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BEREC

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BEREC Guidelines on the Criteria for a Consistent Application of Article 61 (3) EECC

10 December 2020

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Background

1 According to Art. 61 (3) subparagraph 1 EECC[1] national regulatory authorities (NRAs) may impose obligations – upon reasonable request and regardless of any findings of significant market power (SMP) – to grant access to wiring and cables and associated facilities inside buildings or up to the first concentration or distribution point as determined by NRAs.[2] Access obligations may be imposed on electronic communication network (ECN) providers or owners of such network elements, where replication of the network elements concerned would be economically inefficient or physically impracticable.

2 Where access obligations pursuant to Art. 61 (3) subparagraph 1 EECC do not sufficiently address economic or physical barriers to replication, Art. 61 (3) subparagraph 2 EECC authorises NRAs to extend the imposition of access obligations (including active or virtual access obligations if justified on technical or economical grounds) beyond the first concentration or distribution point up to a point capable of hosting a sufficient number of end-user connections to be commercially viable for efficient access seekers.

3 The policy principle behind Art. 61 (3) EECC is the promotion of sustainable competition in the interest of end-users, connectivity, and efficient investment, in particular in very high capacity networks (VHCN)[3], by giving NRAs the possibility to ensure access to non-replicable infrastructure where justified and proportionate, i.e. where bottlenecks would not allow an efficient operator to replicate network elements.

4 Compared to Art. 61 (3) EECC, the current legislative framework in Art. 12 (3) of the Framework Directive (FD) only allows for the imposition of obligations to provide access up to the first concentration or distribution point.

5 Art. 61 (3) EECC clarifies, extends and amends the access provisions of Art. 12 FD and introduces a distinction between access to the first concentration or distribution point and access to a point beyond the first concentration or distribution point. Relevant considerations specifically concerning the application of Art. 61 (3) EECC can be found in recitals 152, 154, 155 and 157 of the EECC.[4]

6 Art. 61 (3) EECC provides for some exemptions. Subject to Art. 61 (3) subparagraph 3 EECC, NRAs shall not impose access obligations beyond the first concentration or distribution point on an ECN provider if the latter is a wholesale only undertaking, fulfilling the conditions listed in Art. 80 (1) EECC and makes viable and similar

[1] Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (EECC) (OJ L 321, 17.12.2018, p. 36), available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L1972&from=EN.
[2] See Annex I.
[3] See Art. 61 (1) EECC
[4] See Annex II.

alternative means of access to a very high capacity network available on fair, non-discriminatory and reasonable terms and conditions.

7 The exemption in Art. 61 (3) subparagraph 3 EECC may be extended by NRAs to other ECN providers which offer access to a very high capacity network (VHCN) on fair, non-discriminatory and reasonable terms and conditions.

8 According to Art. 61 (3) subparagraph 4 EECC a derogation from the exemptions referred to under paragraphs[5] 6 and 7 above is possible if the network concerned is publicly funded.

9 In addition subject to Art. 61 (3) subparagraph 3 EECC, NRAs shall not impose access obligations to access points beyond the first concentration or distribution point, where the imposition of such access obligations would compromise the economic or financial viability of a new network deployment, in particular by small, local projects.

10 According to Art. 61 (3) subparagraph 5 EECC, BEREC shall publish guidelines by 21 December 2020 to foster a consistent application of Art. 61 (3) EECC by setting out the relevant criteria for determining:

(a) the first concentration or distribution point;

(b) the point, beyond the first concentration or distribution point, capable of hosting a sufficient number of end-user connections to enable an efficient undertaking to overcome the significant replicability barriers identified;

(c) which network deployments can be considered to be new;

(d) which projects can be considered to be small;

(e) which economic or physical barriers to replication are high and non-transitory.

The purpose of these guidelines is to set out relevant criteria for determining the legal concepts listed in points (a) to (e), which will be referred to as "*items*" within these guidelines. It is also noted that the relevant criteria for determining item (e) are listed before item (b), as the determination of the access point beyond the first concentration or distribution point will be dependent on the assessment of high and non-transitory barriers to replication.

[5] When reference is made to a paragraph without giving further indications about the source, reference is made to a paragraph in these guidelines.

11 BEREC intends to report on the practical application of these guidelines in accordance with Art. 4 (1)(j)(i) of the BEREC regulation.[6] This report will provide input to an assessment of the need to revise the guidelines. This assessment will be undertaken within five years after the adoption of the guidelines.

Illustration of replicability considerations within Art. 61 (3) EECC

12 The application of Art. 61 (3) EECC focuses on the concept of economic and technical replicability. Replicability, in the context of Art. 61 (3) subparagraph 1 EECC, implies that it could be economically efficient and technically possible for an efficient access seeker to replicate a network or a certain part of a network, either by deploying network elements or buying wholesale access. However, ECNs or parts of such networks may constitute bottlenecks. If there are bottlenecks, it would not be economically efficient or technically possible even for an efficient access seeker to replicate ECNs or certain parts thereof.

13 Thus, if an operator faces technical and economic barriers to replicate a network, the operator may need access to those parts of the network that are considered non-replicable and therefore constitute bottlenecks, in order to provide downstream services.

14 In addition, an access seeker has to replicate networks or network elements in order to reach the point, from the direction of the access seeker's core network, where access is granted to the non-replicable elements of the network.

15 The wording of Art. 61 (3) EECC suggests that replicability reasoning may come into play at three stages, as illustrated in Figure 1 below.

[6] Regulation (EU) 2018/9171 of the European Parliament and of the Council of 11 December 2018 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Agency for Support for BEREC (BEREC Office), amending Regulation (EU) 2015/2120 and repealing Regulation (EC) No 1211/2009 (OJ L 321, 17.12.2018, p. 1–35), available at https://eur-lex.europa.eu/legal-content/de/TXT/?uri=CELEX:32018R1971.

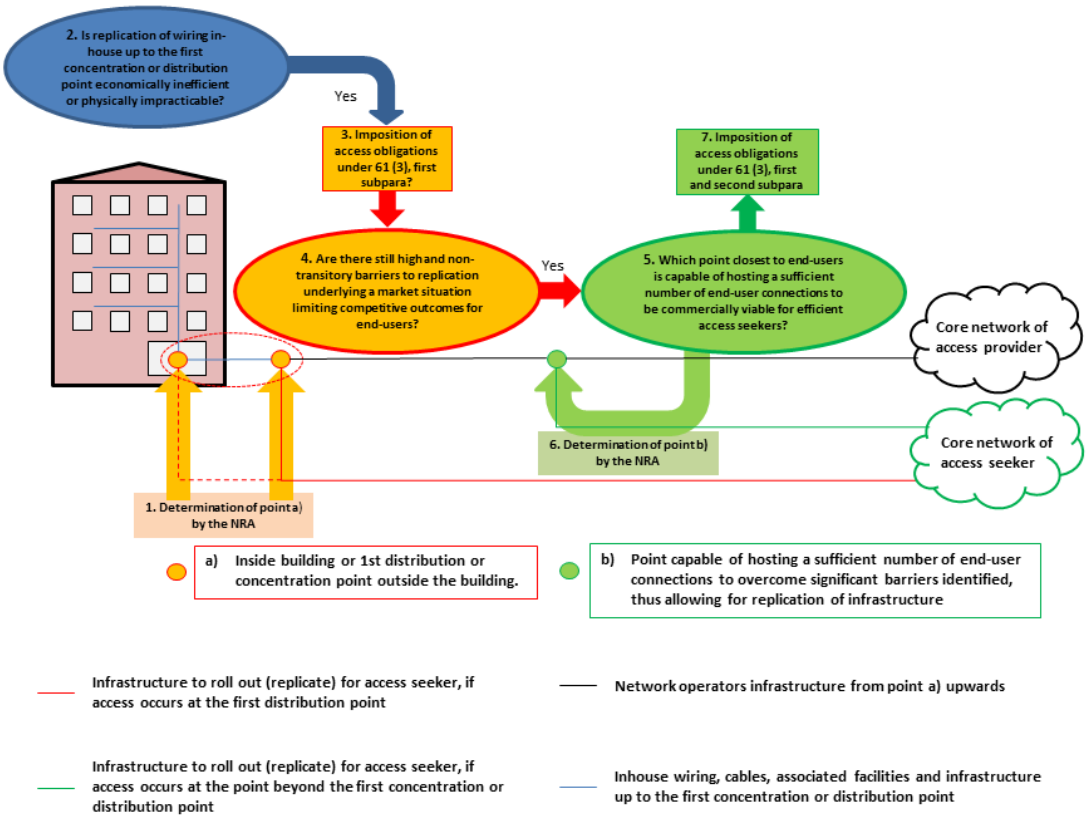

Figure 1: Illustration of the three stages where replicability assessment may come into play in the context of Art. 61 (3) EECC

16 Once an NRA has determined the first accessible[7] distribution or concentration point, replicability reasoning would come into play with respect to the wiring and cables and associated facilities inside buildings or up to the first concentration or distribution point from the direction of the network termination point.[8] If replication of network elements inside the building or up to the first concentration or distribution point would be economically inefficient or physically impracticable, NRAs may impose obligations to grant access to wiring, cables and associated facilities inside the building or up to the first concentration or distribution point.[9]

17 Replicability considerations would also come into play in a second stage, as part of the second subparagraph of Art. 61 (3) EECC. After having determined the first distribution or concentration point, NRAs have to assess whether, despite the imposition of access obligations according to Art. 61 (3) EECC subparagraph 1, high and non-transitory economic or physical barriers to replication which underlie an existing or emerging

[7] See paragraphs 31 to 37 below.
[8] As determined by an NRA, cf. Art. 2 (9) and 61 (7) EECC.
[9] Art. 61 (3) subparagraph 1 EECC.

market situation significantly limiting competitive outcomes for end-users would remain.

18 Where an NRA considers that high and non-transitory economic or physical barriers to replication would remain despite the imposition of access obligations pursuant to Art. 61 (3) subparagraph 1 EECC, the NRA may undertake a replicability test in a third stage, in order to define an access point beyond the first distribution or concentration point. This point has to be the access point closest to the end users that is capable of hosting a sufficient number of end-user connections to be commercially viable for efficient access seekers. Active or virtual wholesale access may also be imposed at that point, if justified on economic or technical grounds. However, obligations to provide access at this point may not be imposed in all cases. The exemptions to imposing access obligations to access points beyond the first concentration or distribution point are listed under Art. 61 (3) subparagraph 3 EECC. BEREC further refers to the access point beyond the first concentration or distribution point as **"access point beyond"** in the present guidelines.

19 Where an NRA concludes that the imposition of access obligations under Art. 61 (3) subparagraph 1 EECC would be insufficient to address high and non-transitory barriers to replication, the NRA might refrain from imposing such obligations, taking the proportionality of the measure according to Art. 61 (5) EECC into account. In this case the imposition of access obligations only under Art. 61 (3) subparagraph 2 EECC might found to be more appropriate to address those barriers. Though, if justified the NRA may impose obligations under both Art. 61 (3) subparagraphs 1 and 2 EECC (e.g. to take into account variations in reach of the access seeker's network).

20 Where access is imposed at the first concentration or distribution point or at an access point beyond, the network beyond this point (in the direction towards the core network) should be considered as economically replicable for an efficient access seeker if sufficient incremental revenues can be generated to compensate for the incremental costs incurred to offer services to customers reachable via this point (see Figure 2).

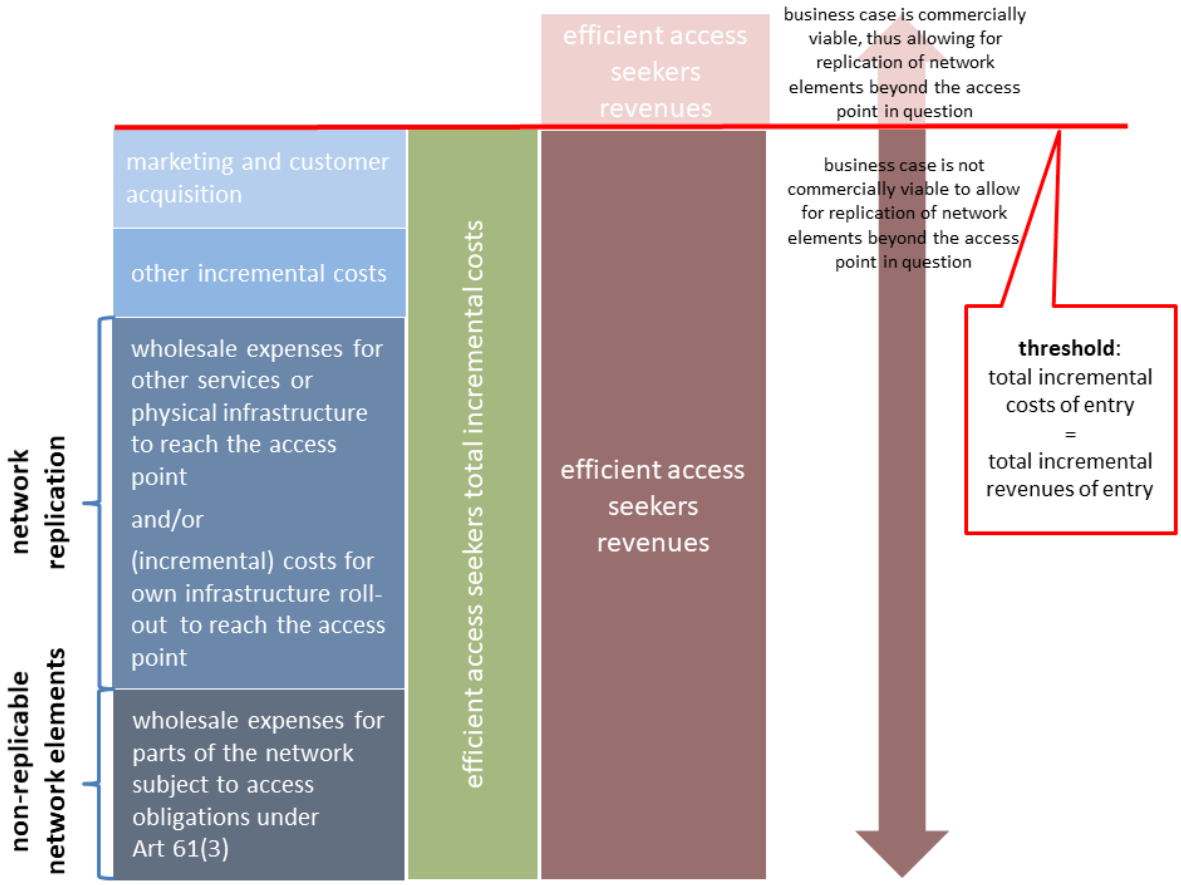

Figure 2: Assessment of a business case to replicate the network beyond a certain access point

21 Depending on national implementing measures, Art. 61 (3) EECC may be applied before or after network deployment actually has taken place.

Item (a): The first concentration or distribution point

22 In this subsection, BEREC sets out relevant criteria for determining the first concentration or distribution point.

23 Art. 61 (3) subparagraph 1 EECC states that: *"… national regulatory authorities may impose obligations, upon reasonable request, to grant access to wiring and cables and associated facilities inside buildings or up to the first concentration or distribution point* ***as determined by the national regulatory authority****, where that point is located outside the building*" (emphasis added). Thus, the first concentration or distribution point where access obligations may be imposed is determined by an NRA.

24 Furthermore, recital 154 sets out that: *"[it] is important that when national regulatory authorities assess the concentration or distribution point up to which they intend to impose access, they choose a point in accordance with BEREC guidelines. Selecting a point nearer to end-users will be more beneficial to infrastructure competition and the roll-out of very high capacity networks. In this way the national regulatory authority should* ***first consider choosing a point in a building or just outside a building***" (emphasis added). Thus, the EECC indicates that the first concentration or distribution point should be located close to the end-user, if feasible. However, it could be farther away from the end-user, where an NRA cannot identify an accessible concentration or distribution point close to the end-user.

The term "concentration or distribution point"

25 For the purpose of the guidelines the terms "concentration point" and "distribution point" refer interchangeably to the same access point, where *cables* viewed in the downstream direction are disaggregated (distributed) and viewed in the upstream direction are aggregated (concentrated). At this point *traffic* may or may not be disaggregated from one line to several lines viewed in downstream direction and aggregated from several lines onto one line viewed in upstream direction.[10]

26 For example, the distribution or concentration point can be a point where the feeder segment of the network is connected with several terminating (or drop) segments and where cables are bundled, in the upstream direction, or distributed in the downstream direction.

27 If traffic is not disaggregated/aggregated with passive (e.g. PON splitters) or active (e.g. DSLAM) equipment at a concentration or distribution point, then one line of a feeder segment is connected with one line of the terminating segment, e.g. by patch fields or plug connection (Figure 3).

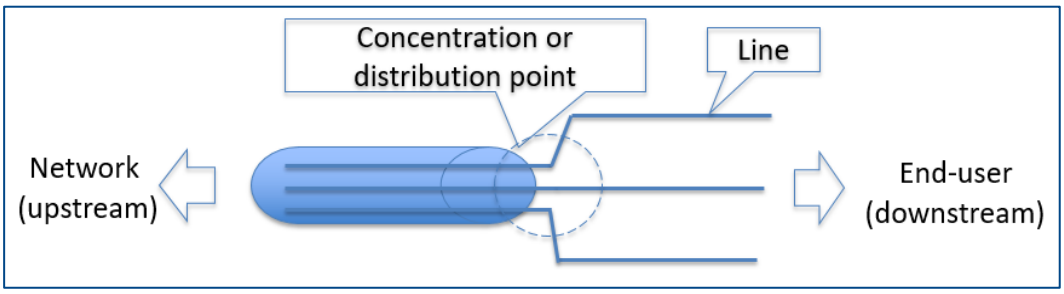

Figure 3: Illustration of a distribution or concentration point <u>without</u> traffic aggregation

[10] In these guidelines, the terms 'cable' and 'line' are used as follows: A line is e.g. a twisted pair or fibre and a cable is typically composed of several lines.

28 In case traffic is disaggregated/aggregated at this point, then traffic of several lines of terminating segments is aggregated onto one line (or a smaller number of lines) of the feeder segment in upstream direction and disaggregated from one (or a few lines) of the feeder segment onto a higher number of lines of terminating segments in downstream direction by passive or active equipment (Figure 4).[11]

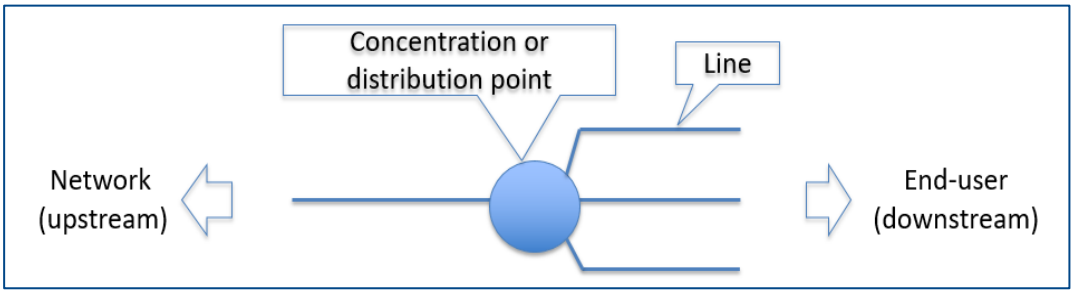

Figure 4: Illustration of a distribution or concentration point with traffic aggregation

29 Accordingly, the guidelines do not distinguish between "concentration points" and "distribution points" and treat the terms interchangeably. Distribution points as defined in the NGA Recommendation are also covered by this definition.[12]

30 Finally, the concept of distribution or concentration point is technologically neutral for the purpose of these guidelines and may be applied to all types of networks.

Accessibility

31 In order for access obligations to be effective, other operators must be able to reach and access the first concentration or distribution point and use the relevant wiring, cables and associated facilities. The first concentration or distribution point is therefore the first concentration or distribution point closest to end-users, which is reasonably accessible, taking the principle of proportionality into account. The following paragraphs set out the criteria to be used when assessing the accessibility.

32 Accessibility requires an accessible and manageable distribution facility to allow the establishment of a connection between the access seeker's network and the network infrastructure of the owner of the network. This facility should have enough space to allow access seekers to perform technical operations. It could be located in the

[11] Such points can be found e.g. in HFC-cable or G-PON networks.

[12] See NGA Recommendation (Commission recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (2010/572/EU; OJ L 251, 35)), paragraph 11 (for comparison): "The 'distribution point' means an intermediary node in an NGA network from where one or several fibre cables coming from the MPoP (the feeder segment) are split and distributed to connect to end-users' premises (the terminating or drop segment). A distribution point generally serves several buildings or houses. It can be located either at the base of a building (in case of multi-dwelling units), or in the street. A distribution point hosts a distribution frame mutualising the drop cables, and possibly un-powered equipment such as optical splitters."

basement of a building, in a street cabinet or in any similar suitable facility. Accessibility is less likely to be fulfilled if the access point is buried under ground and is not easily accessible via e.g. manholes. The access point should continuously allow the execution of standard operations requiring physical access (e.g. maintenance). A suitable facility for the first concentration or distribution point should allow access seekers reasonable flexibility in their technological choices and enable them to host their equipment at this point, e.g. optical splitters.

33 Accessibility usually requires detachable connections (such as patch fields or plug connections) and is more likely to be fulfilled if cutting and splicing is possible without unreasonable effort by the ECN provider or network owner.

34 If a concentration or distribution point under consideration is located inside a building (e.g. in the basement of a multi-dwelling building), the existence and extent of difficulties for access seekers to regularly enter the building should be assessed. Differences in accessibility in this regard may arise if the owner of the network in a building does not coincide with the owner of the building. If there are major difficulties to enter or access a building, NRAs should determine an access point outside a building.

35 Accessibility of access points inside or outside buildings may also be altered by legal and administrative constraints exogenous to telecom regulation relating to national and regional contexts, such as urban planning rules or safety standards. Such constraints should be taken into account by NRAs when determining the first concentration or distribution point.

36 Accessibility in the sense of entering the first concentration or distribution point may also depend on the infrastructure in the proximity of the access point available to the other operators which can potentially be used (e.g. ducts, poles, dark fibre). Thus, capacity considerations regarding those network elements (e.g. space in ducts, capacity on poles) could also have an impact on the accessibility.

37 The first concentration or distribution point should normally be determined as a physically accessible point close to the end-user where passive access to wirings, cables and associated facilities is possible. However, exceptionally in cases where the accessibility requirements for providing passive access cannot be met at a point that is reasonably close to the end-user, NRAs may determine the first concentration or distribution point on the grounds of active or virtual accessibility.

38 Determination of the first concentration or distribution point should not be affected by replicability considerations and the number of hosted end-user connections that an efficient access seeker needs for commercial viability. Instead, such considerations come into play when determining whether or not to impose access obligations on the first concentration or distribution point and when determining the point beyond the first concentration or distribution point (see items (b) and (e) below).

39 Having regard to the explanations in paragraphs 23 to 38, NRAs should take utmost account of the following criteria, when determining the first concentration or distribution point:

The first concentration or distribution point, pursuant to Art. 61 (3) subparagraph 1 EECC, is the point situated closest to the end-user that

i. is accessible or can be made accessible without unreasonable effort by the ECN provider or network owner, which in particular

   a. entails a dedicated facility for concentration or distribution of network cables, e.g. a dedicated space in the basement of a building or a street cabinet, that can be accessed by the access seeker on a regular basis,

   b. entails network infrastructure that can be unbundled without unreasonable effort by the access seeker, e.g. because there is a detachable connection, and

ii. is the first accessible concentration or distribution point located inside a building or the first subsequent accessible concentration or distribution point located outside a building.

Item (e): High and non-transitory economic or physical barriers to replication

40 In this subsection, BEREC sets out relevant criteria for determining which economic or physical barriers to replication are high and non-transitory.

41 Art. 61 (3) subparagraph 2 EECC states that the imposition of access obligations may be extended beyond the first concentration or distribution point when "[…] *a national regulatory authority concludes, having regard, where applicable, to the obligations resulting from any relevant market analysis, that the obligations imposed in accordance with the first subparagraph do not sufficiently address* ***high and non-transitory economic or physical barriers*** *to replication which underlie an existing or emerging market situation significantly limiting competitive outcomes for end-users* […]*"* (emphasis added).

Recital 154 further specifies in that regard:

"…while confining such obligations to points as close as possible to end-users capable of hosting a sufficient number of end-users, where it is demonstrated that replication faces ***high and non-transitory physical or economic barriers****, leading to important competition problems or market failures at the retail level to the detriment of end-users."* (emphasis added).

42 According to Art. 61 (3) EECC, NRAs have to assess if there are high and non-transitory economic or physical barriers to network replication which lead to significant competition problems or market failures at the retail level to the detriment of end-users.

Thus, the high and non-transitory barriers addressed under Art. 61 (3) EECC may be of economic or physical nature. The rationale of this provision is to take into account obstacles to network replication originating in the economic conditions for the business case (e.g. costs and revenues) as well as physical barriers originating from technical, legal, or administrative restrictions or requirements that impact network replication. Such restrictions or requirements may lead to barriers, which could also impact the business case of an access seeker and increase the costs. Therefore, an interdependency between physical and economic barriers is often observable. Economic barriers are described in paragraphs 55 to 65. Physical barriers are described in paragraph 66.

43 BEREC considers that the notion of "high" barriers refers to the level of risk that is induced by economic or physical obstacles, including obstacles of a technological nature. If NRAs conclude that an obstacle, economic or physical, deters an efficient network operator from replicating a network or part of a network, the obstacle should be considered a high barrier within the meaning of Art. 61 (3) subparagraph 2 EECC.

44 The notion of "non-transitory" barriers refers to the period of time during which an obstacle is expected to persist. Barriers to replication can be viewed as non-transitory if they are likely to persist in the long-term. If, however, there are sufficient indicators that barriers may disappear or significantly diminish in the short term, the barriers in question should not be considered as non-transitory. Examples of transitory barriers are legal or administrative barriers that are very likely to change in the near future.

45 Usually significant sunk costs combined with low expected economies of scale leading to a low prospect of cost recovery will result in high and non-transitory barriers to replication.

46 If obligations at the first concentration or distribution point do not sufficiently address high and non-transitory barriers to replication, it may also be necessary for a NRA to determine where a commercially viable access point beyond the first concentration or distribution point (called "access point beyond" in the present guidelines) should be located.[13] This can, for example, be the case when an access seeking operator cannot have access up to the first concentration or distribution point, from the point of view of the core network, and would need to replicate that part of the network in order to provide downstream services.

47 From recital 154 it follows that the imposition of obligations according to Art. 61 (3) EECC requires an assessment of the replicability of networks or network elements in order to address existing or emerging competition problems or market failures at the retail level to the detriment of end-users without the need to find significant market power according to Art. 63 (2) EECC.

[13] See below in section Item (b): The point beyond the first concentration or distribution point.

48 Furthermore, high and non-transitory barriers in the context of Art. 61 (3) subparagraph 2 EECC are, according to recital 154 EECC, more likely to exist in geographic areas where the business case for alternative infrastructure rollout is more risky, for example because those areas are characterised by low population density and/or a limited number of multi-dwelling buildings. This does not exclude the presence of high and non-transitory barriers in urban areas, e.g. because the costs of deployment of optic networks, including street cabinets, may be high due to urban planning rules, limited duct availability or other factors specific to urban areas.

49 It should be noted that the geographic areas addressed under Art. 61 (3) EECC are unrelated to geographic markets defined according to Art. 64 (3) EECC.

50 BEREC considers that the criteria examined in the assessment of high and non-transitory economic or physical barriers to network replication, within the scope of Art. 61 (3) EECC, differ from those examined when an NRA analyses the extent of barriers to entry, within the scope of an analysis of significant market power pursuant to Art. 67 (1) EECC as follows.

51 The difference in the analysis of high and non-transitory barriers – within the scope of Art. 61 (3) and Art. 67 (1) EECC respectively – is that the former encompasses an examination of economic or physical barriers for replicating networks or network elements, whereas the assessment of structural, legal or regulatory barriers of entry within the scope of SMP market analysis concerns entry to a whole market defined under Art. 64 (3) EECC. While the analysis under Art. 61 (3) EECC focuses on the respective network elements and their replicability, Art. 67 EECC also considers other characteristics of the undertakings in order to analyse whether an operator holds an SMP position. Therefore, an assessment under Art. 61 (3) EECC differs in scope compared to an assessment pursuant to Art. 67 EECC and there is also no need to establish SMP in the context of Art. 61 (3) EECC.

52 Thus, if an operator faces technical or economic barriers to replicate the relevant network or network elements, the operator may need access to the part of a network that is considered non-replicable (and therefore represents a bottleneck), in order to provide downstream services.

53 An efficient access seeker has to replicate the part of the network between the point where access is granted to the non-replicable elements of the access provider's network and his own network, either by deploying network elements, buying wholesale access, or a combination of both. Which part of the access provider's network could be regarded as replicable, depends on the commercial viability of an efficient access seeker's business case.

54 To assess the commercial viability of a business case, NRAs should assume that an efficient access seeker would reach the access point by using the most efficient options (see Figure 2), i.e. either deploying the necessary elements to reach this specific point

and/or using regulated or commercial wholesale products where available (e.g. ducts or poles).[14]

Economic barriers

55 In order to be commercially viable, access at a specific access point must allow efficient access seekers to make a profitable business case and enable access seekers to overcome barriers to replication. The factors considered for determining the existence of economic high and non-transitory barriers to replication are (see Figure 2) the (expected) costs on the one hand (paragraphs 57 to 63) and the (expected) revenues on the other hand (paragraph 64).

56 The main economic barriers to replication of telecommunications networks are related to economies of scale and sunk costs. Network rollout usually involves significant investments, most of which cannot be recouped when exiting the market (and therefore are sunk). If there is uncertainty about the success of market entry, the amount of sunk costs which are lost in the case of market exit increases the financial risk of market entry. At the same time, significant economies of scale may be required in order to spread fixed costs over a large number of customers and achieve a profitable business case, in particular for consumer broadband services. Economies of scale may be difficult to achieve for new entrants, in particular if the number of end-user connections that can be reached from a certain access point is small, if markets are mature or if consumers face significant switching costs.

57 BEREC regards the main factors determining the costs of an efficient access seeker consisting of the costs for deployment of network infrastructure as well as wholesale expenses including those for access obligations which would be imposed under Art. 61 (3) EECC.

58 The average costs for reaching an end-user are also determined by the achievable economies of scale and will thus be lower if a higher number of customers are connected to the access point.

59 Access points can be reached by using wholesale products, rolling out own infrastructure or a combination of both. Barriers to replicating networks or network elements will be higher if the total costs and the degree of sunk costs, which cannot be recouped when exiting the market, are high.

60 NRAs should only consider the most efficient options, i.e. the options associated with the lowest costs for an efficient access seeker, when assessing the costs of replication. This does not exclude the possibility to assess the calculation of actual costs undertaken by the access seeker, if the access seeker is considered to be sufficiently efficient.

[14] See further below: Item (b): The point beyond the first concentration or distribution point, p. 16 onwards.

61 The costs for the incremental rollout of the access seekers' own infrastructure depend on the costs of civil infrastructure works efficiently incurred which are influenced in particular by:

i. The length of the necessary network deployment (in meters/kilometres),

ii. labour costs for civil infrastructure works,

iii. planning rules and deployment technology, e.g. whether micro-trenching or the deployment of cables outside buildings or aerial cabling is possible,

iv. soil and other geographic conditions

v. the extent to which network deployment costs can be shared with other undertakings, and

vi. fees for occupying public places or land.

62 Barriers to replication are usually higher if the access seeker has to do civil works, since the investment costs are often significant and will usually be sunk. On the other hand, barriers will be lower if costs for civil works can be avoided by using existing ducts, poles, dark fibre or leased lines.

63 If wholesale products (regulated or commercial) such as ducts, poles, dark fibre or leased lines are available and if an efficient access seeker can use them, the expenses for these wholesale services are also relevant for the assessment of high and non-transitory economic barriers.

64 With respect to revenues, BEREC regards the following factors to be of focal interest for an NRA's assessment for the prospect of cost recovery:

i. The number of end-users which can be connected, taking into account:

- the expected market share of an efficient access seeker – in terms of number of end-user connections – taking into account the number and market position of other operators in the same area and the market developments (e.g. growth),

- the expected average revenue per customer (ARPU), based on the retail prices that an efficient access seeker would optimally set, which depends on willingness to pay, the expected change in the degree of competition, local variations in costs as well as services that can be provided (internet access, voice telephony, IPTV, business services, leased lines, IoT-network services, OTT-services, etc.), and

ii. expected wholesale revenues if relevant.

65 When assessing the access seeker's business case for the network deployment in question, an NRA has to make assumptions on the time horizon for the business case. The time horizon is the period of time, which an efficient access seeker would normally consider for assessing the prospect of his investment. The revenues incremental to the network deployment during this period of time have to be estimated as well as the corresponding incremental costs of the access seeker's network deployment and the costs for any wholesale services required to provide services to customers. There are different methods to compare costs and revenues, for instance a widely accepted method is to estimate the net present value over the time horizon of the investment. To assess whether a certain period of time is reasonable, a NRA may use data from the access seeker's request as well as from any other suitable data source to draw its conclusions. It should be noted that the time horizon is not an indicator for the period of time for which a network deployment is considered to be new (see paragraph 91).

66 The replicability and business case assessment can be also informed by actual evidence of replication of networks in other areas, in conditions that are comparable to the conditions relevant for the network subject to the request, including technical characteristics, inputs required for replication, population density, offered services and wholesale/retail prices.

Physical barriers

67 Physical barriers in the context of Art. 61 (3) EECC derive from technical, legal, or administrative restrictions and requirements that impact the replication of networks or network elements.

Relevant physical barriers to reach the access point are in particular the following:

i. Limitations in physical space which may limit the possibility to deploy new ducts, cables or lines,

ii. other limitations in physical space that do not permit the deployment of any additional networks (e.g. medieval quarters in urban areas),

iii. space limitations for installation of active equipment, including limitations in the possibility to construct facilities for network nodes,

iv. limitations in the number of network lines or capacity constraints limiting the number of possible access seekers that may utilize certain network lines,

v. soil or geographic conditions or physical conditions of buildings that lend themselves unsuitable for additional network deployment,

vi. impossibility to gain physical access to building or soil, due to refusal by landlords, which may e.g. originate from refusal to contract or limitation due to legislative or regulatory requirements,

vii. other legal or regulatory requirements, such as urban planning rules, construction safety standards or other similar laws or regulations, that hinder network replication.

68 Having regard to the explanations in paragraphs 41 to 66 NRAs should take utmost account of the following criteria, when determining which economic or physical barriers to replication are high and non-transitory:

High and non-transitory economic or physical barriers to replication, pursuant to Art. 61 (3) subparagraph 2 EECC, entail obstacles which create a level of risk that deters efficient network operators from replicating a network, or part of a network, and which are unlikely to disappear or significantly diminish in the short term. In particular, high and non-transitory barriers

i. include significant costs, especially sunk costs associated with civil infrastructure works, for network replication,

ii. are present if the prospect of cost recovery is low because an efficient access seeker is not able to obtain sufficient retail and, where relevant, wholesale revenues,

iii. include technical, legal or administrative requirements and restrictions that hinder network replication, as well as the impossibility to gain physical access to buildings or soil.

Item (b): The point beyond the first concentration or distribution point

69 Under item (b) BEREC has to define criteria for determining an access point closest to the end-user but beyond the first concentration or distribution point that is capable of hosting a sufficient number of end-user connections to be commercially viable for an efficient access seeker and thus allows to overcome the significant replicability barriers identified. As stated above, BEREC will further refer to the access point beyond the first concentration or distribution point as **"access point beyond"** in the present guidelines.

70 Generally, an access point beyond could be any existing network point that is accessible or any network point which can be set up and made accessible without unreasonable effort given the existing network infrastructure.

71 The access point beyond is endogenously defined to be the point closest to end-users where incremental revenues of an efficient access seeker are (at least) equal to the efficient access seekers total incremental costs (see Figure 2). Figure 5 illustrates this condition and shows which part of the network is normally considered replicable and which part is normally considered non-replicable.

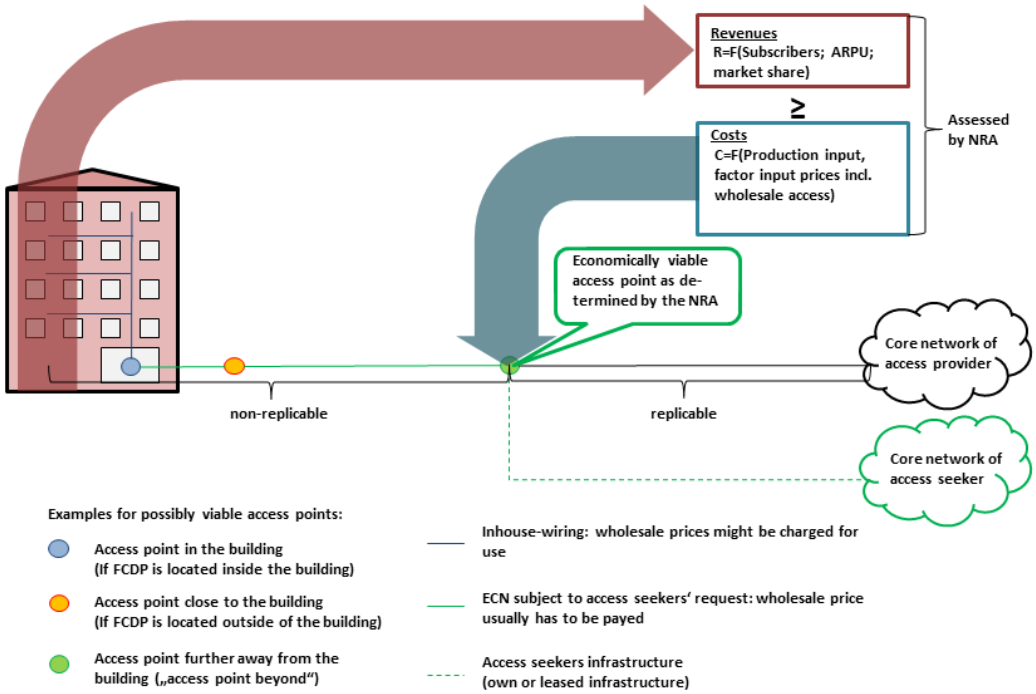

Figure 5: Condition for the determination of the access point beyond

72 Different approaches for the assessment of commercial viability of a business case are well established in economic practice. To determine whether entry is commercially viable at a certain access point within the context of Art. 61 (3) EECC, NRAs should examine the costs of the incremental network deployment related to access for an efficient access seeker. Thereafter, NRAs should determine whether an efficient access seeker could gain sufficient revenues over the time horizon of the investment in order to cover the costs and thus overcome the economic barriers to replication by using the access point beyond to supply customers.

73 When determining the access point beyond, instead of looking at the characteristics of individual operators requesting access, NRAs can use assumptions on the characteristics of a hypothetical generic efficient access seeker including a corresponding share of prospective customers in the respective area, and which type of product the access seeker is expected to provide for end-users and, also if applicable, wholesale customers.

74 Assumptions on relevant parameters to estimate the total incremental costs (see paragraph 74) and revenues (see paragraph 75) for an efficient access seeker's business case may also take into consideration data from the actual operator requesting access, any cases of actual replication in comparable conditions as well as from other relevant sources if they are considered sufficient. The data considered should be subject to an objective assessment by the NRA in order to determine

whether an efficient access seeker has a viable business case. Within this context, NRAs may draw on their previous experiences with e.g. SMP regulation such as copper and fibre network unbundling.

75 When assessing costs related to the access seeker's business case, BEREC recommends that NRAs should consider (see Figure 2):

i. Wholesale expenses for parts of the network that would be subject to access obligations under Art. 61 (3) EECC,
ii. incremental costs, including the costs of capital, for own infrastructure roll-out to reach the access point and/or wholesale expenses for other services or physical infrastructure to reach the access point, and
iii. other incremental costs, including any costs attributable to the business case, such as customer acquisition costs.

76 Revenues are driven by the number of end-users that can be connected, the expected market share of an efficient access seeker and the expected average revenue per user (ARPU), depending on the type of service that the efficient access seeker is expected to provide, and wholesale revenues if applicable.

77 If an operator requests physical access, the criteria on accessibility as per paragraphs 31 to 36 are also relevant when determining the access point beyond, as this access point also has to be reasonably accessible.

78 If it is instead justified on technical or economic grounds to impose active access obligations such as virtual unbundling, the access point still needs to allow for network hand-over and may need to provide a possibility for collocation.

79 If access has already been imposed under Art. 61 (3) EECC at an access point beyond, the network operator should in principle provide access to this point on a non-discriminatory basis also to other access seekers. It could also be justified to impose a virtual access obligation to the same access point, if, for some reason, it would no longer be technically possible to provide physical access. Normally, subsequent access requests under Art. 61 (3) EECC to a point farther away from the end-user than the access point where access has been imposed, would not be justified.

80 The impact of the cost driving factors described in paragraphs 56 to 60 on the cost per subscriber largely depends on the size of the access point considered. The size of the access point is in turn determined by the number of connected end-users and potential subscribers (premises passed). The size of the access point in terms of premises passed will also differ depending on where in the network hierarchy the access point is situated (building, street cabinet, etc.).

81 In principle, the assessment of commercial viability should be made separately for each access point, unless the NRA is confronted with the assessment of a potentially large number of access points. In this case, if access points are sufficiently similar, those access points could be grouped together.

82 The number of end-user connections that an efficient access seeker needs to connect in order to make access at a given access point beyond commercially viable can vary significantly not only between Member States or different hierarchical levels of the network topology (e.g. a fibre node in a street cabinet compared to a more central network node), but also between access points on the same level of the network topology, depending on the population density in different geographic areas of the network (i.e. variations in the number of end-user connections hosted in fibre nodes in particular street cabinets).

83 Thus, it might be necessary to divide a network that is subject to a request for access according to Art. 61 (3) EECC into clusters, taking into account variations of the commercial viability of each possible access points in the same network. The main criterion for defining clusters will usually be population density, but clusters should also take into account the network topology and at which access points access obligations could be imposed. In addition, the number and size of multi-dwelling buildings will usually also play a role. Consequently, different access points might be determined as being commercially viable for each cluster of the network at hand.

84 The extent of demand for local loop unbundling (LLU) at an MDF or sub-loop unbundling (SLU) at the street cabinet on the basis of current SMP regulation may reveal valuable information on economies of scale reflecting national circumstances and could be used to assess an access request under Art. 61 (3) EECC. Access seekers tend to initially unbundle at central access points with a higher number of end-user connections, and then move to smaller access points. Points of handover that do not allow for a commercially viable business case because of a low number of end-user connections hosted are normally not accessed by access seekers. However, it should be borne in mind that the business case for access seekers may differ between legacy copper networks and new networks based on fibre.

85 Having regard to the explanations in paragraphs 68 to 83, NRAs should take utmost account of the following criteria, when determining the point, beyond the first concentration or distribution point, capable of hosting a sufficient number of end-user connections to enable an efficient access seeker to overcome the significant replicability barriers identified:

The point beyond the first concentration or distribution point, pursuant to Art. 61 (3) subparagraph 2 EECC, is the first subsequent access point:

i. that is located closest to the end-user, whilst providing for a commercially viable business case for an efficient access seeker, effectively allowing the access seeker to attain sufficient revenues over the time horizon of the investment that at least equal the expected incremental costs, including capital costs, for network deployment,

ii. that is accessible, as described in paragraphs 31-36, for the purpose of imposing access to physical network infrastructure, or allows for network hand-over and if necessary the possibility for collocation, for the purpose of imposing active or virtual access, where this would be justified on technical or economic grounds,

iii. that, if access is granted, would allow an efficient access seeker to overcome the high and non-transitory economic or physical barriers identified by the NRA.

If the NRA determines it appropriate to segment the network into different clusters, the access points beyond the first concentration or distribution point may differ between those clusters, in order to meet the criteria set out in points i-iii above.

Item (c): Network deployments to be considered new

86 Under item (c) BEREC has to set out criteria for determining which network deployments can be considered to be new.

87 The criteria have to be viewed in the context of the wording of Art. 61 (3) subparagraph 3 (b) EECC which states that obligations beyond the first concentration or distribution point should not be imposed where they "[…] *would compromise the economic or financial viability of a new network deployment, in particular by small local projects*". Thus, the exemption aims to protect new network deployments, if the imposition of access obligations beyond the first concentration or distribution point would compromise the economic or financial viability of a new network deployment.

88 Generally, access obligations under Art. 61 (3) subparagraph 2 EECC have to be imposed on fair and reasonable terms and conditions. Additionally, these obligations and conditions shall, according to Art. 61 (5) EECC, be objective, transparent, proportionate and non-discriminatory. Therefore, access obligations under Art. 61 (3)

EECC normally should preserve investment incentives.[15] Nonetheless, new network deployments, in particular by small, local projects, may be impacted negatively by imposing access obligations. For that reason, Art. 61 (3) subparagraph 3 (b) provides for an explicit exemption for new network deployments.

89 In case of new network deployments, a first mover advantage might be needed in situations where the prospect of achieving economies of scale is low and there is low investment certainty including future demand. A reasonable take-up for the network deployed would therefore be required for the investor to gain a sufficient rate of return.

90 NRAs should take into account that the operator granting access to its ECN is compensated for the access provision by an appropriate wholesale access price. In this context it is also important to weigh in, that the entry of an access seeker could generally enhance the take-up of the access network, which could possibly affect the economic viability for all network users positively. This could especially be the case where the access point is situated at a more central location in the ECN operator's network, as a large number of network elements are jointly used at this point.

91 Whilst the need to preserve a first-mover advantage depends on how much time a network operator needs to capture end-users and generate profits, an advantage should not be preserved over an overly extensive period of time, impairing the benefits of competition for end-users.

92 Thus a "new" network deployment is a network which has been recently built[16] in the sense that service provision to customers started only recently.[17] Since this criterion has to be viewed in the context of the financial viability, the NRA should investigate whether a new network needs a "first mover advantage" in order to be profitable. If a first mover advantage is needed, BEREC considers a maximum period of five years from the start of service provision long enough to establish such an advantage. Therefore, in principle, an exemption would not apply to networks older than five years. However, the time period for an exemption to be in effect could also be shorter than five years.

93 Upgrades of existing networks are unlikely to require a first mover advantage to be financially viable, in particular if the network owner or operator holds a significant market share. In some cases, however, upgrades of existing networks might need a first mover advantage. This could be the case if the upgrade requires significant investments in civil infrastructure and/or new wiring and cables (e.g. fibre) in the access network and the take-up is expected to be limited. Therefore, upgrades of only active network elements should normally not be considered as a new network deployment. For instance, although certain copper enhancing technologies (such as vectoring)

[15] See also recital 157 EECC.
[16] This can also be derived from recital 155, which refers to recently deployed network elements.
[17] It is noted that the concept of "new" under Art. 61 (3) EECC, referring to existing infrastructure, does not have the same meaning as the concept of "new" in Art. 76 EECC, which applies to co-investment schemes.

could increase the capabilities of the existing networks, they may not require significant investments in new infrastructure.[18]

94 Having regard to the explanations in paragraphs 86 to 92, NRAs should take utmost account of the following criteria, when determining which network deployments can be considered to be new:

Network deployments to be considered new, pursuant to subparagraph 3 (b) EECC:

i. are limited to networks that were recently deployed, meaning that service provision to customers started no longer than five years ago, and

ii. normally does not include upgrades of existing networks, unless the investments in physical infrastructure, e.g. new ducts and wiring – such as fibre lines – are significant and if the take-up or market share of the network is expected to be limited, thus requiring a first mover advantage.

Item (d): Projects to be considered small

95 Under item (d) BEREC has to set out criteria for determining when a new network deployment should be considered small.

96 The criteria have to be viewed in the same context as the criteria under item (c) i.e. new network deployments. Many ECN deployments are conducted by small, local undertakings, for example co-operative consumer built networks, rural municipalities and other undertakings with a limited geographical reach that do not have the ability to spread commercial risk between different projects. Conversely, the exemption does not seem to be directed towards a large undertaking involved in many local projects, as large ECN providers can spread commercial risk between different projects that individually may be quite small.

97 Thus, when determining whether a project is to be considered small or not, it is important to take the size of the undertaking rolling out the network into account. This can also be derived from recital 155 which, with regard to recently deployed network elements, states that certain **categories of owners or undertakings** can be exempted from the imposition of access obligations beyond the first concentration or

[18] See in comparison the Guidelines of the European Commission for the application of state aid rules in relation to the rapid deployment of broadband networks (2013/C 25/01), which state - regarding the term “significant new investments in the broadband network” - in footnote 64 *(*OJ C 25, 26.1.2013, p. 12): “For instance, marginal investments related merely to the upgrade of the active components of the network should not be considered eligible for State aid. Similarly, although certain copper enhancing technologies (such as vectoring) could increase the capabilities of the existing networks, they may not require significant investments in new infrastructure hence should not be eligible for State aid.”

distribution point. Within this context, it has to be noted that the exemption according to Article 61 (3) subparagraph 3 EECC only refers to providers of electronic communications networks.

98 For the purpose of setting criteria for which undertakings that would normally benefit from the exemption rule for small network deployments, the concept of "undertaking" as used in EU competition law is relevant.[19]

99 Turnover is an appropriate measure to assess both the size of the broadband access market and the size of the activities of an undertaking active on this market.

100 The relative size of an undertaking active in the electronic communications sector, regardless if it is comprised of an individual company or a corporate group, can be measured by dividing the turnover of the undertaking generated in broadband markets by the total revenue generated by all undertakings active in these markets.

101 The number of connections owned or controlled by the undertaking could also be considered relevant for determining the relative size of the undertaking in this context. The number of connections should be set in relation to the total number of broadband access lines in the national market.

102 BEREC is therefore of the opinion that projects should be considered small in the meaning of Art. 61 (3) subparagraph 3 (b) EECC if they are deployed by undertakings whose economic activities are local, and if the undertaking concerned is not active in the whole or a major part of the broadband market concerned. Typical projects regarded as small would e.g. be projects by companies owned by communities rolling out municipal networks, co-operative end-user built networks or networks rolled out by new entrants in the market. In the latter case, in line with the principle set out above, the size of the undertaking or corporate group in sectors other than electronic communications should not be considered as a relevant factor (e.g. electricity network operators which only recently entered the electronic communication market).

103 BEREC notes that the exemption seems to refer to categories of owners or undertakings, rather than to individual projects (see paragraphs 95 and 96). In the case of network deployment projects led by large undertakings, these projects would typically not be considered as small within the meaning of Art. 61 (3) subparagraph 3 (b) EECC. However, large undertakings may still benefit from the exemption in Art. 61 (3) subparagraph 3 (b) EECC, if the imposition of access regulation would compromise the financial viability of a new network deployment, even though their network deployments are not considered small.[20]

104 Projects by undertakings where the undertaking in total has less than 500 potential end-users (homes and small businesses) connected to its network can usually be

[19] See by analogy: Case C-97/08 P, *Akzo Nobel* (2009) para. 54-59

[20] Concerning new network deployments, see above: para. 86.

considered small. However, projects by undertakings with a higher total number of potential end-user connections might still be considered small, depending on the outcome of an analysis according to paragraphs 95 to 101.

105 Given the explanations in paragraphs 95 to 102 NRAs should take utmost account of the following criteria, when determining which projects can be considered small:

Projects to be considered small, pursuant to Art. 61 (3) subparagraph 3 (b) EECC

i. should only include projects carried out by undertakings which are not active in the whole or a major part of the broadband market, e.g. projects undertaken by small municipal networks, co-operative end-user built networks or networks rolled out by new entrants in the market,

ii. should only include projects carried out by undertakings of a limited size on the broadband market, whereas the size of the undertaking in question should be measured relative to the total turnover and/or total number of active or passive connections on the national broadband market,

iii. as a presumption include projects carried out by undertakings which have less than 500 potential end-users connected to their network.

Abbreviations

ARPU	Average Revenue Per User
Art.	Article
BEREC	Body of European Regulators for Electronic Communications
cf.	compare (from Latin “conferatur”)
CN	Contact Network
DSLAM	Digital Subscriber Line Access Multiplexer
e.g.	for example (from Latin “exempli gratia”)
ECN	Electronic Communication Network
EECC	European Electronic Communication Code
etc.	and so forth (from Latin “et cetera”)
EU	European Union
FCDP	First Concentration or Distribution Point
FD	Framework Directive
G-PON	Gigabit Passive Optical Network
HFC	Hybrid Fibre-Coax
i.e.	that is (from Latin “id est”)
incl.	including
IoT	Internet of Things
IPTV	Internet Protocol Television
LLU	Local Loop Unbundling
MDF	Main Distribution Frame
MPoP	Minimum Point of Presence
NGA	Next-Generation Access
NRA	National Regulatory Authority
OTT	Over-the-top Content
p.	page
para	paragraph
PON	Passive Optical Network
SLU	Sub-loop Unbundling
SMP	Significant Market Power
VHC(N)	Very High Capacity (Network)

Annex I

Art. 61 (3)

In particular, and without prejudice to paragraphs 1 and 2, national regulatory authorities may impose obligations, upon reasonable request, to grant access to wiring and cables and associated facilities inside buildings or up to the first concentration or distribution point as determined by the national regulatory authority, where that point is located outside the building. Where it is justified on the grounds that replication of such network elements would be economically inefficient or physically impracticable, such obligations may be imposed on providers of electronic communications networks or on the owners of such wiring and cables and associated facilities, where those owners are not providers of electronic communications networks. The access conditions imposed may include specific rules on access to such network elements and to associated facilities and associated services, on transparency and non-discrimination and on apportioning the costs of access, which, where appropriate, are adjusted to take into account risk factors.

Where a national regulatory authority concludes, having regard, where applicable, to the obligations resulting from any relevant market analysis, that the obligations imposed in accordance with the first subparagraph do not sufficiently address high and non-transitory economic or physical barriers to replication which underlie an existing or emerging market situation significantly limiting competitive outcomes for end-users, it may extend the imposition of such access obligations, on fair and reasonable terms and conditions, beyond the first concentration or distribution point, to a point that it determines to be the closest to end-users, capable of hosting a sufficient number of end-user connections to be commercially viable for efficient access seekers. In determining the extent of the extension beyond the first concentration or distribution point, the national regulatory authority shall take utmost account of relevant BEREC guidelines. If justified on technical or economic grounds, national regulatory authorities may impose active or virtual access obligations.

National regulatory authorities shall not impose obligations in accordance with the second subparagraph on providers of electronic communications networks where they determine that:

(a) the provider has the characteristics listed in Article 80 (1) and makes available a viable and similar alternative means of reaching end-users by providing access to a very high capacity network to any undertaking, on fair, non-discriminatory and reasonable terms and conditions; national regulatory authorities may extend that exemption to other providers offering, on fair, non-discriminatory and reasonable terms and conditions, access to a very high capacity network; or
(b) the imposition of obligations would compromise the economic or financial viability of a new network deployment, in particular by small local projects.

By way of derogation from point (a) of the third subparagraph, national regulatory authorities may impose obligations on providers of electronic communications networks fulfilling the criteria laid down in that point where the network concerned is publicly funded.

By 21 December 2020, BEREC shall publish guidelines to foster a consistent application of this paragraph, by setting out the relevant criteria for determining:

(a) the first concentration or distribution point;
(b) the point, beyond the first concentration or distribution point, capable of hosting a sufficient number of end-user connections to enable an efficient undertaking to overcome the significant replicability barriers identified;
(c) which network deployments can be considered to be new;
(d) which projects can be considered to be small; and
(e) which economic or physical barriers to replication are high and non-transitory.

Annex II

Recital (152)

In situations where undertakings are deprived of access to viable alternatives to non-replicable wiring, cables and associated facilities inside buildings or up to the first concentration or distribution point and in order to promote competitive outcomes in the interest of end-users, national regulatory authorities should be empowered to impose access obligations on all undertakings, irrespective of a designation as having significant market power. In that regard, national regulatory authorities should take into consideration all technical and economic barriers to future replication of networks. However, as such obligations can in certain cases be intrusive, can undermine incentives for investments, and can have the effect of strengthening the position of dominant players, they should be imposed only where justified and proportionate to achieving sustainable competition in the relevant markets. The mere fact that more than one such infrastructure already exists should not necessarily be interpreted as showing that its assets are replicable. If necessary in combination with such access obligations, undertakings should also be able to rely on the obligations to provide access to physical infrastructure on the basis of Directive 2014/61/EU. Any obligations imposed by the national regulatory authority under this Directive and decisions taken by other competent authorities under Directive 2014/61/EU to ensure access to in-building physical infrastructure or to physical infrastructure up to the access point should be consistent.

Recital (154)

It is important that when national regulatory authorities assess the concentration or distribution point up to which they intend to impose access, they choose a point in accordance with BEREC guidelines. Selecting a point nearer to end-users will be more beneficial to infrastructure competition and the roll-out of very high capacity networks. In this way the national regulatory authority should first consider choosing a point in a building or just outside a building. It could be justified to extend access obligations to wiring and cables beyond the first concentration or distribution point while confining such obligations to points as close as possible to end-users capable of hosting a sufficient number of end-users, where it is demonstrated that replication faces high and non-transitory physical or economic barriers, leading to important competition problems or market failures at the retail level to the detriment of end-users. The assessment of the replicability of network elements requires a market review which is different from an analysis assessing significant market power, and so the national regulatory authority does not need to establish significant market power in order to impose these obligations. On the other hand, such review requires a sufficient economic assessment

of market conditions, to establish whether the criteria necessary to impose obligations beyond the first concentration or distribution point are met. Such extended access obligations are more likely to be necessary in geographical areas where the business case for alternative infrastructure rollout is more risky, for example because of low population density or because of the limited number of multi-dwelling buildings. Conversely, a high concentration of households might indicate that the imposition of such obligations is unnecessary. National regulatory authorities should also consider whether such obligations have the potential to strengthen the position of undertakings designated as having significant market power. National regulatory authorities should be able to impose access to active or virtual network elements used for service provision on such infrastructure if access to passive elements would be economically inefficient or physically impracticable, and if the national regulatory authority considers that, absent such an intervention, the purpose of the access obligation would be circumvented. In order to enhance consistent regulatory practice across the Union, the Commission should be able to require the national regulatory authority to withdraw its draft measures extending access obligations beyond the first concentration or distribution point, where BEREC shares the Commission's serious doubts as to the compatibility of the draft measure with Union law and in particular the regulatory objectives of this Directive.

Recital (155)

In such cases, in order to comply with the principle of proportionality, it can be appropriate for national regulatory authorities to exempt certain categories of owners or undertakings, or both, from obligations going beyond the first concentration or distribution point, which should be determined by national regulatory authorities, on the grounds that an access obligation not based on an undertaking's designation as having significant market power would risk compromising their business case for recently deployed network elements, in particular by small local projects. Wholesale-only undertakings should not be subject to such access obligations if they offer an effective alternative access on a commercial basis to a very high capacity network, on fair, non-discriminatory and reasonable terms and conditions, including as regards price. It should be possible to extend that exemption to other providers on the same terms. The exemption may not be appropriate for providers that are in receipt of public funding.

Recital (157)

While it is appropriate in some circumstances for a national regulatory or other competent authority to impose obligations on undertakings irrespective of a designation of significant market power in order to achieve goals such as end-to-end connectivity or interoperability of services, it is necessary to ensure that such obligations are imposed in accordance with the regulatory framework and, in particular, its notification procedures. Such obligations should be imposed only where justified in order to secure the objectives of this Directive, and where they are objectively justified, transparent, proportionate and non-discriminatory for the purpose of promoting efficiency, sustainable competition, efficient investment and innovation, and giving the maximum benefit to end-users, and imposed in accordance with the relevant notification procedures.