0002	OY0049	TY0158
CE0075	CN0022	DC0898	FL0330	KK0145	LS0003	OY0050	TY0160
CE0082	CN0026	DC0997	FL0338	KK0146	LS0005	OY0054	TY0161
CE0083	CN0027	DC1002	FL0339	KK0155	LS0006	OY0056	TY0163
CE0084	CN0029	DC1004	FL0351	KK0156	LS0007	OY0057	TY0165
CE0086	CN0030	DC1005	GC0001	KK0158	LS0008	OY0058	TY0167
CE0087	CN0033	DC1006	GC0008	KK0160	LS0010	OY0059	TY0169
CE0089	CN0034	DC1007	GC0009	KK0161	LS0013	OY0060	TY0173
CE0092	CN0035	DC1014	GC0040	KK0162	LS0014	OY0061	TY0180
CE0094	CN0038	DC1018	GC0041	KK0163	LS0017	OY0062	TY0183
CE0099	CN0039	DC1020	GC0042	KY0001	LS0018	OY0064	TY0185
CE0100	CN0040	DC1022	GC0052	KY0003	LS0019	OY0070	TY0187
CE0103	CN0044	DC1024	GC0065	KY0004	LS0022	OY0074	TY0189
CE0104	CN0045	DC1033	GC0095	KY0006	LS0023	OY0075	TY0190
CE0109	CN0046	DC1035	GC0097	KY0010	LS0024	OY0076	TY0191
CE0110	CN0047	DL0006	GC0099	KY0012	LS0029	OY0077	TY0193
CE0112	CN0048	DL0009	GC0103	KY0013	LS0031	OY0078	TY0198
CE0116	CN0049	DL0010	GC0117	KY0015	LS0033	OY0079	TY0201
CE0123	CN0055	DL0026	GC0119	KY0016	LS0038	OY0088	TY0207
CE0124	CN0056	DL0034	GC0131	KY0024	LS0039	OY0089	TY0210
CE0125	CN0059	DL0040	GC0143	KY0029	LS0040	OY0090	TY0211
CE0126	CN0060	DL0045	GC0144	KY0030	LS0043	OY0091	TY0212

CE0127	CN0062	DL0046	GY0002	KY0033	LS0045	OY0092	TY0215
CE0128	CN0063	DL0048	GY0003	KY0034	LS0047	OY0097	TY0216
CE0129	CN0066	DL0050	GY0004	KY0035	LS0048	OY0098	TY0225
CE0136	CN0067	DL0051	GY0009	KY0036	LS0049	OY0099	TY0226
CE0140	CN0069	DL0052	GY0010	KY0037	LS0050	RN0008	TY0233
CE0141	CN0071	DL0053	GY0015	KY0039	LS0051	RN0013	TY0234
CE0149	CN0074	DL0054	GY0018	KY0041	LS0052	RN0014	TY0237
CE0150	CN0075	DL0064	GY0020	KY0042	LS0053	RN0015	TY0238
CE0152	CN0076	DL0065	GY0022	KY0045	LS0055	RN0017	TY0240
CE0153	CN0081	DL0068	GY0024	KY0046	LS0056	RN0019	TY0242
CE0157	CN0085	DL0069	GY0025	KY0048	LS0057	RN0021	TY0243
CE0159	CN0088	DL0070	GY0027	KY0055	LS0058	RN0025	TY0244
CE0160	CN0093	DL0071	GY0028	KY0057	LS0059	RN0026	TY0245
CE0164	CN0096	DL0072	GY0029	KY0058	LS0065	RN0027	TY0247
CE0165	CN0097	DL0073	GY0030	KY0060	LS0071	RN0028	TY0248
CE0171	CN0098	DL0074	GY0031	KY0063	LS0073	RN0030	TY0251
CE0172	CN0099	DL0075	GY0032	KY0068	LS0094	RN0032	WD0022
CE0174	CN0100	DL0076	GY0033	KY0073	LS0095	RN0035	WD0025
CE0177	CN0101	DL0078	GY0034	KY0074	LS0096	RN0036	WD0028
CE0181	CN0102	DL0079	GY0039	KY0075	LS0097	RN0037	WD0029
CE0182	CN0103	DL0080	GY0040	KY0076	LS0101	RN0038	WD0030
CK0001	CN0108	DL0081	GY0042	KY0077	LS0103	RN0039	WD0054
CK0002	CN0109	DL0082	GY0054	KY0078	LS0105	RN0040	WD0060
CK0003	CN0110	DL0087	GY0058	KY0079	LS0106	RN0043	WD0062
CK0004	CN0112	DL0088	GY0059	KY0081	MH0002	RN0046	WD0065
CK0005	CN0115	DL0089	GY0061	KY0087	MH0003	RN0047	WD0066
CK0006	CN0116	DL0091	GY0062	KY0088	MH0016	RN0048	WD0069
CK0007	CN0120	DL0092	GY0063	KY0092	MH0017	RN0049	WD0099
CK0008	CW0001	DL0095	GY0065	KY0093	MH0018	RN0050	WD0101
CK0009	CW0002	DL0096	GY0069	KY0094	MH0020	RN0051	WD0110
CK0011	CW0019	DL0097	GY0071	KY0095	MH0029	RN0053	WD0111
CK0012	CW0021	DL0098	GY0073	KY0096	MH0039	RN0054	WD0113
CK0014	CW0022	DL0100	GY0074	KY0097	MH0041	RN0055	WD0114
CK0015	CW0023	DL0101	GY0077	KY0098	MH0042	RN0057	WD0117
CK0016	CW0026	DL0104	GY0079	KY0099	MH0043	RN0058	WD0124
CK0017	CW0029	DL0106	GY0080	KY0102	MH0044	RN0059	WD0126
CK0018	CW0031	DL0107	GY0081	KY0103	MH0045	RN0060	WD0127
CK0019	CW0033	DL0108	GY0082	KY0105	MH0046	RN0063	WD0129
CK0020	CW0037	DL0109	GY0091	KY0108	MH0047	RN0069	WD0130
CK0021	CW0045	DL0110	GY0093	KY0110	MH0048	RN0070	WD0131
CK0026	CW0056	DL0111	GY0102	KY0111	MH0049	RN0073	WD0132
CK0027	CW0060	DL0112	GY0104	KY0112	MH0050	RN0075	WD0136
CK0028	CW0061	DL0113	GY0105	KY0113	MH0054	RN0078	WD0138
CK0029	CW0065	DL0117	GY0107	KY0114	MH0056	RN0083	WD0139
CK0030	CW0066	DL0118	GY0110	KY0116	MH0057	RN0085	WD0146

CK0032	CW0069	DL0123	GY0111	KY0118	MH0058	RN0086	WD0148
CK0033	CW0070	DL0125	GY0112	KY0120	MH0061	RN0087	WD0149
CK0034	CW0071	DL0127	GY0119	KY0121	MH0068	RN0088	WD0150
CK0042	CW0074	DL0129	GY0120	KY0125	MH0074	RN0089	WD0151
CK0043	CW0075	DL0130	GY0126	KY0127	MH0075	SD0004	WD0152
CK0050	CW0077	DL0131	GY0127	KY0130	MH0076	SD0005	WD0154
CK0052	CW0078	DL0132	GY0129	KY0131	MH0092	SD0011	WD0156
CK0053	CW0080	DL0133	GY0130	KY0135	MH0100	SD0014	WD0159
CK0060	CW0081	DL0134	GY0131	KY0136	MH0105	SD0015	WD0160
CK0063	DC0001	DL0137	GY0132	KY0138	MH0106	SD0023	WD0164
CK0068	DC0003	DL0139	GY0133	KY0140	MH0108	SD0024	WD0165
CK0070	DC0004	DL0140	GY0137	KY0141	MH0109	SD0025	WD0167
CK0071	DC0005	DL0145	GY0138	KY0142	MH0111	SD0026	WD0170
CK0072	DC0006	DL0146	GY0139	KY0143	MH0114	SD0027	WD0171
CK0073	DC0007	DL0148	GY0142	KY0144	MH0115	SD0029	WD0172
CK0076	DC0009	DL0149	GY0143	KY0149	MH0116	SD0032	WD0173
CK0079	DC0010	DL0151	GY0146	KY0151	MH0121	SD0035	WD0174
CK0080	DC0012	DL0152	GY0148	KY0154	MH0124	SD0038	WD0175
CK0081	DC0014	DL0153	GY0152	KY0155	MH0126	SD0040	WD0176
CK0083	DC0015	DL0154	GY0156	KY0156	MH0130	SD0042	WD0177
CK0089	DC0020	DL0156	GY0171	KY0158	MH0131	SD0043	WD0178
CK0090	DC0021	DL0158	GY0174	KY0160	MH0134	SD0044	WD0181
CK0091	DC0025	DL0159	GY0177	KY0161	MH0137	SD0046	WH0001
CK0092	DC0026	DL0163	GY0178	KY0162	MH0138	SD0048	WH0017
CK0093	DC0027	DL0166	GY0179	KY0163	MH0139	SD0049	WH0026
CK0094	DC0029	DL0167	GY0181	KY0164	MH0140	SD0051	WH0044
CK0097	DC0030	DL0173	GY0182	KY0171	MH0142	SD0058	WH0045
CK0099	DC0035	DL0175	GY0183	KY0173	MH0143	SD0059	WH0046
CK0100	DC0037	DL0180	GY0184	KY0177	MH0144	SD0060	WH0047
CK0101	DC0038	DL0188	GY0185	KY0179	MH0147	SD0067	WH0049
CK0103	DC0041	DL0191	GY0186	KY0184	MH0148	SD0069	WH0055
CK0107	DC0046	DL0192	GY0187	KY0187	MH0151	SD0070	WH0056
CK0108	DC0047	DL0195	GY0189	KY0188	MH0154	SD0071	WH0057
CK0109	DC0055	DL0197	GY0190	KY0189	MH0157	SD0072	WH0060
CK0112	DC0057	DL0198	GY0191	KY0193	MH0160	SD0073	WH0062
CK0113	DC0062	DL0199	GY0192	KY0195	MH0162	SD0074	WH0063
CK0114	DC0063	DL0201	GY0193	KY0198	MH0168	SD0075	WH0065
CK0115	DC0066	DL0204	GY0194	KY0200	MH0169	SD0076	WH0070
CK0117	DC0067	DL0206	GY0195	KY0201	MH0172	SD0077	WH0071
CK0118	DC0069	DL0208	GY0199	KY0205	MH0173	SD0081	WH0073
CK0119	DC0070	DL0210	GY0200	KY0209	MH0175	SD0083	WH0076
CK0122	DC0076	DL0211	GY0201	KY0210	MH0186	SD0093	WH0078
CK0124	DC0080	DL0212	GY0202	KY0211	MH0191	SD0094	WH0079
CK0125	DC0081	DL0214	GY0204	KY0212	MH0194	SD0096	WH0080
CK0126	DC0082	DL0215	GY0206	KY0213	MH0196	SD0097	WH0082

CK0129	DC0083	DL0217	GY0207	KY0214	MH0199	SD0099	WH0083
CK0130	DC0085	DL0218	GY0208	KY0215	MH0200	SD0100	WH0085
CK0131	DC0090	DL0221	GY0217	KY0223	MH0202	SD0103	WH0088
CK0132	DC0096	DL0222	GY0218	KY0226	MH0208	SD0105	WH0090
CK0134	DC0101	DL0225	GY0222	KY0227	MH0209	SD0107	WH0095
CK0135	DC0102	DL0227	GY0223	KY0234	MH0211	SD0111	WH0096
CK0136	DC0103	DL0234	GY0224	KY0239	MH0214	SD0112	WH0097
CK0140	DC0104	DL0235	GY0225	KY0241	MH0219	SD0113	WH0098
CK0142	DC0105	DR0001	GY0226	KY0242	MH0220	SD0114	WH0102
CK0148	DC0108	DR0002	GY0227	KY0243	MH0223	SD0115	WH0103
CK0151	DC0113	DR0009	GY0229	KY0249	MH0224	SD0123	WH0104
CK0152	DC0114	DR0010	GY0230	KY0250	MH0227	SD0130	WH0105
CK0158	DC0115	DR0015	GY0233	LD0015	MH0231	SD0131	WH0107
CK0159	DC0117	DR0016	GY0234	LD0017	MH0238	SD0137	WH0109
CK0161	DC0119	DR0017	GY0235	LD0018	MH0240	SD0145	WH0110
CK0162	DC0121	DR0018	GY0236	LD0019	MH0241	SD0148	WH0114
CK0163	DC0122	DR0020	GY0237	LD0020	MH0242	SD0151	WH0120
CK0167	DC0124	DR0021	GY0239	LD0021	MH0243	SD0152	WH0135
CK0173	DC0127	DR0023	GY0242	LD0025	MH0244	SD0153	WW0003
CK0174	DC0128	DR0026	GY0243	LD0029	MH0245	SD0154	WW0004
CK0180	DC0131	DR0027	GY0246	LD0031	MH0247	SD0155	WW0006
CK0184	DC0133	DR0037	GY0247	LD0032	MH0250	SD0156	WW0007
CK0187	DC0135	DR0042	GY0248	LD0034	MH0251	SD0157	WW0011
CK0188	DC0136	DR0046	GY0249	LD0037	MH0254	SD0158	WW0012
CK0189	DC0143	DR0049	GY0250	LD0045	MH0256	SD0159	WW0016
CK0193	DC0145	DR0052	KE0004	LD0053	MN0001	SD0163	WW0017
CK0196	DC0146	DR0060	KE0005	LD0054	MN0002	SD0166	WW0020
CK0199	DC0147	DR0062	KE0006	LD0056	MN0003	SD0167	WW0039
CK0208	DC0148	DR0063	KE0010	LD0057	MN0006	SD0168	WW0048
CK0209	DC0149	DR0064	KE0012	LD0061	MN0007	SD0172	WW0050
CK0231	DC0155	DR0067	KE0013	LH0001	MN0009	SD0173	WW0056
CK0232	DC0170	DR0068	KE0014	LH0005	MN0010	SD0174	WW0057
CK0233	DC0171	DR0069	KE0015	LH0007	MN0012	SD0175	WW0058
CK0235	DC0173	DR0071	KE0016	LH0008	MN0013	SD0176	WW0063
CK0236	DC0202	DR0072	KE0018	LH0012	MN0022	SD0177	WW0065
CK0240	DC0204	DR0076	KE0019	LH0019	MN0024	SD0178	WW0071
CK0241	DC0207	DR0082	KE0022	LH0023	MN0026	SD0179	WW0073
CK0242	DC0209	DR0083	KE0023	LH0024	MN0027	SD0180	WW0080
CK0245	DC0210	DR0086	KE0024	LH0025	MN0030	SD0184	WW0081
CK0246	DC0211	DR0087	KE0026	LH0031	MN0034	SD0190	WW0084
CK0247	DC0220	DR0094	KE0027	LH0033	MN0035	SD0191	WW0085
CK0250	DC0222	DR0095	KE0028	LH0034	MN0036	SD0195	WW0086
CK0254	DC0223	DR0096	KE0031	LH0039	MN0037	SD0196	WW0087
CK0255	DC0229	DR0097	KE0034	LH0040	MN0040	SD0197	WW0089
CK0258	DC0231	DR0098	KE0041	LH0044	MN0043	SD0198	WW0091

CK0259	DC0234	DR0099	KE0043	LH0048	MN0044	SD0199	WW0092
CK0260	DC0235	DR0102	KE0046	LH0052	MN0045	SD0200	WW0095
CK0262	DC0238	DR0104	KE0047	LH0069	MN0047	SD0201	WW0101
CK0263	DC0239	DR0105	KE0049	LH0080	MN0052	SD0202	WW0104
CK0267	DC0241	DR0117	KE0050	LH0083	MN0054	SD0204	WW0106
CK0269	DC0246	DR0122	KE0054	LH0084	MN0061	SD0207	WW0121
CK0273	DC0247	DR0125	KE0059	LH0085	MN0062	SD0211	WW0122
CK0275	DC0266	DR0126	KE0061	LH0088	MN0063	SD0212	WW0123
CK0279	DC0269	DR0129	KE0062	LH0089	MN0064	SD0213	WW0125
CK0280	DC0273	DR0131	KE0065	LH0093	MN0065	SD0216	WW0126
CK0283	DC0274	DR0135	KE0067	LH0094	MN0066	SD0218	WW0127
CK0286	DC0276	DR0136	KE0068	LH0096	MN0072	SD0219	WW0128
CK0318	DC0287	DR0137	KE0069	LH0100	MN0074	SD0220	WW0130
CK0319	DC0288	DR0141	KE0072	LH0101	MN0077	SD0221	WW0131
CK0322	DC0289	DR0142	KE0080	LH0103	MN0081	SD0222	WW0132
CK0324	DC0290	DR0180	KE0081	LH0104	MN0082	SD0223	WW0133
CK0327	DC0294	DR0181	KE0082	LH0105	MN0084	SD0224	WW0134
CK0328	DC0313	DR0182	KE0084	LH0106	MN0085	SD0225	WW0136
CK0329	DC0318	DR0183	KE0086	LH0112	MN0086	SD0226	WW0142
CK0330	DC0321	DR0186	KE0095	LH0118	MN0092	SD0228	WW0144
CK0331	DC0322	DR0187	KE0096	LH0120	MN0093	SD0230	WW0145
CK0332	DC0323	DR0188	KE0097	LH0122	MN0094	SD0231	WW0146
CK0344	DC0374	DR0190	KE0100	LH0124	MN0095	SD0233	WW0150
CK0346	DC0375	DR0191	KE0101	LH0125	MN0097	SD0238	WW0151
CK0348	DC0377	DR0192	KE0105	LH0127	MN0098	SD0239	WW0156
CK0350	DC0379	DR0193	KE0107	LH0128	MN0099	SD0241	WW0160
CK0351	DC0395	DR0202	KE0109	LH0130	MN0100	SD0246	WW0165
CK0357	DC0396	DR0203	KE0113	LH0139	MN0102	SD0247	WW0167
CK0358	DC0398	DR0210	KE0116	LH0154	MN0103	SD0260	WW0169
CK0362	DC0400	DR0211	KE0121	LH0155	MO0004	SD0284	WW0170
CK0363	DC0402	DR0212	KE0128	LH0164	MO0005	SD0288	WW0176
CK0364	DC0404	DR0214	KE0129	LH0167	MO0008	SD0299	WW0177
CK0365	DC0405	DR0216	KE0132	LH0169	MO0020	SD0300	WW0178
CK0366	DC0407	DR0219	KE0134	LH0170	MO0021	SD0303	WW0180
CK0367	DC0408	DR0220	KE0135	LH0171	MO0022	SD0309	WW0181
CK0369	DC0409	DR0221	KE0136	LH0173	MO0023	SD0319	WW0183
CK0373	DC0411	DR0223	KE0137	LH0174	MO0024	SD0327	WX0004
CK0374	DC0412	DR0224	KE0139	LH0175	MO0025	SD0344	WX0007
CK0375	DC0415	DR0225	KE0142	LH0176	MO0026	SD0352	WX0010
CK0376	DC0429	DR0226	KE0150	LH0177	MO0027	SD0382	WX0013
CK0379	DC0437	DR0231	KE0154	LH0178	MO0029	SD0385	WX0014
CK0381	DC0440	DR0233	KE0155	LH0180	MO0030	SD0394	WX0015
CK0383	DC0441	DR0244	KE0157	LH0181	MO0032	SD0399	WX0016
CK0384	DC0443	DR0248	KE0158	LH0183	MO0033	SD0405	WX0045
CK0386	DC0444	DR0250	KE0159	LH0184	MO0036	SD0406	WX0048

CK0387	DC0446	DR0252	KE0161	LH0185	MO0040	SD0407	WX0051
CK0389	DC0467	DR0253	KE0166	LH0186	MO0041	SD0410	WX0053
CK0391	DC0468	DR0254	KE0167	LH0193	MO0043	SD0411	WX0054
CK0394	DC0469	DR0255	KE0174	LK0009	MO0044	SD0413	WX0055
CK0396	DC0470	DR0256	KE0177	LK0011	MO0045	SO0004	WX0057
CK0397	DC0471	DR0258	KE0178	LK0016	MO0046	SO0039	WX0058
CK0398	DC0472	DR0261	KE0179	LK0073	MO0047	SO0041	WX0060
CK0399	DC0475	DR0264	KE0181	LK0074	MO0048	SO0046	WX0065
CK0401	DC0476	DR0268	KE0182	LK0111	MO0049	SO0050	WX0067
CK0402	DC0477	DR0284	KE0183	LK0113	MO0050	SO0052	WX0068
CK0404	DC0481	DR0286	KE0184	LK0114	MO0051	SO0053	WX0069
CK0405	DC0483	DR0288	KE0189	LK0120	MO0053	SO0054	WX0072
CK0415	DC0485	DR0289	KE0190	LK0123	MO0054	SO0056	WX0080
CK0417	DC0486	DR0291	KE0191	LK0125	MO0060	SO0058	WX0081
CK0418	DC0487	DR0294	KE0194	LK0127	MO0062	SO0062	WX0083
CK0420	DC0489	DR0299	KE0202	LK0128	MO0066	SO0065	WX0084
CK0421	DC0490	DR0300	KE0208	LK0129	MO0068	SO0066	WX0088
CK0423	DC0491	DR0308	KE0210	LK0130	MO0069	SO0067	WX0094
CK0425	DC0495	DR0309	KE0212	LK0139	MO0075	SO0068	WX0095
CK0426	DC0499	DR0310	KE0216	LK0142	MO0077	SO0069	WX0098
CK0430	DC0508	DR0312	KE0219	LK0143	MO0079	SO0073	WX0099
CK0431	DC0514	DR0313	KE0228	LK0144	MO0081	SO0074	WX0101
CK0434	DC0515	FL0025	KE0231	LK0149	MO0082	SO0075	WX0103
CK0435	DC0517	FL0026	KE0235	LK0150	MO0083	SO0077	WX0110
CK0439	DC0519	FL0027	KE0237	LK0151	MO0084	SO0078	WX0111
CK0442	DC0521	FL0030	KE0238	LK0156	MO0086	SO0079	WX0116
CK0444	DC0525	FL0032	KE0239	LK0157	MO0087	SO0080	WX0121
CK0446	DC0527	FL0033	KE0240	LK0160	MO0089	SO0081	WX0126
CK0447	DC0530	FL0038	KE0241	LK0161	MO0091	SO0082	WX0131
CK0449	DC0532	FL0039	KE0242	LK0162	MO0098	SO0085	WX0132
CK0450	DC0534	FL0043	KE0243	LK0163	MO0099	SO0086	WX0137
CK0451	DC0535	FL0047	KE0245	LK0164	MO0101	SO0088	WX0139
CK0452	DC0537	FL0050	KE0250	LK0165	MO0102	SO0089	WX0140
CK0453	DC0576	FL0059	KE0252	LK0168	MO0104	SO0092	WX0141
CK0455	DC0578	FL0060	KE0253	LK0170	MO0105	SO0093	WX0142
CK0456	DC0580	FL0061	KE0254	LK0171	MO0106	SO0099	WX0143
CK0457	DC0640	FL0065	KE0256	LK0172	MO0107	SO0100	WX0146
CK0459	DC0641	FL0067	KE0257	LK0173	MO0109	SO0101	WX0148
CK0463	DC0642	FL0071	KE0258	LK0174	MO0110	SO0102	WX0154
CK0467	DC0643	FL0075	KE0259	LK0175	MO0120	SO0103	WX0165
CK0468	DC0644	FL0077	KE0265	LK0182	MO0123	TY0001	WX0166
CK0469	DC0645	FL0078	KE0266	LK0209	MO0124	TY0002	WX0167
CK0475	DC0650	FL0079	KE0268	LK0215	MO0129	TY0003	WX0168
CK0477	DC0652	FL0087	KE0269	LK0232	MO0132	TY0004	WX0170
CK0480	DC0658	FL0095	KE0270	LK0234	MO0134	TY0005	WX0171

CK0481	DC0659	FL0098	KE0271	LK0239	MO0135	TY0006	WX0172
CK0486	DC0665	FL0100	KE0272	LK0250	MO0138	TY0008	WX0174
CK0491	DC0666	FL0102	KE0273	LK0253	MO0139	TY0009	WX0182
CK0492	DC0672	FL0111	KE0276	LK0258	MO0140	TY0010	WX0183
CK0494	DC0673	FL0112	KE0278	LK0259	MO0141	TY0011	WX0186
CK0495	DC0674	FL0117	KE0280	LK0260	MO0142	TY0012	WX0190
CK0501	DC0676	FL0124	KE0281	LK0263	MO0145	TY0013	WX0192
CK0505	DC0677	FL0129	KE0286	LK0264	MO0146	TY0014	WX0193
CK0506	DC0678	FL0148	KE0287	LK0268	MO0148	TY0015	WX0196
CK0508	DC0681	FL0159	KE0288	LK0269	MO0149	TY0016	WX0198
CK0509	DC0683	FL0161	KE0289	LK0275	MO0150	TY0018	WX0201
CK0510	DC0684	FL0165	KE0292	LK0276	MO0151	TY0019	

1.3 MI WDC MARKET 3

MI WDC Market 3							
CC0001	CW0030	DC0838	FL0192	KE0198	LK0177	OY0086	TY0222
CC0003	CW0034	DC0876	FL0194	KE0201	LK0179	OY0087	TY0252
CC0005	CW0047	DC0887	FL0201	KE0209	LK0180	OY0093	WD0006
CC0008	CW0048	DC0890	FL0202	KE0211	LK0181	OY0094	WD0021
CC0021	CW0052	DC0925	FL0229	KE0218	LK0183	OY0095	WD0027
CC0032	CW0072	DC0926	FL0236	KE0220	LK0201	RN0002	WD0035
CC0034	CW0082	DC0928	FL0243	KE0222	LK0207	RN0009	WD0045
CC0040	DC0002	DC0936	FL0244	KE0227	LK0211	RN0010	WD0053
CC0050	DC0011	DC0937	FL0248	KE0229	LK0213	RN0016	WD0055
CC0052	DC0016	DC0992	FL0249	KE0234	LK0216	RN0068	WD0061
CC0057	DC0017	DC0993	FL0251	KE0244	LK0235	RN0072	WD0070
CC0063	DC0028	DC0994	FL0252	KE0246	LK0241	SD0001	WD0081
CC0067	DC0044	DC0998	FL0256	KE0279	LK0249	SD0002	WD0093
CC0068	DC0045	DC1000	FL0260	KE0282	LK0251	SD0007	WD0102
CC0080	DC0048	DC1001	FL0262	KE0284	LK0262	SD0009	WD0107
CC0088	DC0050	DC1016	FL0266	KE0285	LK0274	SD0018	WD0109
CC0090	DC0058	DC1025	FL0267	KE0293	LK0279	SD0019	WD0115
CC0091	DC0059	DC1028	FL0272	KE0297	LK0288	SD0028	WD0116
CC0112	DC0065	DC1031	FL0276	KE0298	LK0291	SD0031	WD0119
CC0117	DC0068	DL0013	FL0277	KK0006	LK0295	SD0045	WD0121
CC0118	DC0071	DL0019	FL0280	KK0009	LK0296	SD0047	WD0123
CC0124	DC0073	DL0032	FL0282	KK0010	LM0025	SD0062	WD0125
CC0132	DC0075	DL0036	FL0289	KK0014	LM0026	SD0063	WD0128
CC0133	DC0079	DL0043	FL0291	KK0015	LS0021	SD0064	WD0133
CC0134	DC0088	DL0044	FL0315	KK0017	LS0025	SD0078	WD0134
CC0137	DC0089	DL0063	FL0316	KK0022	LS0026	SD0087	WD0135
CC0143	DC0091	DL0120	FL0320	KK0024	LS0027	SD0088	WD0137

CC0154	DC0092	DL0121	FL0343	KK0028	LS0028	SD0089	WD0144
CC0156	DC0097	DL0122	FL0352	KK0033	LS0036	SD0104	WD0158
CC0167	DC0099	DL0128	GC0003	KK0034	LS0044	SD0109	WD0166
CC0181	DC0106	DL0138	GC0005	KK0035	LS0054	SD0110	WD0179
CC0207	DC0130	DL0155	GC0006	KK0037	LS0061	SD0116	WD0180
CC0218	DC0140	DL0160	GC0027	KK0078	LS0062	SD0117	WH0014
CC0220	DC0151	DL0161	GC0030	KK0081	LS0064	SD0118	WH0022
CC0221	DC0152	DL0165	GC0033	KK0082	LS0070	SD0120	WH0023
CE0007	DC0154	DL0168	GC0034	KK0088	LS0085	SD0121	WH0024
CE0010	DC0156	DL0185	GC0035	KK0092	LS0104	SD0122	WH0025
CE0013	DC0157	DL0187	GC0039	KK0094	MH0014	SD0124	WH0030
CE0015	DC0159	DL0219	GC0044	KK0096	MH0026	SD0126	WH0041
CE0036	DC0163	DR0004	GC0059	KK0102	MH0030	SD0127	WH0042
CE0064	DC0164	DR0005	GC0064	KK0106	MH0035	SD0132	WH0043
CE0077	DC0165	DR0007	GC0066	KK0109	MH0038	SD0133	WH0054
CE0078	DC0168	DR0008	GC0071	KK0119	MH0040	SD0135	WH0077
CE0079	DC0172	DR0012	GC0074	KK0131	MH0051	SD0136	WH0081
CE0080	DC0174	DR0024	GC0084	KK0149	MH0052	SD0138	WH0086
CE0085	DC0180	DR0029	GC0090	KK0151	MH0067	SD0139	WH0087
CE0090	DC0181	DR0031	GC0093	KK0152	MH0069	SD0140	WH0089
CE0091	DC0185	DR0033	GC0112	KK0157	MH0071	SD0141	WH0092
CE0093	DC0198	DR0036	GC0115	KY0005	MH0077	SD0142	WH0094
CE0106	DC0200	DR0043	GC0116	KY0017	MH0079	SD0143	WH0108
CE0113	DC0205	DR0047	GC0138	KY0018	MH0089	SD0146	WH0118
CE0142	DC0208	DR0050	GY0014	KY0026	MH0095	SD0147	WH0130
CE0156	DC0214	DR0051	GY0016	KY0032	MH0097	SD0149	WH0131
CE0158	DC0215	DR0065	GY0019	KY0038	MH0099	SD0150	WH0137
CE0162	DC0224	DR0066	GY0021	KY0064	MH0101	SD0160	WW0002
CE0178	DC0225	DR0084	GY0037	KY0069	MH0103	SD0164	WW0008
CK0022	DC0228	DR0088	GY0038	KY0133	MH0113	SD0165	WW0009
CK0044	DC0230	DR0103	GY0043	KY0139	MH0117	SD0169	WW0014
CK0048	DC0233	DR0114	GY0046	KY0146	MH0132	SD0203	WW0015
CK0058	DC0249	DR0118	GY0051	KY0190	MH0133	SD0205	WW0019
CK0066	DC0251	DR0119	GY0055	KY0191	MH0146	SD0217	WW0021
CK0074	DC0254	DR0120	GY0057	KY0194	MH0149	SD0232	WW0024
CK0077	DC0256	DR0121	GY0064	KY0199	MH0152	SD0234	WW0029
CK0084	DC0268	DR0140	GY0070	KY0203	MH0153	SD0243	WW0040
CK0085	DC0272	DR0148	GY0085	KY0207	MH0156	SD0244	WW0041
CK0086	DC0309	DR0184	GY0092	KY0219	MH0159	SD0251	WW0046
CK0096	DC0311	DR0194	GY0115	KY0220	MH0161	SD0261	WW0062
CK0098	DC0315	DR0204	GY0116	KY0228	MH0177	SD0262	WW0068
CK0104	DC0327	DR0207	GY0117	KY0231	MH0183	SD0263	WW0069
CK0105	DC0335	DR0208	GY0118	KY0233	MH0188	SD0283	WW0075
CK0147	DC0384	DR0215	GY0123	KY0244	MH0193	SD0287	WW0076
CK0149	DC0403	DR0217	GY0125	LD0007	MH0195	SD0289	WW0079

CK0150	DC0410	DR0218	GY0149	LD0010	MH0197	SD0292	WW0083
CK0154	DC0419	DR0232	GY0150	LD0014	MH0198	SD0294	WW0090
CK0157	DC0424	DR0237	GY0153	LD0040	MH0201	SD0295	WW0099
CK0164	DC0432	DR0259	GY0154	LD0041	MH0203	SD0296	WW0105
CK0165	DC0435	DR0262	GY0155	LD0042	MH0221	SD0297	WW0107
CK0168	DC0445	DR0263	GY0157	LD0051	MH0229	SD0298	WW0108
CK0169	DC0447	DR0267	GY0158	LD0052	MH0234	SD0304	WW0109
CK0183	DC0473	DR0269	GY0159	LH0004	MH0236	SD0305	WW0110
CK0190	DC0478	DR0283	GY0160	LH0006	MH0237	SD0306	WW0118
CK0194	DC0479	DR0287	GY0162	LH0011	MH0239	SD0307	WW0124
CK0197	DC0482	DR0295	GY0168	LH0014	MH0246	SD0326	WW0137
CK0198	DC0492	DR0297	GY0214	LH0020	MH0249	SD0340	WW0138
CK0213	DC0494	DR0298	GY0221	LH0022	MH0252	SD0345	WW0139
CK0226	DC0500	DR0302	GY0238	LH0029	MH0255	SD0347	WW0141
CK0243	DC0502	DR0303	GY0241	LH0032	MN0021	SD0357	WW0147
CK0264	DC0506	DR0304	KE0001	LH0035	MN0049	SD0360	WW0148
CK0265	DC0507	DR0307	KE0008	LH0053	MN0053	SD0361	WW0149
CK0266	DC0518	DR0314	KE0011	LH0061	MN0055	SD0370	WW0154
CK0270	DC0520	DR0316	KE0017	LH0077	MN0060	SD0373	WW0159
CK0271	DC0522	FL0028	KE0025	LH0078	MN0075	SD0381	WW0161
CK0272	DC0524	FL0029	KE0029	LH0079	MN0079	SD0384	WW0168
CK0274	DC0529	FL0031	KE0035	LH0081	MN0090	SD0390	WW0171
CK0287	DC0531	FL0040	KE0055	LH0090	MN0091	SD0391	WW0172
CK0288	DC0533	FL0045	KE0060	LH0095	MN0096	SD0392	WX0006
CK0314	DC0536	FL0048	KE0064	LH0097	MO0002	SD0393	WX0011
CK0320	DC0561	FL0051	KE0073	LH0099	MO0015	SD0395	WX0040
CK0321	DC0565	FL0052	KE0076	LH0113	MO0018	SD0396	WX0044
CK0326	DC0577	FL0055	KE0078	LH0115	MO0034	SD0398	WX0046
CK0337	DC0584	FL0056	KE0079	LH0121	MO0037	SD0401	WX0052
CK0356	DC0635	FL0063	KE0085	LH0123	MO0056	SD0403	WX0056
CK0403	DC0647	FL0066	KE0087	LH0129	MO0057	SD0404	WX0059
CK0408	DC0653	FL0069	KE0091	LH0134	MO0058	SO0010	WX0061
CK0413	DC0656	FL0076	KE0092	LH0143	MO0059	SO0011	WX0062
CK0414	DC0663	FL0081	KE0093	LH0144	MO0061	SO0018	WX0064
CK0419	DC0675	FL0082	KE0094	LH0158	MO0063	SO0029	WX0070
CK0422	DC0701	FL0085	KE0098	LK0003	MO0065	SO0095	WX0075
CK0464	DC0707	FL0086	KE0099	LK0006	MO0071	SO0097	WX0085
CK0474	DC0718	FL0089	KE0103	LK0021	MO0072	TY0007	WX0086
CK0482	DC0755	FL0093	KE0104	LK0028	MO0073	TY0017	WX0087
CK0493	DC0762	FL0094	KE0110	LK0037	MO0076	TY0020	WX0091
CK0498	DC0766	FL0096	KE0114	LK0043	MO0090	TY0034	WX0092
CK0504	DC0769	FL0099	KE0115	LK0048	MO0095	TY0038	WX0093
CK0507	DC0775	FL0101	KE0117	LK0049	MO0097	TY0041	WX0096
CK0518	DC0782	FL0103	KE0118	LK0053	MO0118	TY0074	WX0097
CK0523	DC0788	FL0110	KE0120	LK0061	MO0121	TY0080	WX0100

CK0549	DC0790	FL0115	KE0123	LK0064	MO0125	TY0089	WX0104
CK0566	DC0793	FL0125	KE0126	LK0066	MO0126	TY0094	WX0105
CK0581	DC0798	FL0126	KE0130	LK0089	MO0127	TY0109	WX0106
CK0582	DC0806	FL0127	KE0131	LK0091	MO0128	TY0110	WX0108
CK0584	DC0807	FL0131	KE0144	LK0099	MO0130	TY0120	WX0117
CN0008	DC0808	FL0133	KE0146	LK0100	MO0136	TY0121	WX0118
CN0016	DC0810	FL0136	KE0151	LK0101	MO0167	TY0122	WX0124
CN0020	DC0811	FL0141	KE0152	LK0106	MO0186	TY0128	WX0138
CN0031	DC0813	FL0149	KE0153	LK0108	MO0187	TY0146	WX0151
CN0064	DC0814	FL0150	KE0156	LK0116	MO0196	TY0153	WX0152
CN0080	DC0815	FL0151	KE0162	LK0121	OY0010	TY0154	WX0164
CN0082	DC0817	FL0152	KE0163	LK0133	OY0019	TY0164	WX0175
CW0006	DC0823	FL0153	KE0164	LK0136	OY0026	TY0166	WX0179
CW0010	DC0824	FL0157	KE0185	LK0138	OY0034	TY0171	WX0181
CW0011	DC0827	FL0158	KE0186	LK0140	OY0055	TY0179	WX0202
CW0018	DC0831	FL0160	KE0195	LK0148	OY0072	TY0181	WX0203
CW0024	DC0832	FL0176	KE0196	LK0152	OY0073	TY0208	WX0210
CW0025	DC0835	FL0191	KE0197	LK0176	OY0085	TY0218	

1.4 MI WDC MARKET 4

Market 4							
CE0025	CK0513	DL0102	GY0211	KY0178	MH0080	OY0052	TY0195
CE0026	CK0516	DL0103	GY0212	KY0180	MH0081	OY0053	TY0196
CE0029	CK0517	DL0105	GY0213	KY0181	MH0086	OY0063	TY0197
CE0030	CK0519	DL0114	GY0215	KY0182	MH0087	OY0065	TY0199
CE0031	CK0520	DL0115	GY0216	KY0183	MH0088	OY0066	TY0200
CE0105	CK0524	DL0116	GY0219	KY0185	MH0091	OY0067	TY0202
CE0107	CK0532	DL0119	GY0220	KY0186	MH0093	OY0068	TY0203
CE0114	CK0533	DL0126	GY0228	KY0192	MH0094	OY0069	TY0204
CE0115	CK0536	DL0135	GY0231	KY0196	MH0104	OY0071	TY0205
CE0117	CK0539	DL0136	GY0232	KY0197	MH0107	OY0080	TY0206
CE0118	CK0540	DL0141	GY0240	KY0202	MH0110	OY0081	TY0213
CE0119	CK0541	DL0142	GY0244	KY0204	MH0112	OY0082	TY0217
CE0120	CK0543	DL0143	GY0245	KY0206	MH0118	OY0083	TY0219
CE0121	CK0544	DL0144	KE0048	KY0216	MH0119	RN0011	TY0220
CE0122	CK0545	DL0147	KE0051	KY0217	MH0120	RN0012	TY0221
CE0130	CK0546	DL0150	KE0052	KY0218	MH0122	RN0018	TY0235
CE0131	CK0558	DL0162	KE0066	KY0221	MH0123	RN0020	TY0236
CE0132	CK0565	DL0164	KE0070	KY0222	MH0125	RN0022	TY0239
CE0133	CK0569	DL0181	KE0071	LD0022	MH0128	RN0023	TY0241
CE0134	CK0571	DL0184	KE0074	LD0023	MH0129	RN0024	TY0246
CE0135	CK0574	DL0189	KE0075	LD0024	MH0135	RN0029	TY0249

CE0137	CK0576	DL0190	KE0077	LD0026	MH0141	RN0033	TY0250
CE0138	CK0577	DL0193	KE0083	LD0027	MH0145	RN0034	TY0253
CE0139	CK0578	DL0194	KE0106	LD0028	MH0155	RN0041	TY0254
CE0143	CN0017	DL0196	KE0108	LD0030	MH0163	RN0042	TY0255
CE0144	CN0018	DL0200	KE0133	LD0033	MH0164	RN0044	TY0256
CE0145	CN0023	DL0202	KE0160	LD0035	MH0165	RN0045	WD0023
CE0146	CN0024	DL0203	KE0165	LD0036	MH0166	RN0052	WD0064
CE0147	CN0025	DL0205	KE0168	LD0038	MH0167	RN0061	WD0112
CE0148	CN0032	DL0207	KE0169	LD0039	MH0170	RN0062	WD0120
CE0151	CN0036	DL0209	KE0170	LD0043	MH0171	RN0064	WD0122
CE0161	CN0037	DL0213	KE0171	LD0044	MH0205	RN0065	WD0140
CE0163	CN0041	DL0216	KE0172	LD0046	MH0206	RN0066	WD0141
CE0166	CN0042	DL0220	KE0173	LD0060	MH0207	RN0067	WD0142
CE0167	CN0043	DL0223	KE0175	LH0082	MH0210	SD0006	WD0143
CE0168	CN0050	DL0224	KE0176	LH0092	MH0212	SD0010	WD0145
CE0169	CN0051	DL0226	KE0180	LH0098	MH0213	SD0012	WD0147
CE0170	CN0052	DR0003	KE0192	LH0102	MH0215	SD0013	WD0153
CE0173	CN0053	DR0006	KE0193	LH0107	MH0216	SD0034	WD0155
CE0175	CN0054	DR0011	KE0207	LH0108	MH0217	SD0057	WD0157
CE0176	CN0057	DR0013	KE0236	LH0109	MH0218	SD0065	WD0161
CE0179	CN0058	DR0044	KE0260	LH0110	MH0222	SD0066	WD0168
CE0180	CN0061	DR0048	KE0261	LH0111	MH0225	SD0068	WD0169
CK0010	CN0065	DR0093	KE0262	LH0116	MH0226	SD0098	WH0040
CK0013	CN0068	DR0100	KE0263	LH0117	MH0228	SD0101	WH0048
CK0031	CN0070	DR0101	KE0264	LH0119	MH0230	SD0102	WH0050
CK0075	CN0072	DR0127	KE0267	LH0160	MH0232	SD0125	WH0058
CK0078	CN0073	DR0128	KE0274	LH0161	MH0233	SD0128	WH0059
CK0082	CN0077	DR0130	KE0275	LH0162	MH0248	SD0129	WH0061
CK0087	CN0078	DR0132	KE0291	LH0163	MN0017	SD0134	WH0064
CK0088	CN0079	DR0133	KE0300	LH0165	MN0023	SD0161	WH0066
CK0095	CN0084	DR0134	KE0301	LH0166	MN0025	SD0170	WH0067
CK0102	CN0104	DR0138	KK0041	LH0168	MN0031	SD0171	WH0068
CK0106	CN0105	DR0139	KK0042	LH0172	MN0032	SD0189	WH0069
CK0110	CN0106	DR0189	KK0048	LH0179	MN0033	SD0192	WH0072
CK0111	CN0107	DR0209	KK0049	LH0182	MN0038	SD0208	WH0074
CK0121	CN0111	DR0213	KK0050	LK0124	MN0039	SD0209	WH0075
CK0123	CN0113	DR0222	KK0051	LK0126	MN0041	SD0210	WH0091
CK0127	CN0114	DR0227	KK0052	LK0131	MN0042	SD0214	WH0093
CK0128	CN0117	DR0228	KK0053	LK0132	MN0046	SD0215	WW0055
CK0133	CN0118	DR0229	KK0054	LK0134	MN0048	SD0227	WW0059
CK0137	CN0119	DR0230	KK0055	LK0135	MN0050	SD0236	WW0060
CK0138	CN0121	DR0257	KK0056	LK0137	MN0056	SD0237	WW0061
CK0139	CW0020	DR0260	KK0066	LK0141	MN0057	SD0240	WW0070
CK0141	CW0027	DR0285	KK0067	LK0145	MN0058	SD0242	WW0072
CK0143	CW0028	DR0311	KK0068	LK0146	MN0059	SD0245	WW0074

CK0144	CW0032	DR0315	KK0069	LK0147	MN0067	SD0248	WW0077
CK0145	CW0054	FL0034	KK0071	LK0153	MN0068	SD0254	WW0088
CK0146	CW0055	FL0035	KK0072	LK0154	MN0069	SD0301	WW0102
CK0166	CW0057	FL0088	KK0073	LK0155	MN0070	SD0302	WW0129
CK0177	CW0058	FL0090	KK0075	LK0158	MN0071	SD0328	WW0135
CK0185	CW0059	FL0091	KK0077	LK0159	MN0073	SD0329	WW0143
CK0186	CW0062	FL0092	KK0079	LK0166	MN0076	SD0343	WW0157
CK0207	CW0063	FL0097	KK0113	LK0167	MN0078	SD0351	WW0158
CK0248	CW0064	FL0116	KK0114	LK0208	MN0080	SD0380	WW0166
CK0249	CW0067	FL0128	KK0115	LK0236	MN0083	SD0400	WW0173
CK0251	CW0068	FL0147	KK0118	LK0237	MN0087	SD0408	WW0174
CK0252	CW0073	FL0154	KK0120	LK0238	MN0088	SD0409	WW0175
CK0253	CW0076	FL0155	KK0122	LK0240	MN0089	SD0412	WW0179
CK0256	CW0079	FL0156	KK0123	LK0242	MN0101	SO0051	WW0182
CK0257	DC0008	FL0162	KK0125	LK0252	MO0042	SO0055	WX0012
CK0276	DC0013	FL0163	KK0126	LK0254	MO0052	SO0057	WX0037
CK0277	DC0031	FL0164	KK0130	LK0255	MO0055	SO0059	WX0038
CK0278	DC0034	FL0183	KK0132	LK0256	MO0067	SO0060	WX0039
CK0325	DC0036	FL0233	KK0133	LK0257	MO0070	SO0061	WX0041
CK0334	DC0039	FL0237	KK0134	LK0265	MO0074	SO0063	WX0042
CK0335	DC0040	FL0240	KK0138	LK0266	MO0078	SO0064	WX0043
CK0341	DC0042	FL0245	KK0141	LK0267	MO0080	SO0070	WX0047
CK0342	DC0056	FL0269	KK0143	LK0270	MO0092	SO0071	WX0049
CK0343	DC0116	GY0012	KK0144	LK0271	MO0093	SO0072	WX0050
CK0345	DC0118	GY0013	KK0147	LK0272	MO0094	SO0076	WX0071
CK0347	DC0120	GY0017	KK0148	LK0273	MO0096	SO0083	WX0073
CK0352	DC0123	GY0023	KK0150	LK0285	MO0100	SO0084	WX0074
CK0353	DC0126	GY0026	KK0159	LK0298	MO0103	SO0087	WX0076
CK0354	DC0141	GY0035	KY0011	LK0301	MO0108	SO0090	WX0077
CK0355	DC0142	GY0036	KY0014	LK0302	MO0111	SO0091	WX0078
CK0359	DC0144	GY0041	KY0031	LK0303	MO0112	SO0094	WX0079
CK0360	DC0153	GY0053	KY0066	LK0304	MO0113	SO0096	WX0082
CK0361	DC0177	GY0056	KY0071	LK0305	MO0114	SO0098	WX0089
CK0370	DC0179	GY0060	KY0072	LK0306	MO0115	TY0043	WX0090
CK0371	DC0216	GY0066	KY0080	LK0308	MO0116	TY0045	WX0102
CK0372	DC0221	GY0067	KY0082	LK0313	MO0117	TY0047	WX0119
CK0377	DC0267	GY0068	KY0083	LK0315	MO0119	TY0048	WX0120
CK0378	DC0283	GY0072	KY0084	LK0316	MO0122	TY0049	WX0122
CK0380	DC0414	GY0075	KY0085	LK0317	MO0137	TY0050	WX0123
CK0382	DC0416	GY0076	KY0086	LM0004	MO0143	TY0051	WX0125
CK0385	DC0438	GY0078	KY0089	LM0014	MO0144	TY0052	WX0127
CK0388	DC0439	GY0083	KY0090	LM0018	MO0147	TY0053	WX0128
CK0390	DC0442	GY0084	KY0091	LM0022	MO0157	TY0055	WX0129
CK0392	DC0484	GY0086	KY0100	LM0027	MO0158	TY0057	WX0130
CK0393	DC0488	GY0087	KY0101	LM0029	MO0160	TY0058	WX0133

CK0395	DC0505	GY0100	KY0104	LM0037	MO0161	TY0061	WX0134
CK0400	DC0512	GY0101	KY0106	LM0039	MO0163	TY0062	WX0135
CK0406	DC0660	GY0103	KY0107	LM0042	MO0164	TY0063	WX0136
CK0407	DC0679	GY0106	KY0109	LM0044	MO0165	TY0065	WX0144
CK0409	DC0680	GY0108	KY0115	LM0045	MO0168	TY0066	WX0145
CK0412	DC0682	GY0109	KY0117	LM0046	MO0170	TY0070	WX0147
CK0427	DC0760	GY0113	KY0119	LS0004	MO0171	TY0071	WX0149
CK0429	DC0764	GY0114	KY0122	LS0009	MO0182	TY0072	WX0150
CK0432	DC0781	GY0121	KY0123	LS0011	MO0183	TY0078	WX0159
CK0433	DC0783	GY0122	KY0124	LS0012	MO0188	TY0079	WX0160
CK0436	DC0789	GY0124	KY0126	LS0015	MO0189	TY0081	WX0161
CK0437	DC0796	GY0134	KY0128	LS0016	MO0191	TY0095	WX0162
CK0438	DC0816	GY0135	KY0129	LS0020	MO0193	TY0099	WX0163
CK0440	DC0826	GY0136	KY0132	LS0030	MO0195	TY0100	WX0169
CK0441	DC0828	GY0140	KY0134	LS0034	MO0199	TY0102	WX0176
CK0443	DC1019	GY0145	KY0137	LS0035	MO0200	TY0103	WX0177
CK0445	DL0033	GY0147	KY0152	LS0041	OY0029	TY0105	WX0178
CK0448	DL0047	GY0151	KY0153	LS0042	OY0036	TY0107	WX0180
CK0458	DL0049	GY0173	KY0157	LS0046	OY0037	TY0108	WX0184
CK0460	DL0066	GY0175	KY0159	LS0098	OY0038	TY0172	WX0185
CK0461	DL0067	GY0176	KY0165	LS0099	OY0039	TY0174	WX0187
CK0462	DL0077	GY0180	KY0166	LS0100	OY0040	TY0175	WX0191
CK0465	DL0083	GY0188	KY0167	LS0102	OY0041	TY0176	WX0194
CK0466	DL0084	GY0196	KY0168	MH0006	OY0044	TY0177	WX0195
CK0473	DL0085	GY0197	KY0169	MH0031	OY0046	TY0178	
CK0485	DL0086	GY0198	KY0170	MH0032	OY0047	TY0184	
CK0487	DL0090	GY0203	KY0172	MH0033	OY0048	TY0186	
CK0488	DL0093	GY0205	KY0174	MH0034	OY0051	TY0188	
CK0489	DL0094	GY0209	KY0175	MH0060	OY0052	TY0192	
CK0490	DL0099	GY0210	KY0176	MH0078	OY0053	TY0194	

SCHEDULE 2
AGGREGATION REGIONS
TRUNK NODE EXCHANGES AND NON-TRUNK NODE EXCHANGES –

2.1 AGGREGATION REGIONS

Region No.	PE Node 1 Location	PE Node 2 Location
1	Beggars Bush (BBH)	Priory Park (PRP)
2	Blanchardstown (BDT)	Finglas (FNG)
3	Belcamp (BLP)	Summerhill (SRL)
4	Nangor Road, Clondalkin (CLD)	Dolphins Barn (DBN)
5	Churchfield (CHF)	Quaker Road (QKR)
6	Limerick (LMK)	Mallow (MLW)
7	Limerick (LMK)	Portlaoise (PGS)
8	Mervue (MVW)	Shantalla (SLA)
9	Priory Park (PRP)	Waterford (WTD)
10	Bridgend (BGE)	Rathedmond, Sligo (RTD)
11	Drogheda (DBC)	Mullingar (MGR)
12	Roslevin, Athlone (RSL)	Rathedmond, Sligo (RTD)

2.2 TRUNK NODES

[See Annex 8: Table 22]

2.3 NON-TRUNK NODES

[See Annex 8: Table 23]

SCHEDULE 3
WPZ MOVING ZONES SINCE 2020

Table A: WPZ MOVING FROM ZONE B TO ZONE A

[See Annex 9]

Table B: WPZ MOVING FROM ZONE A TO ZONE B

[See Annex 9]

SCHEDULE 4

DEFINITION OF KPI METRICS

22. WDC orders

22.1 In each Data Collection Period Eircom shall collect data and calculate the following metrics on a quarterly basis in respect of WDC orders:

Supply time

Metric 205. The total number of supplied (completed) WDC orders

Metric 206. The average supply time in working days for standard, project and non-standard designated orders for all WDC Orders

Metric 207. The average supply time in working days for standard, project and non-standard designated orders for 97.5% of WDC Orders (2.5% of orders with the longest supply times discarded)

Designation of WDC orders

Metric 208. The number of WDC Orders categorised respectively as standard, project and non-standard

Metric 209. The percentage of Orders categorised respectively as standard, project and non-standard

Fault Repair

Metric 210. Number of faults (excluding non-faults and co-op faults) reported on Zone B MI WDC access services repaired within 8, 24 and after 24 working hours (WHs)

Metric 211. Percentage of faults (excluding non-faults and co-op faults) reported on Zone B MI WDC access services repaired respectively within 8, 24 and after 24 working hours, of all faults repaired

22.2 Metric 205, 208 and 210 shall be reported to ComReg only; they shall be kept confidential and shall not be published.

23. Interconnection services

23.1 In each Data Collection Period Eircom shall collect data and calculate the following metrics on a quarterly basis in respect of Interconnection Services:

Fault Repair

Metric 212. Number of faults (excludes non-faults and co-op faults) reported on MI WDC Interconnection services repaired respectively within 8, 24 and after 24 clock hours (CHs)

Metric 213. Percentage of faults (excludes non-faults and co-op faults) reported on MI WDC Interconnection services repaired respectively within 8, 24 and after 24 clock hours, of all faults repaired

Supply

Metric 214. The total number of completed Interconnection Services orders

Metric 215. The average supply time in working days for standard, project and non-standard designated orders for all Interconnection Services orders

Metric 216. The average supply time in working days for standard, project and non-standard designated orders for 97.5% of Interconnection Services orders (2.5% of orders with the longest supply times discarded)

Designation of Interconnection orders

Metric 217. The number of completed Interconnection Services orders categorised respectively as standard, project and non-standard;

Metric 218. The percentage of Interconnection Services orders categorised respectively as standard, project and non-standard

22.2 Metric 212, 214 and 217 shall be reported to ComReg only; they shall be kept confidential and shall not be published.

SCHEDULE 5
KPI REPORTS (TABLES)

Table 19

Supply of Zone B MI WDC Access Services (excl. Dark Fibre) including order categorisation										
Metric No.	Metric Description	Equivalent for Eircom Retail				Available to Access Seeker				ComReg only Y/N
		STD	Proj	NSTD	Total	STD	Proj	NSTD	Total	
205 208	Number of completed WDC Orders									Y
206	Average supply time of completed orders in working days									N
207	Average supply time of 97.5% of completed orders									N
209	Percentage of orders per category									N

Table 20

Zone B MI WDC Orders (excl. Dark Fibre) – Fault Repair										
Metric No.	Metric Description	Equivalent for Eircom Retail				Available to Access Seeker				ComReg only Y/N
		<8 WHs	<24 WHs	>24 WHs	Total	<8 WHs	<24 WHs	>24 WHs	Total	

210	Number of faults repaired									Y
211	Percentage of faults repaired per category									N

Table 21

MI WDC Interconnection Services – Repair										
Metric No.	Metric Description	Equivalent for Eircom Retail				Available to Access Seeker				ComReg only Y/N
		<8 CHs	<24 CHs	>24 CHs	Total	<8 CHs	<24 CHs	>24 CHs	Total	
212	Number of faults repaired									Y
213	Percentage of faults repaired per category									N

Table 22

MI WDC Interconnection Services - Supply										
Metric No.	Metric Description	Equivalent for Eircom Retail				Available to Access Seeker				ComReg only Y/N
		STD	Proj	NSTD	Total	STD	Proj	NSTD	Total	
214 217	Number of completed Interconnection Services Orders									Y
215	Average supply time of completed orders in working days									N
216	Average supply time of 97.5% of completed orders									N
218	Percentage of Interconnection Services orders									

	categorised respectively as standard, project and non-standard										N
--	--	--	--	--	--	--	--	--	--	--	---

Annex: 2 Sensitivity Test on the Proportionality Criterion

A 2.1 In considering the proportionality criterion, ComReg conducted a sensitivity analysis using the H1 2023 data. Table 19 below demonstrates the differences between a proportionality criterion of 75%, 65%, 60% and 50%. We find that the changes are relatively small when the percentage was gradually reduced. There is a 3% increase in the number of Zone A CPs when the proportionality is reduced from 75% to 65%, and a further 0.8% increase in Zone A CPs when the proportionality criteria is reduced to 60%. When the proportionality is reduced further to 50% criterion, there is a further 4.2% increase in the number of Zone A CPs.

Table 19: Proportionality Criterion Comparison (Number of Connected Premises)

Zone	75%	65%	60%	50%
Zone A	8,386 (60.3%)	8,804 (63.3%)	8,914 (64.1%)	9,499 (68.3%)
Zone B	5,516 (39.7%)	5,098 (36.7%)	4,988 (35.9%)	4,403 (31.7%)
Total	13,902	13,902	13,902	13,902

A 2.2 ComReg also conducted a sensitivity analysis on the changes of SP market shares at each of the proportionality criteria (see Table 20 and Table 21). We find that the market shares are not overly sensitive to changes in the proportionality criterion. The largest difference in market shares across the criteria being a 4% increase for [REDACTED] [REDACTED] %].

Table 20: Proportionality Criterion Comparison (Market Shares Zone A) [REDACTED] PARTIALLY REDACTED [REDACTED]

Operator	75%	65%	60%	50%
Aurora	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
BT	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Colt	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Digiweb	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Eircom	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Enet	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
ESBT	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
EUNetworks	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hibernia	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Host	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

SIRO	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Verizon	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Viatel	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Virgin Media	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Vodafone	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Zayo	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Table 21: Proportionality Criterion Comparison (Market Shares Zone B) [REDACTED PARTIALLY REDACTED]

Operator	75%	65%	60%	50%
Aurora	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
BT	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Colt	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Digiweb	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Eircom	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Enet	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
ESBT	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
EUNetworks	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hibernia	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Host	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
SIRO	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Verizon	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Viatel	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Virgin Media	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Vodafone	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Zayo	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

A 2.3 The sensitivity analyses demonstrate that the application of the two assessment criteria, namely whether 60% of connected premises are within 50 meters of 2 or more ANs, are not overly sensitive to small changes in the proportionality criterion itself.

Annex: 3 List of Business Parks

ID	Name
CAVN_001	Century Business Park, Cavan
CARL_001	Strawhill Industrial Estate
CARL_002	Barrowside Business Park
CARL_003	St. Patricks College
CARL_004	Kernanstown Industrial Estate
CARL_005	Institute of Technology
CLAR_001	Smithstown Industrial Estate
CLAR_002	Shannon Free Zone
CLAR_003	Gort Road Industrial Estate, Ennis
CORK_001	Mallow Road Industrial Area
CORK_002	Kilnap Business & Technology Park (part of Mallow Rd. Industrial Area)
CORK_003	Kilbarry Business & Technology Park
CORK_004	Hollymount Industrial Estate
CORK_005	Hollyhill Industrial Estate
CORK_006	EMC Campus, Ballincollig (IDA Industrial Estate, Barnagore)
CORK_007	Ballincollig Technology Park
CORK_008	Barrack Square, Ballincollig
CORK_009	IDA Cork Business & Technology Park, Model Farm Road
CORK_010	Cork Institute of Technology
CORK_011	University Technology Centre, Curraheen Road
CORK_012	UCC Cork (Main & West Campuses)
CORK_013	Wilton Shopping Centre
CORK_014	Cleve Business Park, Ballintemple
CORK_015	Tivoli Industrial Estate
CORK_016	Riverview Business Park, Mahon
CORK_017	Mahon Industrial Estate
CORK_018	Heritage Business Park, Mahon, Cork (part of Mahon Industrial Estate)
CORK_019	Longmahon Technology Park
CORK_020	Voxpro Campus, Mahon
CORK_021	National Software Campus, Mahon
CORK_022	City Gate Business Park
CORK_023	Mahon Point Shopping Centre
CORK_024	Eastgate Business Park, Little Island
CORK_025	Cork Plastics Campus, Little Island
CORK_026	Wallingstown Industrial Area, Little Island
CORK_027	Waterfront Business Park, Little Island
CORK_028	Euro Business Park, Little Island
CORK_029	Little Island Industrial Estate
CORK_030	IDA Business & Technology Park, Carrigtwohill

CORK_031	South Cork Industrial Estate
CORK_032	Youngline Industrial Estate, Pooladuff
CORK_033	Sitecast Industrial Estate, Togher
CORK_034	Pooladuff Industrial Estate
CORK_035	Leghanamore Industrial Estate
CORK_036	Forgehill Industrial Estate
CORK_037	Metro Business Park, Ballycurreen Road
CORK_038	South Link Park,
CORK_039	Ballycurreen Industrial Estate
CORK_040	Cork Airport
CORK_041	Cork Airport Business Park
CORK_042	Pfizer, Ringaskiddy
CORK_043	Port of Cork Deepwater Berth, Ringaskiddy
CORK_044	Janssen, Ringaskiddy
CORK_045	Novartis, Ringaskiddy
CORK_046	Raheen East Industrial Area, Ringaskiddy
CORK_047	Ringport, Ringaskiddy
CORK_048	DePuy, Ringaskiddy
CORK_049	Hovione Loughbeg, Ringaskiddy
CORK_050	GlaxoSmithKline, Ringaskiddy
CORK_051	Kilnagleary Business Park, Carrigaline
CORK_052	Estuary Industrial Estate, Carrigaline
CORK_053	Carrigaline Industrial Estate, Carrigaline
CORK_054	Togher Industrial Estate, Ferrero Ireland, Grange Industrial Estate
CORK_055	Churchfield Industrial Estate
CORK_056	IDA Business and Technology Park, Mallow
DONE_001	Pine Hill Industrial Estate
DONE_002	Letterkenny Office Park, Windy Hall
DONE_003	IDA Business & Technology Park
DONE_004	Ballyraine Industrial Estate
DONE_005	Letterkenny Institute of Technology
DUBL_001	Turvey Business Park
DUBL_002	Redleaf (Roseville) Business Park
DUBL_003	Swords Business Park
DUBL_004	Airside Retail & Business Park, Swords
DUBL_005	Dublin Airport
DUBL_006	North Ring Business Park, Santry D.9
DUBL_007	Dublin Airport Business Park, Santry D.9
DUBL_008	Woodford Business Park D.9
DUBL_009	Furry Park Industrial Estate, Santry D.9
DUBL_010	Airport Business Campus, Santry D.9
DUBL_011	Airways Business Park, Santry, D.9

DUBL_012	Clonsaugh/Willsborough Business Park D.17
DUBL_013	Northwood Business Park, Santry, D.9
DUBL_014	Northern Cross, Malahide Road D.17
DUBL_015	Dublin City University Glasnevin Campus D.9
DUBL_016	Dublin City University Saint Patrick's Campus D.9
DUBL_017	Dublin City University All Hallows Campus D.9
DUBL_018	Dublin City University, Mater Dei Campus D.3
DUBL_019	DIT Bolton St. D1
DUBL_020	DIT College of Catering and Tourism, Cathal Bruagh St. D.1
DUBL_021	East Point Business Park D.3
DUBL_022	Dublin Port D.1
DUBL_023	Docklands Innovation Park, East Wall Road, D.3
DUBL_024	I.F.S.C. D.1
DUBL_025	Dublin Docklands (Northside D.1)
DUBL_026	Dublin Docklands (Southside D.2 & D.4)
DUBL_027	Grand Canal Square, D.2 (part of South Docklands)
DUBL_028	Trinity Technology and Enterprise Campus D.2
DUBL_029	Trinity College, Dublin D.2
DUBL_030	RIAM Westland Row, D.2
DUBL_031	IDA Centre, Newmarket, D.8
DUBL_032	National College of Art & Design, Thomas Street D.8
DUBL_033	Dublin Institute of Technology, Faculty of Business, Aungier St. D.2
DUBL_034	RCSI St. Stephens Green D.2
DUBL_035	Dublin Institute of Technology Kevin Street Campus D.8
DUBL_036	CDET B Camden Row D.8
DUBL_037	Dublin Institute of Advanced Studies, Burlington Rd D.4
DUBL_038	IPA (Institute of Public Administration) Landsdowne Rd. D4
DUBL_039	Radio Telefis Eireann Montrose Campus, Donnybrook D.4
DUBL_040	University College Dublin (Belfield Campus) D.4
DUBL_041	Glenview Industrial Estate, Herbeton Drive, D.8
DUBL_042	Goldenbridge Industrial Estate D.8
DUBL_043	Park West Business Park D.22
DUBL_044	Nangor Road Business Park, Nangor Road D.12
DUBL_045	Riverview Business Park, Nangor Road D,12
DUBL_046	John Kennedy Industrial Estate D.12
DUBL_047	Old Naas Road Industrial Area, Bluebell D.12
DUBL_048	Naas Road Industrial Park, Old Naas Road D.12
DUBL_049	Aldi (and adjacent commercial areas), Long Mile Road, D.12
DUBL_050	Robinhood Industrial Estate D.12
DUBL_051	Lwr. Ballymount Business Area, Nth.D.12
DUBL_052	Lwr. Ballymount Business Area, Sth.D.12
DUBL_053	Ballymount Drive Business Area D.12

DUBL_054	Western Parkway Business Centre D.22
DUBL_055	Westway Business Centre, Ballymount D.12
DUBL_056	Ballymount Cross Industrial Estate D.22
DUBL_057	Crosslands Business Park, Ballymount D.22
DUBL_058	Crossbeg Industrial Estate, Ballymount D.22
DUBL_059	Westgate Business Park, Ballymount D.22
DUBL_060	M50 Business Park, Ballymount, D.22
DUBL_061	Fashion City, Ballymount D.22
DUBL_062	Cookstown Industrial Estate, Tallaght D.24
DUBL_063	Belgard Retail Park, Belgard Rd. D.24
DUBL_064	Institute of Technology, Tallaght D.24
DUBL_065	The Square, Tallaght, D.24 (Inc. Belgard Squares)
DUBL_066	Grangecastle Business Park
DUBL_067	Kilcarberry Business Park D.22
DUBL_068	Profile Park D.22
DUBL_069	Baldonnell Business Park, Naas Rd
DUBL_070	Citywest Business Park D.24
DUBL_071	Stillorgan Industrial Park D.18
DUBL_072	Sandyford Industrial Estate D.18
DUBL_073	Central Park, Leopardstown, D.18
DUBL_074	Mountain View Business Park, Leopardstown, D. 18
DUBL_075	South County Business Park, Leopardstown D.18
DUBL_076	Deansgrange Business Park
DUBL_077	Dun Laoghaire College of Art & Design
DUBL_078	The Park, Carrickmines D.18
DUBL_079	Cherrywood Business Park D.18
DUBL_080	Bristol Myers Squibb, Cruiserath D.15
DUBL_081	Blanchardstown Corporate Park D.15
DUBL_082	College Business & Technology Park, Blanchardstown D.15
DUBL_083	Institute of Technology Blanchardstown D.15
DUBL_084	Blanchardstown Business & Technology Business Park D.15
DUBL_085	IDA Ballycoollin Business Park D.15
DUBL_086	Northwest Business Park D.15
DUBL_087	Millennium Business Park Blanchardstown D.15
DUBL_088	Rosemount Business Park, Blanchardstown D.15
DUBL_089	Keypoint Business Park Blanchardstown D.15
DUBL_090	Stadium Business Park, Blanchardstown D.15
DUBL_091	Premier Business Park, Blanchardstown D.15
DUBL_092	Damastown Industrial Park D.15
DUBL_093	Plato Business Park, Mullhuddart D.15
DUBL_094	BASE Enterprise Park, Mullhuddart D.15
DUBL_095	Damastown Technology Park, Damastown Walk D.15

DUBL_096	Kepak, Damastown D.15
DUBL_097	Blanchardstown
DUBL_098	Dublin Airport Logistics Park
DUBL_099	Whitestown and South City Business Park, D24
DUBL_100	Hibernian Industrial Estate, Tallaght D24
DUBL_101	Tesco Distribution Centre, Donabate
DUBL_102	Northern Cross Business Park and North Park Industrial Estate, Finglas, Dublin 11.
DUBL_103	North Road, Jamestown Road and Poppintree, Fingal Dublin 11
DUBL_104	Amazon Mulhuddart, D15
DUBL_105	Beach Hill Office Campus and Richview Office Park, D4
DUBL_106	Dundrum Town Centre, D16
DUBL_107	Cherrywood Business Park Extension
DUBL_108	Liffey Valley Shopping Centre
DUBL_109	Fonthill Business Park
GALW_001	IDA Loughrea Business and Technology Park
GALW_002	East Point Business Park
GALW_003	Raheen Industrial Estate
GALW_004	Ballinasloe Enterprise & Technology Centre
GALW_005	Westside Shopping Centre
GALW_006	Westside Enterprise Park
GALW_007	University College Galway Campus
GALW_008	Liosban Industrial Estate, Tuam Road
GALW_009	Mervue Industrial Estate
GALW_010	Galway Financial Services Centre, Moneenageisha
GALW_011	IDA Business Park, Dangan
GALW_012	Ballybane Industrial Estate
GALW_013	Ballybrit Industrial Estate
GALW_014	Cityeast (Business Park, Ballybrit)
GALW_015	Ballibrit Industrial Estate Upper
GALW_016	Galway/Mayo Institute of Technology (GMIT), Dublin Road
GALW_017	Parkmore Industrial Estate
GALW_018	Galway Technology Park
GALW_019	Briarhill Business Park
GALW_020	Oranmore Business Park
GALW_021	Deerpark Industrial Estate, Oranmore
GALW_022	Westlink Industrial Park. Oranmore
GALW_023	Thermo King and Medtronic, Galway
GALW_024	Northpoint Retail Centre and City North Business Park
GALW_025	Tuam Business and Technology Park, Co. Galway
KERR_001	Clieveragh Business Park
KERR_002	Monavalley Industrial Estate
KERR_003	IT Tralee & Kerry Technology Park

KERR_004	Tralee Business Park, (Clash Business Park)
KERR_005	Woodlands Industrial Estate
KERR_006	Ballyspillane Industrial Estate
KILD_001	Colinstown Industrial Park
KILD_002	Colinstown Business Park
KILD_003	Ryebrook Business Park
KILD_004	Liffey Park Technology Campus
KILK_001	Hebron Industrial Estate
KILK_002	Cillín Hill (Retail & Business Park)
KILK_003	Ormonde Business Park
KILK_004	Kilkenny Industrial and Business Park, Purcellsinch
KILK_005	Kilkenny Retail & Business Park
KILK_006	Kilkenny Business & Technology Park, Loughboy
KILK_007	Danville Business Park
KILK_008	Newpark Shopping Centre Killkenny
LAOI_001	Portlaoise College
LAOI_002	Kea-Lew Business Park
LAOI_003	Clonminam Business Park
LAOI_004	Portlaoise Retail Park
LAOI_005	Lismard Business Park
LIME_001	Limerick IT
LIME_002	UL Limerick
LIME_003	Plassey park Industrial/Commercial Parks
LIME_004	Cook Ireland, Castletroy
LIME_005	Vistakon, Plassey
LIME_006	Cornacree Business Park, Dock Road
LIME_007	Limerick Docks, Dock Road
LIME_008	Mary Immaculate College, SCR
LIME_009	Limerick Enterprise Development Partnership, Roxboro
LIME_010	Galvone Industrial Estate
LIME_011	Crossagalla Business Park
LIME_012	Ballysimon North
LIME_013	East Link (& Monaclone Business) Parks, Ballysimon
LIME_014	Ballysimon South
LIME_015	Garryglass Industrial Estate, Ballysimon
LIME_016	City East Retail Park, Ballysimon
LIME_017	Crescent Shopping Centre, Dooradoyle
LIME_018	Raheen Industrial Estate
LIME_019	Annacotty Business Park
LIME_020	Jetland Shopping Centre Limerick
LIME_021	Castletroy Retail Park Limerick
LIME_022	Crossagalla Business Park Limerick

LONG_001	N4 Retail & Business Park
LONG_002	Longford Business & Technology Park, Lisnamuck
LONG_003	IDA Business & Technology Park, Ballinalee
LONG_004	Townspark Industrial Estate
LOUT_001	Northlink Retail Park
LOUT_002	Coes Road Industrial Estate
LOUT_003	The Brewery Business Park
LOUT_004	Dundalk IT
LOUT_005	Finnabair industrial Park (IDA Business Park)
LOUT_006	Xerox Business Park
LOUT_007	Donore Road Industrial Estate
LOUT_008	Newgrange Business Park
LOUT_009	The Marshes Shopping Centre, Dundalk
LOUT_010	Boyne Business Park, Drogheda
MAYO_001	Ballina Beverages Campus
MAYO_002	Hollister Business Park, Rehins
MAYO_003	IDA Business Park
MAYO_004	Claremorris Retail Centre
MAYO_005	Clar Industrial Estate
MAYO_006	Lakeside Retail Park
MEAT_001	Ballmoral Industrial Estate
MEAT_002	Mullaghboy Industrial Estate
MEAT_003	Beechmount Industrial Estate
MEAT_004	Navan Business and Technology Park, Athlumney
MEAT_005	Oaktree Business Park
MEAT_006	Facebook Clonee Datacentre
MEAT_007	Dunboyne Business Park
MEAT_008	Bracetown Business Park
MEAT_009	Meta Data Centres Clonee
MEAT_010	Ashbourne Business Park, Ashbourne Industrial Estate and Ashbourne Business Centre
OFFA_001	Axis Business Park
OFFA_002	Burlington Business Park
OFFA_003	Srah IDA Business & Technology Park
OFFA_004	Central Business Park, Clonminch Road
ROSC_001	IDA Business & Technology Park
SLIG_001	Finisklin Industrial Estate
SLIG_002	Sligo Institute of Technology
SLIG_003	Abbott and AbbVie, Sligo
TIPP_001	Ard Gaoithe Business Park
TIPP_002	Cashel Road Industrial Estate
TIPP_003	Carrigeen Business Park
TIPP_004	Gurtnafleur Business Park

WATE_001	Waterford Institute of Technology, West Campus
WATE_002	Westside Business Park
WATE_003	Waterford Business Park, Cork Road
WATE_004	Waterford Industrial Estate, Cork Road
WATE_005	Cleaboy Business Park
WATE_006	Waterford Institute of Technology, Cork Road Campus
WATE_007	Six Crossroads Business Park
WATE_008	Kingsmeadow Business Park
WATE_009	Tramore Road Business Park
WATE_010	Ardkeen Shopping Centre
WATE_011	Sanofi Waterford, Waterford City
WEST_001	Monksland Industrial Area
WEST_002	Westpoint Business Park, Tuam Road
WEST_003	Cornamaddy Business Area (Dept. of Education & Science & Covidien sites)
WEST_004	Blyry Industrial Estate
WEST_005	Athlone Institute of Technology
WEST_006	Athlone Business & Technology Park, Garrycastle
WEST_007	Mullingar Business Park
WEST_008	Lough Sheever Corporate Park
WEST_009	Robinstown Business Park
WEXF_001	Ardcavan Business Park
WEXF_002	Whitemill Industrial estate
WEXF_003	Kerlogue Business Park
WEXF_004	Kerlogue & Stanfield Business Area
WEXF_005	Wexford Business and Technology Park
WEXF_006	Wexford Business and Technology Park Extension

Annex: 4 Sequence of the Algorithm for Applying Geographic Assessment Criteria

- A 4.1 The following sets out the steps that are followed in applying the algorithm for the geographic assessment criteria.
- (a) **Step 1:** identify WPZs that contain at least 1 connected premises. Conduct the tests set out in Steps 2 – 4 below.
 - (b) **Step 2:** apply the 50m distance and 60% proportionality criteria and designate those WPZs that meet these criteria as in Area A1.
 - (c) **Step 3:** If a WPZ does not pass the test in Step 2, apply the Business Park criterion and designate those WPZs that pass the test as falling in Area A2.
 - (d) **Step 4:** if a WPZ does not pass Step 2 or Step 3, apply the Islands criterion and designate those WPZs that meet the criterion as falling in Area A3.
- A 4.2 The remaining WPZs with connected premises are then designated as falling within Area B1.
- A 4.3 For WPZs that contain no connected premises, the distance and proportionality criteria cannot be applied. The criterion we use to identify geographic differences in competition conditions for these WPZs is whether the WPZ intersects with at least 2 ANs. The steps at this point are set out below.
- (e) **Step 5:** Determine if a WPZ with no connected premises is intersected by at least two ANs, and if so, designate the WPZ as falling in Area A4.
 - (f) **Step 6:** Apply Islands criteria in the remaining WPZs and designate those that meet the criteria as falling in Area A5.
- A 4.4 The remaining WPZs with no connected premises are then designated as falling in Area B2.
- A 4.5 To take account of the impact of NBI rollout (and thus network presence) in the IA, further steps were conducted in Area B1 and B2 to assess if NBI's future presence may materially impact the competitive conditions across WPZs:
- (g) **Step 7:** in Area B1, ComReg considers that NBI network is present at a CP if the CP is on the NBI list of premises and treat NBA as an AN at this CP. ComReg then applies the criteria, i.e., at least 60% of the CPs are within 50 metres of 2 or more Ans. WPZs that pass the criteria are redesignated to Area A6.

- (h) **Step 8:** in Area B2, ComReg considers that NBI network is present at a WPZ if that WPZ contains business premises⁴⁰⁴ that are on the NBI list of premises. This is based on (1) the obligation NBI has under the NBP contract to provide LL products to all premises on their list, and (2) residential premises are unlikely to require LL services. ComReg then conduct the 2 AN test and redesignate those WPZs that pass the test as in Area A7.

⁴⁰⁴ ComReg uses NACE codes to determine if a premises on the NBI list is a business premises. Those premises that have a specific NACE code indicate that economic activity are carried out at these premises. They can therefore be considered business premises. Further, we note that we exclude agricultural businesses from the list as they are mostly small farming businesses and are unlikely to require LL services.

Annex: 5 **Full list of WPZs**

A 5.1 Please see the separate ComReg Document 24/92a, which is an Excel spreadsheet containing the list of WPZs.

Annex: 6 Map of WPZs

A 6.1 Please see the separate link below to a map showing each WPZ and whether it is in the Zone A MI WDC Markets or Zone B MI WDC Markets.

<https://lease-line-comreg.hub.arcgis.com/>

Annex: 7 Other Factors for SMP Assessment

A 7.1 As noted in paragraph 5.11, ComReg has considered other factors that could be used to indicate the potential market power of an SP but which, for the reasons set out below, are considered of little or no relevance for the purposes of the SMP assessment in the Relevant WDC Markets.

Technological advantages or superiority

A 7.2 Technological advances or superiority can represent a barrier to entry as well as conferring the ability for an SP to achieve cost or production advantages or efficiencies over its competitors. However, the technologies used to provide WLA and WCA have little or no bearing on the assessment of SMP in the Relevant WLA and WCA Markets. In particular, it appears that any technological advancement made by one operator could, from a purely technological point of view, be adopted over time by others. For example, ethernet and WDM technologies are not proprietary technologies, and are available to all operators seeking to provide WDC and retail services. This criterion is, therefore, considered of less relevance in the Relevant WDC Markets.

Easy or privileged access to capital markets/financial resources

A 7.3 Easy or privileged access to capital markets may act as a barrier to entry in markets where small, private companies compete with a large incumbent in the WDC markets and are not able to leverage sufficient finance to invest in alternative infrastructure and use it to compete effectively with the incumbent.

A 7.4 ComReg considers that this is unlikely to be a factor in the WDC markets, considering that the main potential entrants are subsidiaries of large parent companies. e.g. BT, Virgin Media, SIRO, Vodafone and NBI. These SPs are equally able to access capital markets and are therefore not at a disadvantage relative to the incumbent. This criterion is, therefore, considered of little or no relevance.

A highly developed distribution and sales network

A 7.5 The need to establish distribution systems might delay short term market entry or expansion, given the costs involved and could act as a barrier to entry. However, entry into the WDC Markets is unlikely to involve establishing extensive distribution and sales networks, since there are only a small number of potential wholesale customers. Therefore, this is unlikely to represent a significant barrier to entry in the WDC markets.

Annex: 8 List of Eircom Trunk and Non-Trunk Nodes

Table 22: List of Eircom Trunk Nodes

Eircom Trunk Nodes									
1	AKW	Arklow	45	CWT	Citywest	89	NAS	Naas	
2	ARD	Ardee	46	DBC	Drogheda	90	NMK	Newtownmtkennedy	
3	ATD	Athlunkard	47	DBN	Dolphins Barn	91	NMN	North Main	
4	ATY	Athy	48	DBT	Donabate	92	NUT	Nutley	
5	AUV	Navan	49	DDK	Dundalk	93	NWT	Newcastle West	
6	BBH	Beggars Bush	50	DDM	Dundrum	94	PGS	Portlaoise	
7	BDT	Blanchardstown	51	DEZ	Dunboyne	95	PHB	Phibsboro	
8	BGE	Bridgend	52	DGL	Donegal	96	PKW	Park West	
9	BLA	Ballina	53	DGS	Douglas	97	PMK	Portmarnock	
10	BLB	Ballyboden	54	DNU	Droichead Nua	98	PRP	Priory Park	
11	BLP	Belcamp	55	DSN	Dunshaughlin	99	QKR	Quaker Road	
12	BLR	Dundalk Blackrock	56	DVA	Dungarvan	100	RCM	Roscommon	
13	BNC	Ballincollig	57	DYX	Dennehys Cross	101	RMS	Rathmines	
14	BOF	Ballybofey	58	ENS	Ennis	102	ROC	Rochestown	
15	BRE	Ballinrobe	59	EPT	Eastpoint	103	RSA	Roscrea	
16	BRI	Bray	60	ETY	Enniscorthy	104	RSL	Roslevin	
17	BRN	Balbriggan	61	FBK	Ferrybank	105	RTD	Rathedmond	
18	BSE	Ballinasloe	62	FNG	Finglas	106	RTH	Ratoath	
19	BSN	Blessington	63	FOX	Foxrock	107	RUS	Rush	
20	BUA	Buncrana	64	GAL	Galway	108	SAN	Santry	
21	CAB	Cabra	65	GRY	Gorey	109	SHN	Shannon Town	
22	CAE	Clane	66	HSQ	Heuston South Quarter	110	SHP	Ship Street	
23	CAV	Cavan	67	HYD	Hettyfield	111	SKB	Skibbereen	

24	CBR	Castlebar	68	KLE	Kildare	112	SKL	Shankill
25	CCS	Carrickmacross	69	KLN	Killarney	113	SKS	Skerries
26	CEE	Clonee	70	KNY	Kilkenny	114	SLA	Shantalla
27	CEL	Celbridge	71	KOK	Kilcock	115	SND	Sandyford
28	CGI	Carrigaline	72	KSL	Kinsale	116	SNH	Sandyford Aeh
29	CHD	Caherdavin	73	LCN	Lucan Ballydowd	117	SRD	Swords
30	CHF	Churchfield	74	LED	Little Island	118	SRL	Summerhill
31	CHT	Carrigtwohill	75	LGA	Loughrea	119	STN	Sutton
32	CKC	Cork Central	76	LKD	Dooradoyle	120	THS	Thurles
33	CLD	Nangor Road	77	LKY	Letterkenny	121	TLH	Tallaght
34	CLK	Coolock	78	LMK	Limerick	122	TLM	Tullamore
35	CLM	Clonmel	79	LOD	Longford	123	TPR	Tipperary
36	CLT	Clontarf	80	MAH	Mahon	124	TRM	Trim
37	CRL	Crumlin	81	MDN	Midleton	125	TWV	Tralee
38	CRW	Carlow	82	MER	Merrion	126	TYC	Waterford Tycor
39	CRZ	Crown Alley	83	MGN	Monaghan	127	WAL	Walkinstown
40	CSL	Cashel	84	MGR	Mullingar	128	WHI	Whitehall
41	CSR	Ceanannus	85	MHZ	Malahide	129	WRD	Wellington Road
42	CTY	Castletroy	86	MLW	Mallow	130	WTD	Waterford
43	CUS	Customs Hs Docks	87	MNT	Maynooth	131	YHL	Youghal
44	CWM	Citywest	88	MVW	Mervue			

Table 23: List of Eircom Non-Trunk Nodes

Eircom Non-Trunk Nodes									
1	ABE	Ashbourne	21	DLO	Dungloe	41	NNH	Nenagh	
2	ANR	Athenry	22	EDY	Edenderry	42	NRS	New Ross	
3	ASN	Askeaton	23	EFD	Enfield	43	NWL	Newlands Cross	
4	BAI	Blarney	24	EFN	Elphin	44	OME	Oranmore	
5	BAY	Bantry	25	ETN	Ennistymon	45	PAL	Palmerstown	
6	BIR	Birr	26	FMY	Fermoy	46	PAN	Portarlinton	
7	BND	Bandon	27	GMR	Glanmire	47	RCL	Rathcoole	
8	BSZ	Bettystown	28	GNA	Granard	48	RLC	Rathluirc	
9	BTE	Ballymote	29	GRS	Greystones	49	RME	Rathmore	
10	CAL	Charlestown	30	GRT	Gort	50	RSN	Robertstown	
11	CDH	Carndonagh	31	KBY	Knockboy	51	TAA	Tara	
12	CDN	Clifden	32	KME	Kenmare	52	TLW	Tullow	
13	CKN	Ck-On-Shannon	33	KRG	Killorglin	53	TRE	Terenure	
14	CKY	Clonakilty	34	KRH	Kilrush	54	TRR	Tramore	
15	CMS	Claremorris	35	KTK	Kanturk	55	TUM	Tuam	
16	COS	Carrick-On-Suir	36	LEX	Leixlip	56	VGA	Virginia	
17	COV	Cobh	37	LIS	Listowel	57	WLW	Wicklow	
18	CRE	Castlerea	38	MBG	Muine Bheag	58	WST	Westport	
19	CSO	Costello	39	MOT	Moate	59	WTB	Wellington Bridge	
20	DLA	Dunlaoghaire	40	MRM	Macroom	60	WXD	Wexford	

Annex: 9 List of WPZs which change between Zone A and Zone B and Zone B to Zone A

Table A: WPZ Moving from Zone B to Zone A

Workplace Zones B to A							
CC0003	CC0221	CK0064	CK0292	CN0013	DC0138	DC0516	DL0003
CC0005	CE0005	CK0065	CK0293	CN0014	DC0139	DC0522	DL0004
CC0008	CE0006	CK0066	CK0326	CN0016	DC0140	DC0524	DL0005
CC0009	CE0007	CK0067	CK0333	CN0020	DC0163	DC0526	DL0007
CC0013	CE0008	CK0069	CK0337	CN0028	DC0187	DC0529	DL0008
CC0015	CE0010	CK0074	CK0338	CN0031	DC0189	DC0538	DL0020
CC0019	CE0014	CK0084	CK0339	CN0064	DC0193	DC0594	DL0022
CC0028	CE0015	CK0085	CK0340	CN0080	DC0197	DC0631	DL0024
CC0030	CE0038	CK0086	CK0349	CN0082	DC0201	DC0632	DL0025
CC0031	CE0040	CK0096	CK0356	CN0083	DC0208	DC0648	DL0035
CC0036	CE0043	CK0098	CK0368	CN0086	DC0212	DC0657	DL0036
CC0038	CE0046	CK0104	CK0403	CN0087	DC0213	DC0661	DL0037
CC0040	CE0095	CK0105	CK0408	CN0089	DC0219	DC0662	DL0038
CC0092	CE0096	CK0116	CK0419	CN0090	DC0224	DC0668	DL0039
CC0113	CE0097	CK0120	CK0422	CN0091	DC0225	DC0670	DL0041
CC0114	CE0098	CK0147	CK0424	CN0092	DC0226	DC0700	DL0042
CC0121	CE0106	CK0149	CK0454	CN0094	DC0227	DC0703	DL0043
CC0122	CE0108	CK0153	CK0464	CN0095	DC0228	DC0704	DL0044
CC0123	CE0113	CK0164	CK0471	CW0003	DC0230	DC0710	DL0055
CC0134	CE0142	CK0165	CK0476	CW0005	DC0232	DC0782	DL0056
CC0136	CE0158	CK0178	CK0478	CW0017	DC0237	DC0790	DL0057
CC0140	CE0162	CK0181	CK0482	CW0024	DC0248	DC0797	DL0058
CC0143	CE0178	CK0183	CK0484	CW0030	DC0249	DC0799	DL0059
CC0144	CK0022	CK0190	CK0497	CW0034	DC0251	DC0800	DL0060
CC0154	CK0023	CK0191	CK0502	CW0035	DC0295	DC0804	DL0061
CC0156	CK0024	CK0194	CK0504	CW0038	DC0300	DC0805	DL0062
CC0157	CK0025	CK0195	CK0507	CW0039	DC0301	DC0808	DL0063
CC0159	CK0039	CK0197	CK0518	CW0046	DC0302	DC0811	DL0120
CC0166	CK0040	CK0198	CK0523	CW0072	DC0399	DC0817	DL0121
CC0181	CK0041	CK0202	CK0526	CW0082	DC0401	DC0829	DL0122
CC0183	CK0045	CK0211	CK0549	DC0011	DC0403	DC0876	DL0128
CC0186	CK0046	CK0221	CK0566	DC0019	DC0406	DC0882	DL0138
CC0187	CK0047	CK0225	CK0581	DC0022	DC0410	DC0887	DL0155
CC0188	CK0048	CK0226	CK0582	DC0023	DC0417	DC0992	DL0160
CC0189	CK0049	CK0237	CK0584	DC0043	DC0418	DC0994	DL0161
CC0192	CK0051	CK0238	CN0001	DC0071	DC0427	DC1000	DL0168
CC0195	CK0054	CK0239	CN0004	DC0072	DC0431	DC1010	DL0219
CC0196	CK0055	CK0264	CN0005	DC0074	DC0445	DC1012	DL0228
CC0200	CK0056	CK0265	CN0006	DC0091	DC0473	DC1027	DL0229
CC0207	CK0057	CK0268	CN0007	DC0094	DC0494	DC1028	DL0230
CC0209	CK0058	CK0281	CN0008	DC0110	DC0504	DC1029	DL0231
CC0210	CK0059	CK0284	CN0009	DC0111	DC0506	DC1030	DL0232
CC0214	CK0061	CK0285	CN0011	DC0130	DC0507	DL0001	DL0233
CC0217	CK0062	CK0291	CN0012	DC0132	DC0513	DL0002	DR0004

Workplace Zones B to A							
DR0005	FL0010	FL0229	GC0100	GY0092	KE0094	KK0153	LD0048
DR0007	FL0036	FL0234	GC0101	GY0094	KE0098	KK0154	LD0050
DR0008	FL0037	FL0235	GC0104	GY0097	KE0099	KK0157	LD0051
DR0012	FL0040	FL0236	GC0108	GY0115	KE0102	KY0002	LD0052
DR0019	FL0041	FL0243	GC0118	GY0116	KE0103	KY0005	LD0055
DR0024	FL0046	FL0244	GC0125	GY0117	KE0104	KY0017	LH0003
DR0028	FL0049	FL0249	GC0126	GY0118	KE0110	KY0020	LH0004
DR0029	FL0053	FL0250	GC0132	GY0123	KE0111	KY0021	LH0006
DR0059	FL0062	FL0251	GC0136	GY0125	KE0112	KY0022	LH0009
DR0070	FL0064	FL0252	GC0137	GY0128	KE0114	KY0023	LH0010
DR0085	FL0066	FL0255	GC0138	GY0141	KE0138	KY0025	LH0013
DR0107	FL0068	FL0256	GC0139	GY0149	KE0140	KY0028	LH0027
DR0108	FL0069	FL0257	GC0140	GY0150	KE0141	KY0032	LH0028
DR0109	FL0072	FL0259	GC0141	GY0153	KE0146	KY0038	LH0029
DR0110	FL0081	FL0260	GC0142	GY0154	KE0148	KY0044	LH0030
DR0113	FL0082	FL0264	GC0146	GY0157	KE0152	KY0047	LH0038
DR0114	FL0089	FL0265	GC0147	GY0159	KE0162	KY0059	LH0041
DR0115	FL0093	FL0302	GY0001	GY0165	KE0163	KY0133	LH0051
DR0116	FL0094	FL0308	GY0007	GY0166	KE0164	KY0139	LH0077
DR0121	FL0096	FL0310	GY0008	GY0167	KE0197	KY0145	LH0078
DR0140	FL0110	FL0337	GY0011	GY0214	KE0209	KY0146	LH0079
DR0179	FL0115	FL0349	GY0014	GY0221	KE0211	KY0147	LH0081
DR0185	FL0126	GC0002	GY0016	GY0238	KE0230	KY0148	LH0095
DR0194	FL0127	GC0005	GY0019	GY0241	KE0233	KY0150	LH0097
DR0196	FL0143	GC0007	GY0021	KE0001	KE0244	KY0190	LH0099
DR0204	FL0149	GC0012	GY0037	KE0002	KE0246	KY0191	LH0121
DR0206	FL0150	GC0015	GY0038	KE0003	KE0247	KY0194	LH0123
DR0241	FL0151	GC0023	GY0043	KE0007	KE0248	KY0203	LH0129
DR0246	FL0152	GC0025	GY0044	KE0009	KE0249	KY0207	LH0140
DR0251	FL0153	GC0026	GY0045	KE0021	KE0251	KY0208	LH0144
DR0259	FL0158	GC0030	GY0046	KE0042	KE0277	KY0219	LH0146
DR0263	FL0160	GC0031	GY0047	KE0053	KE0297	KY0228	LH0157
DR0265	FL0172	GC0032	GY0048	KE0060	KE0298	KY0229	LH0158
DR0266	FL0175	GC0033	GY0049	KE0063	KK0039	LD0002	LH0187
DR0287	FL0178	GC0034	GY0050	KE0064	KK0070	LD0003	LH0190
DR0292	FL0191	GC0037	GY0052	KE0073	KK0081	LD0005	LK0001
DR0293	FL0192	GC0054	GY0055	KE0076	KK0088	LD0006	LK0006
DR0296	FL0194	GC0062	GY0057	KE0078	KK0091	LD0008	LK0022
DR0298	FL0195	GC0091	GY0064	KE0079	KK0107	LD0009	LK0024
DR0304	FL0201	GC0092	GY0070	KE0089	KK0119	LD0016	LK0050
DR0306	FL0202	GC0093	GY0085	KE0090	KK0131	LD0040	LK0055
DR0307	FL0212	GC0094	GY0088	KE0091	KK0149	LD0041	LK0056
DR0316	FL0213	GC0096	GY0089	KE0092	KK0151	LD0042	LK0061
FL0009	FL0224	GC0098	GY0090	KE0093	KK0152	LD0047	LK0071

Workplace Zones B to A							
LK0072	LM0025	FL0229	MH0096	MN0020	MO0133	SD0117	SD0339
LK0080	LM0026	FL0234	MH0097	MN0021	MO0136	SD0118	SD0345
LK0094	LS0021	FL0235	MH0098	MN0028	MO0167	SD0120	SD0346
LK0097	LS0025	FL0236	MH0099	MN0029	MO0186	SD0121	SD0347
LK0099	LS0026	FL0243	MH0101	MN0049	MO0187	SD0124	SD0348
LK0101	LS0027	FL0244	MH0102	MN0051	MO0196	SD0126	SD0349
LK0106	LS0028	FL0249	MH0113	MN0053	OY0015	SD0127	SD0350
LK0115	LS0032	FL0250	MH0117	MN0055	OY0019	SD0149	SD0353
LK0118	LS0037	FL0251	MH0127	MN0060	OY0027	SD0162	SD0354
LK0133	LS0044	FL0252	MH0132	MN0075	OY0034	SD0164	SD0356
LK0136	LS0054	FL0255	MH0133	MN0079	OY0055	SD0169	SD0357
LK0138	LS0060	FL0256	MH0136	MN0090	OY0073	SD0182	SD0358
LK0140	LS0072	FL0257	MH0146	MN0091	OY0086	SD0183	SD0361
LK0148	LS0078	FL0259	MH0149	MN0096	OY0087	SD0193	SD0362
LK0152	LS0079	FL0260	MH0150	MO0001	OY0093	SD0194	SD0364
LK0200	LS0083	FL0264	MH0152	MO0006	RN0004	SD0203	SD0365
LK0214	MH0001	FL0265	MH0153	MO0007	RN0010	SD0205	SD0366
LK0217	MH0004	FL0302	MH0158	MO0009	RN0016	SD0206	SD0388
LK0218	MH0005	FL0308	MH0159	MO0010	RN0056	SD0217	SD0389
LK0224	MH0007	FL0310	MH0161	MO0011	RN0068	SD0229	SD0393
LK0233	MH0030	FL0337	MH0174	MO0013	RN0071	SD0232	SD0397
LK0235	MH0035	FL0349	MH0176	MO0028	RN0072	SD0234	SD0401
LK0241	MH0036	GC0002	MH0178	MO0031	RN0074	SD0243	SO0002
LK0247	MH0037	GC0005	MH0179	MO0056	RN0076	SD0244	SO0005
LK0249	MH0038	GC0007	MH0188	MO0061	RN0077	SD0249	SO0012
LK0251	MH0040	GC0012	MH0190	MO0063	RN0079	SD0250	SO0013
LK0261	MH0055	GC0015	MH0197	MO0064	RN0080	SD0251	SO0014
LK0262	MH0064	GC0023	MH0201	MO0071	RN0081	SD0253	SO0027
LK0274	MH0065	GC0025	MH0204	MO0072	RN0082	SD0255	SO0095
LK0279	MH0067	GC0026	MH0221	MO0073	RN0084	SD0256	SO0097
LK0280	MH0069	GC0030	MH0229	MO0076	SD0001	SD0263	TY0007
LK0283	MH0070	GC0031	MH0236	MO0085	SD0002	SD0287	TY0017
LK0284	MH0071	GC0032	MH0239	MO0088	SD0003	SD0289	TY0020
LK0286	MH0072	GC0033	MH0253	MO0090	SD0007	SD0291	TY0028
LK0287	MH0073	GC0034	MH0258	MO0095	SD0009	SD0292	TY0029
LK0288	MH0077	GC0037	MN0004	MO0097	SD0016	SD0293	TY0030
LK0290	MH0079	GC0054	MN0005	MO0118	SD0017	SD0294	TY0032
LK0291	MH0082	GC0062	MN0008	MO0121	SD0018	SD0295	TY0033
LK0292	MH0083	GC0091	MN0011	MO0125	SD0045	SD0296	TY0034
LK0293	MH0084	GC0092	MN0014	MO0126	SD0050	SD0325	TY0035
LK0295	MH0085	GC0093	MN0015	MO0127	SD0061	SD0331	TY0036
LK0296	MH0089	GC0094	MN0016	MO0128	SD0062	SD0332	TY0039
LM0010	MH0090	GC0096	MN0018	MO0130	SD0078	SD0333	TY0041
LM0016	MH0095	GC0098	MN0019	MO0131	SD0116	SD0336	TY0074

Workplace Zones B to A						
TY0080	TY0222	WD0121	WW0008	WW0098	WX0009	WX0138
TY0085	TY0252	WD0123	WW0009	WW0099	WX0011	WX0152
TY0086	WD0021	WD0125	WW0010	WW0100	WX0022	WX0153
TY0089	WD0031	WD0128	WW0013	WW0103	WX0023	WX0156
TY0090	WD0032	WD0133	WW0014	WW0105	WX0024	WX0164
TY0093	WD0033	WD0134	WW0015	WW0107	WX0027	WX0175
TY0094	WD0043	WD0135	WW0022	WW0108	WX0031	WX0179
TY0101	WD0053	WD0137	WW0026	WW0109	WX0034	WX0181
TY0109	WD0055	WD0144	WW0028	WW0110	WX0035	WX0188
TY0110	WD0056	WD0158	WW0030	WW0112	WX0040	WX0189
TY0117	WD0061	WD0162	WW0032	WW0113	WX0044	WX0197
TY0118	WD0068	WD0163	WW0033	WW0114	WX0046	WX0200
TY0120	WD0073	WD0166	WW0034	WW0115	WX0052	WX0203
TY0121	WD0074	WD0179	WW0035	WW0116	WX0056	WX0207
TY0122	WD0076	WD0180	WW0036	WW0117	WX0059	
TY0123	WD0078	WH0008	WW0037	WW0118	WX0061	
TY0124	WD0080	WH0015	WW0038	WW0119	WX0062	
TY0125	WD0081	WH0021	WW0040	WW0120	WX0063	
TY0126	WD0082	WH0022	WW0043	WW0124	WX0064	
TY0127	WD0083	WH0023	WW0044	WW0137	WX0066	
TY0128	WD0087	WH0029	WW0045	WW0138	WX0070	
TY0131	WD0088	WH0031	WW0046	WW0139	WX0075	
TY0132	WD0089	WH0036	WW0047	WW0140	WX0085	
TY0134	WD0091	WH0037	WW0049	WW0141	WX0086	
TY0137	WD0092	WH0041	WW0051	WW0147	WX0087	
TY0148	WD0093	WH0042	WW0052	WW0148	WX0091	
TY0149	WD0094	WH0043	WW0053	WW0149	WX0092	
TY0150	WD0095	WH0053	WW0054	WW0152	WX0093	
TY0152	WD0096	WH0054	WW0062	WW0153	WX0096	
TY0156	WD0097	WH0077	WW0064	WW0154	WX0097	
TY0157	WD0098	WH0086	WW0066	WW0155	WX0100	
TY0159	WD0100	WH0087	WW0067	WW0159	WX0104	
TY0162	WD0102	WH0089	WW0068	WW0161	WX0105	
TY0164	WD0103	WH0092	WW0069	WW0162	WX0106	
TY0166	WD0104	WH0094	WW0075	WW0163	WX0107	
TY0168	WD0105	WH0099	WW0076	WW0164	WX0108	
TY0171	WD0106	WH0100	WW0078	WW0168	WX0109	
TY0179	WD0107	WH0121	WW0079	WW0171	WX0112	
TY0181	WD0108	WH0123	WW0082	WW0172	WX0113	
TY0182	WD0109	WH0131	WW0083	WX0001	WX0114	
TY0208	WD0115	WH0132	WW0090	WX0002	WX0115	
TY0209	WD0116	WW0001	WW0093	WX0005	WX0117	
TY0214	WD0118	WW0002	WW0096	WX0006	WX0118	
TY0218	WD0119	WW0005	WW0097	WX0008	WX0124	

Table B: WPZ Moving from Zone A to Zone B

Workplace Zones A to B							
CC0006	CW0002	DC0409	DC0874	DR0226	GY0003	KY0048	MH0050
CC0039	CW0019	DC0411	DC0881	DR0231	GY0004	KY0057	MH0054
CC0129	CW0026	DC0437	DC0893	DR0233	GY0071	KY0063	MH0056
CC0215	CW0037	DC0467	DC0894	DR0258	GY0152	KY0068	MH0058
CC0216	DC0001	DC0469	DC0898	DR0264	KE0015	KY0200	MH0168
CE0032	DC0004	DC0470	DC0997	DR0268	KE0019	KY0227	MH0186
CE0034	DC0038	DC0471	DC1018	DR0284	KE0022	KY0234	MH0191
CE0044	DC0041	DC0472	DC1033	DR0286	KE0027	KY0249	MH0196
CE0074	DC0046	DC0475	DL0117	DR0299	KE0031	LH0005	MH0238
CE0082	DC0047	DC0476	DL0133	DR0300	KE0034	LH0023	MH0241
CE0084	DC0062	DC0481	DL0134	DR0308	KE0052	LH0024	MH0250
CE0087	DC0063	DC0499	DL0148	FL0025	KE0054	LH0033	MH0251
CE0094	DC0067	DC0512	DL0167	FL0027	KE0059	LH0034	MH0256
CE0103	DC0080	DC0514	DL0173	FL0032	KE0096	LH0039	MO0004
CE0109	DC0085	DC0517	DL0184	FL0033	KE0109	LH0040	MO0020
CE0110	DC0096	DC0519	DL0188	FL0047	KE0116	LH0048	MO0023
CE0112	DC0102	DC0525	DR0016	FL0050	KE0121	LH0084	MO0036
CK0151	DC0118	DC0527	DR0017	FL0059	KE0150	LH0085	MO0060
CK0152	DC0119	DC0530	DR0018	FL0075	KE0155	LH0125	MO0066
CK0158	DC0120	DC0576	DR0023	FL0087	KE0158	LH0127	OY0008
CK0159	DC0121	DC0580	DR0026	FL0095	KE0212	LH0128	OY0013
CK0161	DC0126	DC0640	DR0037	FL0183	KE0216	LH0178	OY0098
CK0162	DC0145	DC0644	DR0042	FL0187	KE0219	LH0185	SD0014
CK0173	DC0146	DC0645	DR0044	FL0188	KE0228	LK0009	SD0029
CK0174	DC0147	DC0658	DR0049	FL0189	KE0231	LK0011	SD0040
CK0231	DC0148	DC0676	DR0052	FL0197	KE0256	LK0074	SD0042
CK0232	DC0155	DC0680	DR0062	FL0203	KE0257	LK0111	SD0046
CK0233	DC0171	DC0682	DR0063	FL0205	KE0281	LK0113	SD0048
CK0236	DC0202	DC0683	DR0068	FL0207	KE0287	LK0120	SD0058
CK0242	DC0204	DC0692	DR0082	FL0209	KE0288	LK0172	SD0071
CK0259	DC0207	DC0695	DR0083	FL0211	KK0025	LK0173	SD0094
CK0262	DC0209	DC0717	DR0117	FL0221	KK0029	LK0175	SD0099
CK0263	DC0211	DC0754	DR0129	FL0222	KK0074	LK0209	SD0101
CK0269	DC0220	DC0773	DR0141	FL0225	KK0086	LK0215	SD0103
CK0273	DC0221	DC0777	DR0181	FL0227	KK0093	LK0232	SD0113
CK0275	DC0223	DC0787	DR0186	FL0247	KK0095	LK0234	SD0145
CK0409	DC0229	DC0803	DR0187	FL0278	KK0098	LS0055	SD0161
CK0481	DC0231	DC0812	DR0188	FL0283	KK0099	LS0065	SD0168
CK0494	DC0269	DC0822	DR0189	FL0294	KK0104	LS0071	SD0174
CK0495	DC0294	DC0836	DR0193	FL0330	KK0105	LS0103	SD0179
CK0510	DC0322	DC0839	DR0202	GC0065	KY0010	MH0018	SD0260
CK0525	DC0323	DC0859	DR0214	GC0095	KY0042	MH0020	SD0299
CK0527	DC0404	DC0862	DR0220	GC0103	KY0045	MH0043	SD0382
CW0001	DC0405	DC0870	DR0224	GC0144	KY0046	MH0045	SO0046

Workplace Zones A to B							
SO0074	SO0075	TY0025	TY0037	TY0136	TY0244	WD0028	WD0062
WD0069	WH0017	WH0045	WH0080	WH0083	WH0096	WH0103	WH0104
WH0105	WH0107	WH0109	WH0110	WH0135	WW0003	WW0020	WX0170
WX0171	WX0172	WX0174	WX0198	WX0201			

Annex: 10 Pricing concepts

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Table 1: Price control descriptions

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Table 3: General costing terms

Table 4: Cost base / cost model descriptions for setting cost oriented prices

Table 1: Price control descriptions

<u>Concept</u>	<u>Description</u>
Benchmarking	An approach where the regulated price is set with reference to the prices of comparable competitive markets (which can include prices in other countries).
Retail Minus	An approach where the regulated wholesale price is set by reference to a retail price (or offer) from which a margin is subtracted usually calculated by reference to the downstream costs that an operator purchasing the wholesale product would need to incur to provide an equivalent or similar service.
Margin Squeeze Test or MST	A test designed to ensure that a vertically integrated operator (operating in both the upstream and downstream markets) does not set the price of its downstream service too low or the price of its upstream products too high such that other operators competing in the downstream market using the upstream inputs cannot replicate the downstream prices of the vertically integrated operator.
Cost Orientation	An approach where the regulated price is set to reflect no more than the efficient costs of providing the relevant service including a reasonable rate of return.
Price Cap	An approach that sets the maximum price that can be charged by an operator; a price cap can be expressed as a limit on price increases over a period, for instance by setting a rate of change by reference to the rate of inflation, such as the Consumer Price Index ('CPI'). A price Cap may be expressed by way of a formula, for example, $CPI - X$, where 'X' is determined by reference to the level of efficiency that can reasonably be achieved by the end of the reference period.

Price Floor	An approach that sets the minimum price which the regulated operator must charge and is used to mitigate risks of foreclosure.
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Table 2: Cost standard descriptions

(Pure) Long Run Incremental Cost (LRIC) or Average Avoidable Cost (AAC)	The costs that can be avoided in the long run if a given increment (e.g. fibre broadband) is not produced. LRIC includes the direct fixed and variable costs relevant to the increment of providing the service over the long-run (or often referred to as ' Pure LRIC '). A Pure LRIC approach does not include recovery of joint (or shared) network costs or common corporate costs, from other divisions of the operator's business.
Long Run Average Incremental Cost (LRAIC)	The average efficiently incurred variable and fixed costs that are directly attributable to the activity concerned over the long-run. The main difference between LRAIC and LRIC, is that the increment that is considered under LRAIC tends to cover a wider range of services compared to the LRIC approach, e.g. LRAIC could consider all voice services while LRIC would focus on a sub-set of voice services such as wholesale call termination. LRAIC also includes an attribution of joint (or shared) network costs but excludes common corporate costs.
Long Run Average Incremental Cost plus an allocation for corporate overhead costs (LRAIC+)	The long run average incremental costs calculated in the same way as LRAIC, with an additional mark-up to allow for the recovery of common corporate costs typically using an equi-proportionate mark-up (EPMU). Hence, LRAIC+ includes all of the average efficiently incurred variable and fixed costs that are directly attributable to the activity concerned over the long-run, plus a mark-up for common corporate costs.

Fully Allocated Cost (FAC) or Average Total Cost (ATC)

All of the costs efficiently incurred by the regulated operator, including sunk costs, which are typically allocated to products on the basis of direct or indirect causality of costs with products. This approach includes all fixed costs, joint (or shared) network costs and common corporate costs. The FAC approach is similar to LRAIC+ to the extent that it attributes common corporate costs between the various services offered by the operator. However, the LRAIC+ and FAC outcomes can differ due to the different efficiency levels that are inherent to both approaches. The concept of LRAIC+ cost is generally applied in the context of an efficient operator building a modern network, whereas the FAC concept is usually applied to an existing operator and so runs the risk of including legacy inefficiencies.

Table 3: General costing terms

Joint Costs	Costs that can be allocated to some but not all services e.g., a voice platform that is used by call transit, call origination, call termination, but not by broadband services or leased lines services.
Shared Network Costs	Costs that can be allocated to all services e.g., the network costs of ducts and trenching are consumed by all fixed line services.
Common Corporate Costs/ Common Costs	Costs that cannot be allocated to services using a specific allocation method. These mainly relate to general overheads which typically include general IT system costs, office accommodation and transport management as well as corporate costs such as finance, legal, HR and senior management. These costs cannot be associated with one single service or a single set of services and so must be allocated to all services.

Table 4: Cost base / cost model descriptions for setting cost oriented prices

Current Cost	An approach whereby asset values are set at the current market value and which can be implemented either based on the operator's accounting system (Current Cost Accounting or CCA) or on a bottom-up (BU) model basis.
Historic Cost/Historic Cost Accounting	An approach that uses the actual costs recorded in the operator's accounting system.

Top Down (TD) Cost Model	An approach relying on the operator's actual network and operational information to derive the relevant costs and to calculate the per unit cost for a service. TD models can be constructed on a HCA or CCA basis. For a TD model based on HCA, the net book values (NBV) of the relevant assets are derived from the operator's fixed asset register (FAR) and depreciated over their remaining useful life of the assets.
Bottom Up (BU) Cost Model	A model that reflects the choices of a hypothetical, forward-looking efficient operator from both a technical and an operational point of view and calculating the level of network costs on the basis of the quantity of equipment and infrastructure that an operator using efficient engineering rules would deploy to support an assumed level of demand.

Annex: 11

Consultation Questions

- Q. 1 Do you agree that the main developments identified in the provision of retail LL market are those which are most relevant in informing the assessment of the Relevant Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual/empirical evidence supporting your views. 51
- Q. 2 Do you agree with ComReg's proposed definition of the relevant retail LL market? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views. 81
- Q. 3 Do you agree with ComReg's product market assessment for the Relevant WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views..... 100
- Q. 4 Do you agree with ComReg's geographic market assessment for the Relevant WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views. ... 119
- Q. 5 Do you agree with ComReg's assessment of the Trunk – Terminating Boundaries of the MI WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views. 121
- Q. 6 Do you agree with ComReg's assessment of SMP on the Relevant WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views. 142
- Q. 7 Do you agree that the competition problems and the associated impacts on competition end users identified are those that could potentially arise in the Zone B MI WDC Markets (and related markets)? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views..... 150
- Q. 8 Do you agree with ComReg's proposals in respect of non-pricing remedies in the Zone B MI WDC Markets? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your

- comments refer, along with all relevant factual evidence supporting your views. 190
- Q. 9 Do you agree with ComReg's view that a differentiated pricing remedy (of no price control) should apply to Eircom with respect to MI WDC products and services in the IA in the Zone B MI WDC Markets, while the obligations of access, non-discrimination and transparency will continue to apply to the MI WDC products and services in the IA? Please provide reasons for your response..... 195
- Q. 10 Do you agree with ComReg's view that a cost orientation price control obligation should be maintained for Eircom's MI WDC products, services and associated facilities, including WDM services, outside the IA in Zone B of the MI WDC Markets? Please provide reasons for your response. ... 198
- Q. 11 Do you agree with ComReg's view that Eircom should charge the current Zone B rental prices in the LLRO price list (i.e., the pricing continuity approach), as fixed price points, for Eircom's MI WDC products and services, including WDM services, outside the IA in Zone B of the MI WDC Markets, and the current rental prices in the LLRO price list for the associated Eircom interconnection services? Please provide reasons for your response..... 202
- Q. 12 Do you agree with ComReg's view that the charges for co-location services and the upfront (non-recurring) charges for connections should reflect no more than the actual efficient costs incurred by Eircom plus a reasonable rate of return? Please provide reasons for your response..... 204
- Q. 13 Do you agree with ComReg's view that Eircom should maintain its cost accounting obligation in relation to its Modern Interface Wholesale Dedicated Capacity products, services and associated facilities? Please provide reasons for your response. 205
- Q. 14 Do you agree with ComReg's view that Eircom should continue to maintain its accounting separation obligation in relation to its Modern Interface Wholesale Dedicated Capacity products, services and associated facilities, and for the avoidance of doubt this means the inclusion of dark fibre in the MI WDC HCA statements and AFI statements? Please provide reasons for your response..... 209
- Q. 15 Do you agree with ComReg's view that Eircom should continue to maintain its statement of compliance obligation in relation to its MI WDC products, services and associated facilities in the WDC market? Please provide reasons for your response..... 217
- Q. 16 Do you agree with ComReg's proposals on the withdrawal of SMP remedies on Eircom in the LB TI WDC Market and in WPZs that have moved from Zone B MI WHQA Markets in the 2020 Decision to Zone A MI WDC Markets

in this Consultation? Please explain the reasons for your answer, clearly indicating the relevant paragraph numbers to which your comments refer, along with all relevant factual evidence supporting your views..... 219

Annex: 12 List of Acronyms

Acronym	Explanation
3CT	Three Criteria Test
AAC	Average Avoidable Cost
AC	Alternating Current
AFI	Additional Financial Information
AN	Alternative Network
ARWS	Additional Required Wholesale Products
AS	Access Seeker
AS	Accounting Separation
ATC	Average Total Cost
AVC	Average Variable Cost
BAFO	Best And Final Offer
BEREC	Body of Economic Regulators for Electronic Communications
BU-LRAIC+	Bottom-up Long Run Average Incremental costs plus a contribution to Common Costs
CAT	Competition Appeals Tribunal
CATI	Computer Aided Telephone Interview
CBP	Countervailing Buying Power
CCA	Current Cost Accounting
CCPC	Competition and Consumer Protection Commission
CEI	Civil Engineering Infrastructure
CoS	Class of Service
CP	Connected Premises

CSH	Customer sited Handover
CSO	Central Statistics Office
DC	Direct Current
DECC	Department of the Environment, Climate and Communications
DF	Dark Fibre
DI	Decision Instrument
EC	European Commission
ECS	Electronic Communications Service
EECC	European Electronic Communications Code
EF	Expedited Forwarding
EFM	Ethernet First Mile
ENH	Edge Node Handover
EoI	Equivalence of Inputs
EoO	Equivalence of Outputs
EU	European Union
EUL	End User Link
FTTC	Fibre to the Cabinet
FTTH	Fibre to the Home
FTTx	Fibre to the x
HB	High Bandwidth
HCA	Historic Cost Accounts
HM	Hypothetical Monopolist
HMT	Hypothetical Monopolist Test
HQA	High Quality Access

HQA Provider	Operators offering HQA services
IA	Intervention Area (relating to NBP)
IBH	In Building Handover
ICT	Information and Technology
IP	Internet Protocol
ISH	In-Span Handover
KPI	Key Performance Indicator
LB	Low Bandwidth
LL	Leased Line
LLRO	Leased Line Reference Offer
LLU	Local Loop Unbundling
LRAIC	Long Run Average Incremental Cost
LRAIC plus	Long Run Average Incremental Cost plus
LRIC	Long Run Incremental Cost
M2M	Machine to Machine
MAN	Metropolitan Area Network
MGA	Modified Greenfield Approach
MI	Modern Interface
MNO	Mobile Network Operator
MRWP	Minimum Required Wholesale Products
MST	Margin Squeeze Test
NBP	National Broadband Plan
NG	Next Generation
NGA	Next Generation Access

NGN	Next Generation Network
NRA	National Regulatory Authority
NTU	Network Termination Unit
OECD	Organisation for Economic Co-operation and Development
ODN	Optical Distribution Network
OO	Other Operator
OPWS	Other Permitted Wholesale Products
OSS	Operational Support Systems
ONT	Optical Network Terminal
P2P	Point to Point
PE	Provider Edge
PoA	Price on Application
PoH	Point of Handover
PoP	Point of Presence
PSTN	Public Switched Telephone Network
PtP	Point to Point
QKDR	ComReg Quarterly Key Data Report
QQ	Qualitative Questionnaire
RAP	Regulated Access Product
RCBS	Retail Business Connectivity Services
RGM	Regulatory Governance Model
RIA	Regulatory Impact Assessment
RIO	Reference Interconnect Offer
SA	Small Area

SaaS	Software as a Service
SDH	Synchronous Digital Hierarchy
SDN	Software Defined Networking
SEO	Similarly Efficient Operator
SIR	Statutory Information Request
SLA	Service Level Agreement
SME	Small to Medium Enterprise
SMP	Significant Market Power
SoC	Statement of Compliance
SP	Service Provider
SSNIP	Small but Significant Non-transitory Increase in Price
TD	Top Down
TDM	Time Domain Multiplex
TI	Traditional Interface
TII	Transport Infrastructure Ireland
WAN	Wide Area Network
WCA	Wholesale Central Access
WDC	Wholesale Dedicated Capacity
WEIL	Wholesale Ethernet Interconnection Link
WES	Wholesale Ethernet Service
Wholesale LL	Wholesale Leased Line (generic term for wholesale service)
WHQA	Wholesale High Quality Access
WLA	Wholesale Local Access
WPZ	Workplace Zone

WSEA	Wholesale Symmetrical Ethernet Access
WUP	Wholesale Uncontended Product
xWDM	Wavelength Division Multiplexed (coarse or dense)
ZONE A	Geographic Area relating to Zone A MI WDC markets
ZONE B	Geographic Area relating to Zone B MI WDC markets