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Access to physical infrastructure in the context of market analyses

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Contents

1. EXECUTIVE SUMMARY AND MAIN FINDINGS

Physical infrastructure (such as ducts and poles used to deploy networks) represents a significant proportion of the investment in NGA networks. Measures aimed at facilitating greater use of existing physical infrastructure can reduce the civil engineering works required to deploy new networks, significantly lowering costs.

In this report, “physical infrastructure” refers to civil engineering infrastructure able to accommodate electronic communications networks, such as ducts, chambers, manholes and poles, in line with the definition used in the Broadband Cost Reduction Directive (BCRD). As a consequence, dark fibre and the unbundling of fibre or copper lines are not included in the scope of physical infrastructure.

Based on a questionnaire completed by NRAs, this report depicts the different approaches taken regarding the regulation of access to physical infrastructure. Out of the 34 NRAs that provided answers to the BEREC questionnaire, 26 are regulating access to physical infrastructure as a result of their market analysis. Eight NRAs do not impose any remedies with regard to physical infrastructure on any of the markets, either because the relevant market is deregulated or because other remedies/legal instruments are deemed to be sufficient or more appropriate. Almost all NRAs dealing with access to physical infrastructure in their market analysis (25 out of 26) answered that it is regulated under market 3a, while three of these NRAs also regulate it under market 3b (in addition to 3a) and two of these NRAs also regulate it under market 4 . Further details, notably on the remedies applied, can be found in section 4.

There are potential challenges to the existing regulatory structures, which might arise in the future due to a number of factors, including:

- Technological changes that might require a redefinition of the markets and physical infrastructure remedy. This might include greater convergence in wireless and fixed services, or between markets 3a, 3b and 4;
- Increased infrastructure-based competition (promoted by access to physical infrastructure) within Markets 3a or 4, such that continued regulation of access to physical infrastructure within these markets might need to be derived from a modified greenfield assessment (see Annex 3 for consideration of modified greenfield arguments in this context);
- The development of offers of access to physical infrastructure from alternative operators (notably under the BCRD), to the point where the SMP status of the incumbent operators regarding physical infrastructure could be questioned;
- A recognition that the competition concerns which might need to be addressed by the physical infrastructure remedy are wider than the concerns identified by the NRA under the market review process (the remedies on physical infrastructure thus being constrained by reference to the existing market’s competition concerns).

Several responses to these potential challenges can be considered, one of which would be to define a standalone market for physical infrastructure. For instance, in Switzerland a separate market for ducts was analysed. However, in the EU no NRA has so far defined a separate market for physical infrastructure. Section 5 elaborates upon the different factors that an NRA should consider if such an option is chosen.

2. INTRODUCTION AND OBJECTIVES

The EU needs significant investment in next generation access (NGA) networks that are capable of supporting a wide range of services in order to meet the needs of end-users (both residential and business consumers).

Physical infrastructure (such as ducts and poles used to deploy networks) represents a significant proportion of the investment in NGA networks. Civil engineering works are lengthy and costly processes, for instance due to the need to gather the necessary permissions and the intensive use of human resources, among other issues. Moreover, replicating existing physical infrastructure is sometimes not technically feasible and, in many cases, not economically profitable. Measures aimed at facilitating greater use of existing physical infrastructure can reduce the civil engineering works required to deploy new networks, significantly lowering costs.

In this context, the European Electronic Communications Code (EECC) places the promotion of efficient investment at the forefront of the legislative reform that will set the terms for the activity of telecommunications operators in the EU over the next decade. With this aim, the EECC contains a number of measures intended to promote access to the available physical infrastructure. Facilitating a greater use of existing physical infrastructure has also the benefit of promoting competition, as incumbent operators usually own a large portion of the physical infrastructure already in place to deploy networks; therefore, having to replicate such physical infrastructure would create an important barrier to entry in the ECS markets. As such, effective access to the incumbent operators' physical infrastructure is crucial to promote the deployment of high capacity (fixed and mobile) networks, and ultimately connectivity. However, the importance of access to physical infrastructure for the deployment of high capacity networks heavily depends on the extent of physical infrastructure that can be reused for such deployment. In cases where the amount of reusable physical infrastructure (especially in the access segment of the network) owned by the incumbent is limited, effective access to this infrastructure is likely not one of the crucial aspects for network deployment by alternative operators.

Most NRAs in the EEA currently regulate access to physical infrastructure in the market for wholesale local access provided at a fixed location (market 3a). Some NRAs also regulate access to physical infrastructure in market 3b or market 4.[1] BEREC has not previously studied how NRAs have chosen to precisely address access to physical infrastructure in their market analyses. Therefore, following a questionnaire completed by NRAs, this report depicts the different approaches taken regarding the regulation of access to physical infrastructure. Further details on the approaches taken by NRAs are covered in section 4.

In section 5 the report discusses developments that may lead NRAs to consider defining a separate market for access to physical infrastructure in the future. This section also discusses issues which need to be taken into account should such a market be defined. Section 6 concludes.

[1] The markets are numbered according to the Recommendation 2014/710/EU ("Recommendation on relevant markets"). Market 3b is the market for wholesale central access provided at a fixed location for mass-market products and market 4 is the market for wholesale high-quality access provided at a fixed location.

3. THE REGULATORY FRAMEWORK

This section sets out how the current and prospective regulatory frameworks address access to physical infrastructure under both *ex ante* (market-related) powers and symmetric regulation. Of particular relevance in the current framework are the Framework and Access Directives, which are discussed immediately below. We also consider the related Broadband Cost Reduction Directive (BCRD) before covering the prospective framework, which relates to the European Electronic Communications Code (EECC).

Framework and Access Directives and related guidance

EU Directive no. 2002/21/EC (Framework Directive[2]), as amended, anticipates the possibility for NRAs to decide to mandate sharing of electronic communications networks (ECN) facilities or property, including ducts, and ensures that this is allowed as a potential response to a concern about market power (see in particular, Article 12 – Co-location and sharing of network elements and associated facilities for providers of electronic communications services).

On the other hand, under EU Directive no. 2002/19/EC (Access Directive[3]), as amended, NRAs may impose obligations on operators to meet reasonable requests for access to, and use of, specific network elements and associated facilities, on the basis of the *ex ante* (asymmetric) market review process that is foreseen under EU legislation. This may include access to physical infrastructure, as the practice of NRAs up to date shows (see below).

Subsequently, additional "soft-law" instruments have been adopted by the European Commission that also refer to physical infrastructure access. Of particular relevance in this regard are Commission Recommendation no. 2010/572/EU[4] as well as Commission Recommendation no. 2013/466/EU[5] . The former contains detailed guidance regarding the way access to the civil engineering infrastructure of the SMP operator may be structured under the SMP regime, while the latter sets out the recommended costing methodology that may be used by NRAs when determining the prices for access to physical infrastructure.

BEREC's Common Position[6] (BoR (12) 127) also includes guidance on duct access.

Regarding State aid, reference should be made to the EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks (2013/C25/01)[7]. It should be noted that, according to the Guidelines (footnote 43), the public funding of civil

[2] Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive). See: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32002L0021&from=en.

[3] Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive). See: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32002L0019&from=EN.

[4] Commission Recommendation no. 2010/572/EU on regulated access to Next Generation Access Networks (NGA). See: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32010H0572&from=EN.

[5] Commission Recommendation no. 2013/466/EU on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment. See: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013H0466&from=EN.

[6] BEREC's Common Position on Best Practice in remedies on the market for wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location imposed as a consequence of a position of SMP in the relevant market.
See: https://berec.europa.eu/eng/document_register/subject_matter/berec/download/0/1127-revised-berec-common-position-on-best-pr_0.pdf.

[7] See: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52013XC0126(01)&from=EN.

engineering works may fall within the notion of State aid if the economic measures are clearly geared towards the broadband sector. The Guidelines also note (footnote 105) that whenever the State aid measure covers the funding of new passive infrastructure elements, such as ducts or poles, access should in principle be granted and be unlimited in time.

Broadband Cost Reduction Directive

EU Directive no. 2014/61/EU[8] (Broadband Cost Reduction Directive - BCRD) aims to facilitate the roll-out of high-speed electronic communications networks by promoting the joint use of existing physical infrastructure and by enabling a more efficient deployment of new physical infrastructure so that such networks can be rolled out at lower cost. The BCRD is divided into four parts:

1. The first part is dedicated to access to existing physical infrastructure and establishes that "network operators" (understood broadly to include all kinds of entities that own physical infrastructure, such as utilities or economic agents providing transport services) have the obligation to meet all reasonable requests for access to their physical infrastructure under fair and reasonable terms and conditions, including price. Therefore, any refusal of access must be based on objective, transparent, and proportionate criteria. This part of the BCRD also promotes transparency concerning the availability of minimum information regarding physical infrastructure through a Single Information Point (SIP).
2. The second part of the BCRD concerns the coordination of civil works.
3. The third part of the BCRD relates to permit-granting.
4. The last part of the BCRD establishes the right of access to existing in-building physical infrastructure with a view to deploying a high-speed electronic communications network if duplication is technically impossible or economically inefficient.

The BCRD also contains several provisions on dispute resolution.

European Electronic Communications Code (EECC)

Article 44[9] of the EECC states general principles on the imposition of co-location and sharing of network elements and associated facilities for providers of electronic communications networks. In turn, on the basis of Article 61 of the EECC, NRAs shall be able to impose symmetric obligations (i.e. obligations that apply generally to a whole category of operators, regardless of SMP) to the extent that this may be necessary to impose end-to-end interconnectivity or ensure interoperability. Importantly, paragraph 3 of Article 61 also enables NRAs to impose obligations to grant access, upon reasonable request, to wiring and cables and associated facilities inside buildings or up to the first concentration or distribution point (under certain conditions also beyond this point), under the terms and procedures set in the EECC.

Regarding *ex ante* regulation, the EECC provides for the imposition of remedies regarding access to civil infrastructure to be examined before imposing obligations of access to specific

[8] EU Directive no. 2014/61/EU on measures to reduce the cost of deploying high-speed electronic communications networks.
See: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014L0061&from=FR.
[9] The numbering of articles presented here is based on the version of the 3rd October of the EECC; the numbering may have changed since.

network elements and associated facilities, as the former remedy is usually considered to be conducive to more sustainable competition, including infrastructure competition.

Bearing this in mind, Article 72 (on access to civil engineering) establishes that a "*national regulatory authority may […] impose obligations on undertakings to meet reasonable requests for access to, and use of, civil engineering including, but not limited to, buildings or entries to buildings, building cables, including wiring, antennae, towers and other supporting constructions, poles, masts, ducts, conduits, inspection chambers, manholes, and cabinets, in situations where, having considered the market analysis, the national regulatory authority concludes that denial of access or access given under unreasonable terms and conditions having a similar effect would hinder the emergence of a sustainable competitive market and would not be in the end-user's interest*". NRAs may impose obligations of this kind, irrespective of whether the assets that are affected by the obligation are part of the relevant market in accordance with the market analysis, provided that the obligation is necessary and proportionate to meet the objectives set in the EECC. The EECC therefore recognises access to physical infrastructure as a possible 'standalone' remedy (and not only as an ancillary remedy to other remedies imposed).

Along the same lines, Article 73 (on obligations of access to, and use of, specific network facilities) states that "*national regulatory authorities may […] impose obligations on undertakings to meet reasonable requests for access to, and use of, specific network elements and associated facilities, in situations where the national regulatory authorities consider that denial of access or unreasonable terms and conditions having a similar effect would hinder the emergence of a sustainable competitive market at the retail level, and would not be in the end-user's interest."* Before imposing specific access obligations, NRAs shall analyse whether other forms of access to wholesale inputs, either on the same or a related wholesale market, would be sufficient to address the identified problem in the pursuit of the interests of end users. NRAs shall also examine whether the sole imposition of obligations on civil engineering in accordance with Article 72 would be a proportionate means to promote competition and the interests of the end-user.

In addition, it is useful to refer to Article 74 (Price Control and cost accounting obligations), which may have a bearing on the prices of access to physical infrastructure:

"A national regulatory authority may, […], impose obligations relating to cost recovery and price controls, including obligations for cost orientation of prices and obligations concerning cost accounting systems, for the provision of specific types of interconnection or access, in situations where a market analysis indicates that a lack of effective competition means that the operator concerned may sustain prices at an excessively high level, or may apply a price squeeze, to the detriment of end-users.

In determining whether price control obligations would be appropriate, national regulatory authorities shall take into account the need to promote competition and long-term end-user interests related to the deployment and take-up of next-generation networks, and in particular of very high capacity networks. In particular, to encourage investments by the operator, including in next-generation networks, national regulatory authorities shall take into account the investment made by the operator. Where the national regulatory authority consider price control obligations to be appropriate, they shall allow the undertaking a reasonable rate of return on adequate capital employed, taking into account any risks specific to a particular new investment network project.

National regulatory authorities shall consider not imposing or maintaining obligations pursuant to this Article, where they establish that a demonstrable retail price constraint is present and that any

*obligations imposed in accordance with **Articles 69 to 73**, including in particular any economic replicability test imposed in accordance with Article 70 ensures effective and non-discriminatory access".*

These provisions are in line with those of Recommendation 2010/572/EU (NGA Recommendation) as well as Recommendation 2013/466/EU (non-discrimination obligations and costing methodologies).

4. REGULATORY PRACTICE APPLIED BY NRAs

This section discusses how access to physical infrastructure has been dealt with in the analysis of markets 3a, 3b and 4. It is based on answers from 34 NRAs to a questionnaire sent out by BEREC in May 2018.

NRAs from the following 34 countries (out of 38) provided feedback on the questionnaire: Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Estonia, Finland, France, Former Yugoslav Republic of Macedonia, Germany, Greece, Hungary, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Montenegro, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Czech Republic, The Netherlands, The United Kingdom.

In the questionnaire, and hence also in this document, **"physical infrastructure"** refers to **civil engineering infrastructure able to accommodate electronic communications networks, such as ducts, chambers, manholes and poles**, in line with the definition used in the BCRD. As a consequence, dark fibre and the unbundling of fibre or copper lines are not included in the scope of physical infrastructure. The questionnaire also included questions on the regulation of dark fibre, which can be found in Annex 1.

4.1 Physical infrastructures and market analysis

Out of the 34 NRAs that provided answers to the BEREC questionnaire, 26 are regulating access to physical infrastructure as a result of their market analysis. Eight NRAs do not impose any remedies with regard to physical infrastructure on any of the markets, either because the relevant market is deregulated or because other remedies/legal instruments are deemed to be sufficient or more appropriate: AT, CZ, DK, FI, HR, MT, NL, RO.

BEREC also asked the NRAs which type of physical infrastructure (e.g. ducts, poles, chambers) were included in the context of the market analysis performed. All NRAs which imposed access to physical infrastructure in the context of a market analysis stated that they included ducts and pipes, 18 NRAs also imposed access to chambers and manholes, while only 12 NRAs imposed access to poles (Table 1).

Table 1: Type of physical infrastructure to which access was imposed in the market analysis

Physical infrastructure	Number of Countries	Countries
Ducts, Pipes	26	BE, BG, CH, CY, DE, EE, ES, FR, FYROM, GR, HU, IE, IT, LI, LT, LU, LV, ME, NO, PL, PT, RS, SE, SI, SK, UK
Chambers, Manholes	18	BG, CH, CY, ES, FR, FYROM, GR, HU, IE, IT, LI, LV, SI, ME, NO, PL, PT, UK
Poles	12	ES, FR, GR, HU, IE, IT, LV, NO, PL, PT, SI, UK

NRAs were also asked under which relevant market(s) the access to physical infrastructure is regulated, considering their most recent market decision. Almost all NRAs dealing with access to physical infrastructure (25 out of 26) answered that it is regulated under market 3a, while three of these NRAs also regulate it under market 3b (in addition to 3a) and two of these NRAs also regulate it under market 4 (i.e. under markets 3a, 3b and 4) (see Table 2). Switzerland and Liechtenstein defined separate markets where access to physical infrastructure is regulated. The Swiss NRA defined a separate market in 2009 for ducts, where a dominant position was found. According to the Swiss law, access to ducts is an explicit obligation (if capacity is available) for operators having a dominant position in the access market. Similarly, the Liechtenstein regulator defined a specific market for physical access to infrastructure in the core network. In Liechtenstein, vertical separation is in place and the state-owned Liechtensteinische Kraftwerke (LKW) is obliged to grant access to its networks (including the physical infrastructure).

No NRA within the EU has so far defined a product market exclusively for physical infrastructure such as ducts and chambers.

Table 2: Markets in which access to physical infrastructure is imposed

Wholesale Markets	Number of Countries	Countries
Market 3a	25	BE, BG, CY, DE, EE, ES, FR, FYROM, GR, HU, IE, IT, LI, LT, LU, LV, ME, NO, PL, PT, RS, SE, SI, SK, UK
Market 3b	3	CY, HU, PL
Market 4	2	CY, PL
Other[10]	1	LI

The NRAs were specifically asked whether access to physical infrastructure was included in the product market definition, geographic market definition and/or in the SMP assessment, or just in the remedies imposed. It should be noted that only NRAs that included physical infrastructure in a relevant market were asked by BEREC to provide details on their market product definition (regarding the products and areas that were included in those cases) and if physical infrastructure was subsequently incorporated in the SMP assessment.

In market 3a, eight NRAs included physical infrastructure in the relevant product market, two NRAs also considered it in the geographic market definition and six NRAs considered it in the SMP assessment. Most NRAs (25) considered physical infrastructure only when determining the remedies for market 3a. With regard to market 3b and market 4, in all cases (three for market 3b and two for market 4) physical infrastructure was considered exclusively in the remedies stage.

Table 3: Role of physical infrastructure in the market analysis process

Market Analysis part	Market 3a	Market 3b	Market 4
Product Market definition	8 NRAs (BE, EE, FR, FYROM, LU, NO, RS, SK)	-	
Geographic Market Definition	2 NRAs (EE, FYROM)	-	
SMP assessment	6 NRAs (BG, EE, FR, FYROM, LU, NO)	-	
Remedies	25 NRAs (see Table 2)	3 NRAs (CY, HU, PL)	2 NRAs (CY, PL)

[10] Market for physical access to infrastructure in the core network, defined by the NRA in Liechtenstein.

In conclusion, access to physical infrastructure, both underground (e.g. ducts, chambers/manholes) and aerial (poles), was addressed by the majority of the NRAs in the scope of wholesale market 3a. However, a smaller proportion of these NRAs included such physical infrastructure in the product market definition. The majority of the NRAs addressed this issue in the context of remedies – i.e. in terms of the obligations imposed on the physical infrastructure of the SMP operator (e.g. access, transparency, non-discrimination, price control) – which are analysed in the following section.

4.2 SMP Remedies

NRAs were asked about the scope of the physical infrastructure obligations to which the remedies apply (with regard to the relevant network elements, such as ducts and poles).

In most countries, the regulation applies to the local access segment and the backhaul segment. Some NRAs (HU, IT, PL, SI) also included in-building infrastructure.

The following subsections analyse the set of remedies associated with physical infrastructure that were applied by the NRAs to the SMP operator in the scope of their market analysis.

Price control and accounting separation

Table 4 gives an overview of the price control and accounting separation remedies which have been applied by the NRAs to physical infrastructure. Cost orientation is the most prevalent pricing remedy. Only two NRAs applied other concepts, such as fair and reasonable pricing or benchmarking.

Table 4: Price control and cost accounting obligations related to physical infrastructure

Price control and accounting separation		Ducts, pipes	Poles	Chambers, manholes
Cost orientation	3a	BG, CH, CY, DE, EE, ES, FR, FYROM, GR, HU, IE, IT, LI, LT, LU, LV, ME, NO, PT, SE, SI, SK, UK	ES, FR, GR, HU, IE, IT, LV, NO, PT, PL, SI, UK	BG, CH[11], CY, EE, ES, FR, FYROM, GR, HU, IE, IT, LI, LV, NO, PT, SI, UK
	3b	CY, HU	HU, PL	CY, HU
	4	CY		CY
Retail-Minus / Margin Squeeze Test / ERT	3a			
Benchmarking	3a	RS		
Other	3a	BE[12]		
Accounting separation	3a	BG, EE, ES, FR, GR, HU, IE, IT, LI, LT, LV, ME, PT, RS, SK, UK	ES, FR, GR, HU, IE, IT, LV, PT, UK	BG, EE, ES, FR, GR, HU, IE, IT, LI, LV, PT, UK
	3b	HU	HU	HU

[11] Access to chambers/manholes solely in conjunction with access to ducts.

[12] Fair & Reasonable tariffs (meaning that this allows a margin on top of the costs).

Transparency

Table 5 shows the obligations with regard to transparency. In most cases, the SMP operator is obliged to publish a reference offer. Several NRAs also oblige the SMP operator to run a database with information about the location of the infrastructure (some also require information about occupation to be included) and automatic systems for sending wholesale requests and answers (e.g. a web-interface), in particular in market 3a.

Table 5: Transparency obligations related to physical infrastructure

Transparency		Ducts, pipes	Poles	Chambers, manholes
Reference Offer	3a	BE, BG, CH, CY, EE, ES, FR, FYROM, GR, HU, IE, IT, LI, LT, LU, LV, ME, NO, PL, PT, RS, SI, SK, UK	ES, FR, GR, HU, IE, IT, LV, NO, PL, PT, SI, UK	BG, CH, CY, EE, ES, FR, FYROM, GR, HU, IE, IT, LI, LV, NO, PL, PT, SI, UK
	3b	CY, HU, PL	HU, PL	CY, HU, PL
	4	CY		CY
Database providing maps with location of civil infrastructures	3a	CH, CY, ES, FYROM, FR, IE, IT, LV, ME, PT, UK	ES, FR, IE, IT, LV, PT, UK	CH, CY, ES, FR, FYROM, IE, IT, LV, PT, UK
	3b	CY		CY
	4	CY		CY
Database providing occupation information	3a	CY, ES, FYROM, IT, ME, PT, UK	ES, UK	CY, ES, PT, UK
	3b	CY		CY
	4	CY		CY
Automatic system for sending wholesale requests and answers (e.g. Web-Interface)	3a	CH, ES, FR, GR, HU, IT, LV, ME, NO, PT, UK	ES, FR, GR, HU, IT, LV, NO, PT, UK	CH, ES, FR, GR, HU, IT, LV, NO, PT, UK
	3b	HU	HU	HU

Access services

Table 6 shows different types of wholesale services that the SMP operator is obliged to offer in the context of access to physical infrastructure. Several NRAs imposed obligations related to feasibility analysis and cable works (installation, removal, interventions, etc.).

Table 6: Access obligations related to physical infrastructure

Access – wholesale services that the SMP operatorhas in the context of access to physical infrastructure	Ducts, pipes	Poles	Chambers, manholes
Feasibility analysis	CH, CY, EE, ES, HU, IE, IT, LI, LT, LU, LV, PT, RS	ES, HU, IE, IT, LV, PT	CH, CY, ES, EE, IE, IT, HU, LI, LV, PT
Cable installation	CY, FYROM, HU, LI, ME	HU	CY, FYROM, HU, LI
Cable restrictions [13]	CH, CY, ES[14], LI, LU[15], LV[16], NO, PT, UK[17]	ES[14], NO, PT, LV**Error! Bookmark not defined.**[7], UK[16]	CH, CY, ES[14], LV**Error! Bookmark not defined.**, NO, PT, UK[16]
Cable removal	CY, ES, FR, HU, LI, LV, PT, UK	ES, FR, HU, LV, PT, UK	CY, ES, FR, HU, LV, PT, UK
Interventions (e.g. cable replacement, joints)	CY, FR, IE, LI, LV, PT, UK, SE,	FR, LV, UK	CY, FR, LV, UK
Unblock infrastructure	CH, CY, ES, FR, HU, IT[18], LI, LV, PT, SE, UK	ES, FR, HU	CH, CY, ES, FR, HU, PT
Certification required for alternative network operators' (ANO) personnel	BG, ES, IE, LV, NO, PT, UK	ES, IE, LV, NO, PT, UK	BG, ES, IE, LV, NO, PT, UK

The access models for physical infrastructure in Portugal and Spain foresee that cable installations and interventions are performed (or can be performed) by the alternative network operators (ANOs). Thus, these are wholesale services that may not necessarily be supplied by the SMP operator.

Non-discrimination

Table 7 shows that most NRAs which imposed access to physical infrastructure in a market analysis also imposed SLAs, SLGs and KPIs.

Table 7: Non-discrimination obligations related to physical infrastructure

Non-Discrimination	Ducts, pipes	Poles	Chambers, manholes
KPIs	BG, ES, FR, FYROM, GR, HU, IE, IT, LT, LV, ME, PL, PT, RS	ES, FR, GR, HU, IE, IT, LV, PL, PT	BG, ES, FR, FYROM, GR, HU, IE, IT, LV, PL, PT
SLAs	CY, EE, ES, FYROM, GR, HU, IE, IT, LV, ME, NO, PL, PT, RS, SK, UK	ES, GR, HU, IE, IT, LV, NO, PL, PT, UK	CY, EE, ES, FYROM, GR, HU, IE, IT, LV, NO, PL, PT, UK
SLGs	CY, ES, FYROM, GR, HU, IT,	ES, GR, HU, IT, NO,	CY, ES, FYROM, GR, HU,

[13] Certification process related to technology or energy.
[14] Only NGN, fibre or coax.
[15] Diameter of cable min. 30 mm.
[16] Fibre only.
[17] Cable and apparatus deployed in the physical infrastructure must comply with published technical and safety specifications.
[18] Under feasibility analysis.

	NO, PL, SK, PT, UK	PL, PT, UK	IT, NO, PL, PT, UK

NRAs were asked further questions about the remedies imposed: (i) the rationale for imposing remedies on physical infrastructure, (ii) the market outcome (the extent to which regulated access been used), (iii) whether wholesale-only operators and/or publicly funded NGA networks are also regulated under the remedies on access to physical infrastructure, similar to the SMP remedies, and (iv) whether any changes to the remedies are foreseen in the future. The answers are summarised in the following subsections.

Rationale for imposing remedies

The main justification for NRAs to impose SMP remedies regarding physical infrastructure was to promote competition and to avoid unnecessary costs that would result from infrastructure duplication. The underlying motivation was to facilitate faster and more efficient deployment of alternative operator NGA networks.

Market outcome

In several countries access to the physical infrastructure of SMP operators has been used by alternative operators as the main solution to deploy their own NGA networks and seems to be fundamental to ensure sustainable competition on the broadband retail market. Several NRAs consider such kind of access to be of particular importance in ensuring a level playing field, providing alternative operators with the same opportunities as the SMP operator when making their broadband investment decisions. In many cases the imposition of this type of access resulted in a higher level of investment in NGA. Due to cost efficiency, the use of physical infrastructure is even more relevant in sub-urban areas, where the replication of such infrastructure is more difficult. However, there are also some countries where remedies related to access to physical infrastructure have not been taken up or have a low level of take-up (partly because they have only recently been introduced). In this context, one has to bear in mind that the extent of available and reusable physical infrastructure owned by the incumbent operator may be limited, which would clearly constrain its importance in the deployment of NGA networks by alternative operators.

Wholesale-only operators

In general, wholesale-only operators (where they exist) are not subject to remedies relating to physical infrastructure similar to the SMP operator.[19] However, networks funded by State aid (which may also be wholesale-only networks) usually have obligations to grant access to their infrastructure. In some cases, these obligations are similar to those imposed on the SMP operator (e.g. Italy, Portugal, Estonia and Norway).

Future changes

Most NRAs will evaluate this issue after a final version of the EECC[20] is available. There are

[19] An exception here is Liechtenstein, where vertical separation is in place and therefore the SMP operator is a wholesale-only operator.
[20] At the time when NRAs were filling out the questionnaire, only the proposal (see https://ec.europa.eu/digital-single-market/en/news/proposed-directive-establishing-european-electronic-communications-code) was available.

also some NRAs which are already taking into account new approaches to regulation of physical infrastructure according to the proposed EECC, such as the EoI rule or co-investment commitments. Some NRAs are of the opinion that regulation of access to physical infrastructure is likely to become more important.

4.3 Issues raised by the EC and national courts

BEREC also asked NRAs about issues raised in the context of Article 7 and 7a of the Framework Directive proceedings or in national courts regarding the regulation of access to physical infrastructure. Four NRAs reported such issues: Slovenia, the Czech Republic, Germany and Denmark.

In Slovenia, the SMP operator appealed the NRA's decision regarding access to physical infrastructure in a national court. The SMP operator considered that other means of access exist based on the BCRD, but the NRA was of the opinion that these are limited and cannot efficiently address the competition problems that were identified. The case is still pending.

In the Czech Republic, the EC commented on the absence of cost-oriented prices for access to passive infrastructure of the SMP operator in market 3a (CZ/2018/2067) and the NRA's reference to obligations under national law (Act No. 194/2017) implementing the BCRD. The EC considered that the (symmetric) obligations were insufficient and therefore asked CTU to monitor the application of the BCRD in practice and, where appropriate, impose a cost-orientation obligation for access to the SMP operator's passive infrastructure.

Regarding the German case, the EC urged BNetzA to impose a duct access obligation that would not be limited to the distance between the local exchange and street cabinet.[21] BNetzA considered that the remedies concerning duct access in the notified decision were appropriate and sufficient to address the competition problem in question and did not change them.

In Denmark, the NRA withdrew the duct access obligation because it considered that the obligations from the BCRD were sufficient. The EC invited DBA to re-consider whether the lack of a price control obligation would give consistent buy-or-build signals to alternative operators, and whether access on reasonable terms, negotiated case by case, without a requirement of a clear reference offer, would be sufficient to promote infrastructure competition, wherever economically efficient, through access to passive infrastructure.

4.4 Relation between SMP and symmetric regulation (BCRD) of physical infrastructures

The NRAs were also asked whether the symmetric obligations in place had any impact on the results of the market analysis (in particular on the remedies imposed on the SMP operator regarding access to physical infrastructure). This was the case only in four countries: Denmark (market 3a), Spain (market 3a), the Czech Republic (market 3a) and Austria (market 4).

In Denmark, the SMP operator's duct access obligation was withdrawn, as the obligations

[21] The EC also commented that duct access obligations should not be limited to the purpose of taking up wholesale products of the SMP operator.

from the BCRD were considered sufficient.

In Spain, the NRA adopted a decision in 2009 imposing symmetric regulation, on which basis the first operator deploying the fibre local access segment within a building (i.e. the segment of an NGA network that connects end-user premises to the first distribution point) must make it available to third parties at reasonable prices. The decision was adopted on the basis of provisions in Spanish law that were similar (but not identical) to those existing under Article 5 of the Access Directive and Article 12 of the Framework Directive, and which enabled the NRA to impose, in exceptional circumstances, symmetric obligations on operators regardless of their SMP status. As a consequence, access to the fibre local access network available within buildings is excluded from the scope of SMP regulation in market 3a, since it is already covered by the symmetric obligations imposed by CNMC in 2009.

According to the Czech NRA, the BCRD affected the scope of remedies for market 3a, thus access to physical infrastructure was not imposed (due to duplication of remedies with obligations under the BCRD), and only access to dark fibre was imposed.

5. PHYSICAL INFRASTRUCTURE AS A SEPARATE MARKET

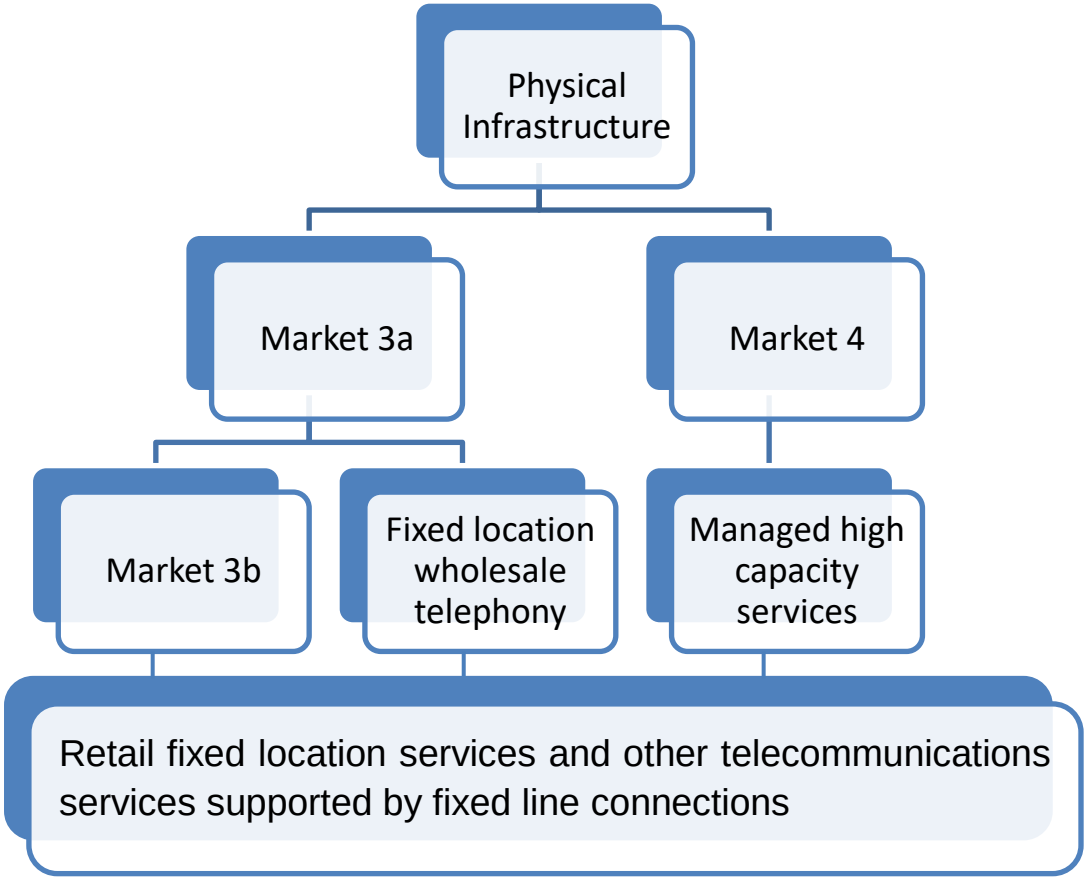
The aim of this section is to consider how we might approach an analysis of physical infrastructure (PI) as a standalone market under the framework set for the review of markets susceptible of *ex ante* regulation.

5.1 Emerging trends related to access to physical infrastructure

Access to physical infrastructure can be considered the most upstream of the fixed telecommunications services, as set out below in Figure 1. Accordingly, market power in relation to such access can be used to leverage market power in downstream markets. This is clearly recognised in the widespread use of access to physical infrastructure as a remedy in downstream markets in existing regulation, the more pronounced role for this remedy in Article 72(2) of the EECC[22] and the promotion of access to all types of physical infrastructure in the BCRD.

[22] According to this provision of the EECC, access to civil engineering may be imposed as a remedy *"irrespective of whether the assets that are affected by the obligation are part of the relevant market in accordance with the market analysis, provided that the obligation is necessary and proportionate […]"*.

Figure 1 – Hierarchy of markets upstream of the fixed retail market[23]



As the answers to the questionnaire submitted to NRAs show, access to physical infrastructure is currently generally regulated as a remedy in most cases under market 3a. The specific scope of such SMP-based regulation, in terms of whether there are restrictions to geographic areas or usage[24], depends on the specific assessment of the scope of the remedy necessary to adequately respond to the identified competition problems.

Furthermore, it is clear from the answers to the questionnaire that these current approaches have to varying degrees provided a solid basis for competitive investment in network construction by alternative network operators.

Future potential challenges

The current situation notwithstanding, there are potential challenges to the existing regulatory structures which might arise from a number of directions. As discussed, the extent of such challenges are highly dependent on the precise nature of the the market conditions and the regulation applied in each Member State (for example the approach used for market definition, or the scope of the remedy needed to address competition concerns in that market) and are linked to the market developments in individual Member States.

[23] Note that in some member states the relationship between Market 3a and 4 is more complex.
[24] Examples for usage restrictions are restrictions to use access to physical infrastructure only for fixed (broadband) services or only as backhaul in case of sub-loop unbundling.

The potential challenges include:

- Technological changes that might require a redefinition of the markets and physical infrastructure remedy. This might include greater convergence in wireless and fixed services, or between markets 3a, 3b and 4;
- Increased infrastructure-based competition (promoted by access to physical infrastructure) within Markets 3a or 4, such that continued regulation of access to physical infrastructure within these markets might need to be derived from a modified greenfield assessment (see Annex 3 for consideration of modified greenfield arguments in this context);
- The development of offers of access to physical infrastructure from alternative operators (notably under the BCRD), to the point where the SMP status of the incumbent operators regarding physical infrastructure could be questioned;
- A recognition that the competition concerns which might need to be addressed by the physical infrastructure remedy are wider than the concerns identified by the NRA under the market review process (the remedies on physical infrastructure thus being constrained by reference to the existing market's competition concerns).

Clearly there are a range of potential responses to these challenges that might be appropriate, given the structure of regulation and market developments in a given Member State. These would include:

- Treating access to physical infrastructure as a sub-market of market 3a, where applicable;
- Widening the scope of the regulation, with reference to the changing nature of the competition problem in the existing markets (e.g. access to physical infrastructure is imposed in a particular market but it is not restricted to a particular usage, as a consequence of the impact of factors such as the convergence process or technological changes);
- Cross service market regulation for physical infrastructure, as envisaged in the EECC (Article 72(2)), which, as noted, indicates that the remedy regarding access to civil engineering may be imposed irrespective of the precise scope of the relevant market as determined by the market analysis;
- Parallel regulation under multiple markets (e.g. consideration of the physical infrastructure remedy not only in the context of a particular market, but also in each one of the other markets susceptible to *ex ante* regulation where access to infrastructure may be instrumental for the development of the competitive process);
- Reliance on the BCRD (see however Annex 4 for the possible limits of this approach).

This paper does not attempt to assess these alternatives, nor the degree to which the changes in the new regulatory framework may assist in making existing regulation more robust to challenges. Instead the focus of the remaining subsection of Section 5 and the supporting annexes will be devoted to considering how an alternative approach, that is the definition of a separate market for physical infrastructure, might be constructed (including some consideration of the three criteria test and the assessment of SMP in this newly-defined market).

5.2 Overview of the relevant issues to consider when access to physical infrastructure is a separate market

As has been indicated, the possible consideration of physical infrastructure as a market on its own may become an increasingly important topic, in particular if some of the trends that have been highlighted in Section 5.1 above become more apparent and relevant.

Therefore, some reflections on the way NRAs could perform a market analysis, in the event that access to physical infrastructure was to be identified as a relevant market, are provided below, with further details in Annex 2 of this report.

As set out in BEREC's 2018 Work Programme[25], the purpose of this exercise is to provide an analysis of the potential to isolate access to physical infrastructure in order to conduct market analyses that would be methodologically robust and consistent with the regulatory framework. The considerations that follow do not express any preference for the appropriate course of action regarding the tackling of the potential challenges mentioned section 5.1, this will be up to each NRA, taking into account the specificities of their case at the national level.

5.2.1 Assessment of prevailing conditions downstream

When performing a market analysis for the purposes of *ex ante* regulation, the starting point should be an assessment of retail markets over a given time horizon, taking into account demand-side and supply-side substitutability. The analysis should consider whether the identified retail market is prospectively competitive or whether any lack of competition is durable, by taking into account expected or foreseeable market developments.

If a retail market is not deemed effectively competitive from a forward-looking perspective, NRAs will then have to identify and assess the corresponding wholesale markets, which may be candidates for *ex ante* regulation. On the contrary, if the retail market would be effectively competitive in the absence of *ex ante* wholesale regulation on the corresponding relevant market(s), this should lead the NRA to conclude that regulation is no longer needed.

On the basis of the modified Greenfield approach, the assessment of whether retail markets are effectively competitive should be undertaken assuming the absence of regulation based on a finding of SMP. The analysis should however take into account the effects of other types of regulation applicable to the relevant retail and related wholesale market(s) throughout the relevant period. For the purposes of this report, that means in particular that the NRA will have to ascertain to what extent the existence of general legislation (namely the BCRD), as well as other instruments that are different from SMP regulation and that might be in place (such as symmetric regulation regulating access to physical infrastructure), may be sufficient on their own to prevent distortions of competition at the retail level.

5.2.2 Market definition

When analysing access to physical infrastructure as a separate market, NRAs would have to take into account the product and geographic dimensions of the market.

In this respect, NRAs might first want to ascertain to what extent, if *ex ante* regulation on the

[25] BEREC Work Programme 2018 - BoR (17) 238. See: https://berec.europa.eu/eng/document_register/subject_matter/berec/annual_work_programmes/7528-berec-work-programme-2018

SMP operator is absent, a merchant market might exist. A merchant market might not be identified if it would be in the best interest of (vertically integrated) suppliers that the relevant wholesale product was only available for internal (self-supply) purposes, in view of the provision of retail services.

In these instances, and in the event that consumer harm may materialise at the retail level, a notional market could be constructed, whereby the implicit self-supply of the relevant wholesale input (access to physical infrastructure) by the incumbent to itself would be taken into account. [26]

Product market definition

Regarding product market definition, NRAs should start their analysis by grouping together products or services that are used for the same purpose (end use). In this regard, wholesale access to telecommunications physical infrastructure might constitute a valid starting point. Telecommunications physical infrastructure would be described as all physical infrastructure that have been primarily made available or could be made available for the purpose of deploying a telecommunications network.

In view of identifying the focal product (the product from which the market definition exercise is started), the local access to physical infrastructure of telecommunications operators[27] is likely to be a natural candidate. It can then be analysed whether it would be necessary and appropriate – based on demand- and supply-side substitution or the homogeneity of competitive conditions – to also include other parts beyond the access segment in the market definition.

When performing an analysis of demand-side substitution, NRAs may want to assess to what extent wholesale access to non-telecommunications physical infrastructure, which could potentially be used for telecommunications networks (but which has originally not been built for said purposes, e.g. physical infrastructure from utilities) may impose a direct or indirect constraint on telecommunications physical infrastructure.

Likewise, NRAs may also want to assess whether the market should be defined in reference to a specific set of downstream services or more broadly.

In this regard, it is worth highlighting that, on the basis of the BCRD, a whole range of "network operators" other than telecommunications operators are requested to negotiate in good faith access to their physical infrastructure for the purpose of deploying a high-speed electronic communications network. This can include *inter alia* (i) utilities (including gas, electricity, heating, water companies); and (ii) undertakings with infrastructure intended to provide transport services (including railways, roads, ports and airports)[28]. Additionally, in some Member States, public administrations owning physical infrastructure must also provide wholesale access to their infrastructure.

[26] See paragraph 32 of the 2018 SMP Guidelines (http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=51836)

[27] In this context it might also be assessed whether physical infrastructure of telecommunications operators other than the incumbent operator (e.g. cable network operators) can be considered a substitute for the infrastructure of the incumbent. This assessment could also be undertaken at the SMP analysis stage, as noted below.

[28] It should be acknowledged that in some cases it may be difficult for NRAs to gather the necessary information from these players to perform a full market analysis, as such entities are normally not providers of electronic communications services.

Geographic market definition

Regarding the geographic dimension of the market, one of the key issues to be addressed would be to what extent the competitive conditions that govern wholesale access to the telecommunications physical infrastructure may be affected by the varying presence in each geographic unit of alternative providers of telecommunications physical infrastructure. For instance, if there is no credible alternative presence to that of the incumbent operator in the whole territory, it may be concluded that the market is national (if the physical infrastructure of the incumbent operator is available nationally)[29].

The conclusion may however be different in the event that the NRA identifies some geographic areas where alternative operators supplying telecommunications physical infrastructure are capable of providing wholesale access services that are fully equivalent to the type of access provided by the incumbent operator. In this regard, relevant parameters that may be taken into account by the NRA when studying the competitive conditions prevailing in the different geographic areas are (i) the area covered by the alternative telecommunications physical infrastructure (e.g. in terms of the number of building units passed); (ii) the type of infrastructure available (e.g. whether the infrastructure provides a connection to the dwellings where electronic communications services are to be provided); and (iii) the existence (or not) of coverage gaps in the alternative telecommunications physical infrastructure.

5.2.3 Application of the three criteria test

The three criteria test[30] would need to be satisfied in the event that an NRA would consider access to the telecommunications physical infrastructure as a relevant market, separate from e.g. markets 3 or 4 of the Commission Recommendation on Relevant Markets.

In broad terms, it can be assumed that, if an NRA was to consider applying *ex ante* regulation to the telecommunications physical infrastructure market due to the existence of competition problems that have an effect at the retail level, the first criterion would be readily satisfied. In fact, NRAs that have imposed access obligations on telecommunications physical infrastructure have in general considered that civil engineering is an essential asset, which cannot be easily replicated by new entrants.

The impact of national legislation implementing the BCRD may also be relevant for the purpose of the application of the three criteria test. Although this assessment would have to be performed by each NRA individually, it has been noted throughout this report that there are significant differences between the BCRD and the obligations that can be imposed under *ex ante* regulation.

See Annex 4 for further details on this subject.

5.2.4 SMP assessment

If an NRA was to define wholesale access to telecommunications physical infrastructure as a

[29] NRAs may have to resort to identifying smaller geographic areas in the event that the physical infrastructure of the incumbent operator is not available nationally, but only in some selected areas of the territory (e.g. in large cities).

[30] These cumulative three criteria are: (1) the presence of high and non-transitory structural, legal or regulatory barriers to entry; (2) a market structure which does not tend towards effective competition within the relevant time horizon, having regard to the state of infrastructure-based and other competition behind the barriers to entry; (3) competition law alone is insufficient to adequately address the identified market failure(s).

relevant market, the SMP assessment would in most cases be premised on the potential existence of **single SMP**, that is of an entity that individually holds such a position of economic strength (though the potential for joint SMP, at least in some limited geographies, must be acknowledged).

In countries where cable operators are present, another issue that may be raised in an SMP assessment is the extent to which the **physical infrastructure that was used by the cable operator** for the purpose of deploying its own network may also be used for the purpose of deploying other types of networks (such as copper/fibre networks) and thus may effectively constrain to some degree the market power of the incumbent operator in the physical infrastructure market (or be argued to be in a position of joint dominance).

In this regard, features such as coverage may become relevant for the purpose of assessing the competitive pressure that the physical infrastructure of the cable operator may exert.

6. Conclusion

NRAs have to date imposed access to physical infrastructure through existing wholesale markets (largely 3a) either as an ancillary remedy or by including physical infrastructure in the relevant market and imposing respective remedies.

This is consistent with the EECC, which notes that access to civil engineering can be deemed a self-standing remedy for the improvement of competition in the retail markets, which may be imposed irrespective of whether the assets that are affected by the obligation are part of the relevant market, provided that the obligation is necessary and proportionate.

As evidenced by the responses to the BEREC questionnaire, the majority of NRAs believe that the current list of relevant markets contained in the Annex to the Commission Recommendation is sufficient at this time to impose access to physical infrastructure where needed (in particular, as an SMP remedy).

However, some NRAs have identified both current and prospective future analytical and practical issues with this approach, and these may become more prominent in the years to come. This would in particular be the case if some of the trends highlighted in section 5.1 become more apparent and relevant.

A market centred on access to physical infrastructure may offer a potential path to resolving these issues, depending on national circumstances.

7. ANNEXES

Annex 1: Access to dark fibre in the market analysis

The questionnaire sent out by BEREC also included questions about the regulation of dark fibre. Since dark fibre is distinct from physical infrastructure (according to the definition in the BCRD), BEREC decided to include this information in this Annex.

In total, 20 NRAs regulate access to dark fibre. 19 NRAs declared that dark fibre is regulated under market 3a, while in three of these countries it is also regulated under market 3b and in one country it is regulated under market 4 (Table 8).

Table 8: Markets on which access to dark fibre is imposed

Wholesale Markets	No. of Countries	Countries
Market 3a	19	BG, CY, CZ, DE[31], FR, FYROM, GR, HR, HU, IE[32], IT, LI, LT, PL, PT, RS[33], SE, SI, SK
Market 3b	3	HR, HU, PL
Market 4	1	AT

Regarding the stage of the market analysis where dark fibre is dealt with (see Table 9), the situation is similar to physical infrastructure (see section 4.1): a relatively small proportion of NRAs deal with dark fibre in the market definition and the SMP analysis. This indicates that dark fibre is in many cases an “ancillary” remedy (e.g. for backhaul).

Table 9: Role of dark fibre in the market analysis process

Stage of Market Analysis	Market 3a	Market 3b	Market 4
Product Market definition	6 NRAs (FYROM, LI, LT, NL[34], SE, SK)	-	AT, UK[35]
Geographic Market Definition	3 NRAs (FYROM, NL, SE)	-	AT
SMP assessment	5 NRAs (FYROM, LI, LT, NL, SE)	-	AT, UK
Remedies	20 NRAs (see Table 8)	HR, HU, PL	AT

[31] Access to dark fibre only if access to physical infrastructure cannot be granted due to technical reasons.
[32] Only in situations where access to physical infrastructure is not available and dark fibre is reasonably available (i.e. dark fibre capacity already exists).
[33] In the process of adoption (in May 2018).
[34] In the Netherlands dark fibre was considered in the FttO (fibre to the office) market analysis. The FttO market was considredconsidered as being competitive (no remedies).
[35] Ofcom considered dark fibre in the market definition and the SMP assessment of market 4. Dark fibre was also imposed as a remedy, but this was repealed after a successful appeal of the market definition.

The following tables show the remedies applied to dark fibre.

Table 10: Price control and cost accounting obligations related to dark fibre

Cost orientation	3a	CY, CZ, DE, FYROM, GR, HU, IT, LI, LT, PL, PT, SI
	3b	HU, PL
	4	AT, CY
Retail-Minus / Margin Squeeze Test / ERT	3a	SE, SK
Benchmarking	3a	
Other	3a	FR[36]
Accounting separation	3a	CZ, GR, HU, IT, LI, LT, SE, SK
	3b	HU

Table 11: Transparency obligations related to dark fibre

Reference Offer	3a	BG, CY, CZ, FR, FYROM, GR, HU, IT, LI, LT, PL, PT, SE, SI, SK,
	3b	CY, HU, PL
	4	AT, CY
Database providing maps with location of civil infrastructure	3a	FYROM, IT
	3b	
	4	
Database providing occupation information	3a	
	3b	
	4	
Automatic System for sending wholesale requests and answers (e.g. Web-Interface)	3a	GR, HU, IT, SE
	3b	HU

Table 12: Access obligations related to dark fibre

Feasibility analysis	CZ, IT, LI, LT, PT
Cable installation	FYROM, LI, ME
Cable restrictions [37]	
Cable removal	
Interventions (e.g. cable replacement, joints)	IT[38]
Unblock infrastructure	-
Certification required for ANOs' personnel	CZ

Table 13: Non-discrimination obligations related to dark fibre

KPIs	AT, FR, FYROM, GR, HU, IT, LT, PL, SE
SLAs	AT, CZ, FYROM, GR, HU, IT, LI, PL, SE
SLGs	AT, CZ, FYROM, GR, HU, IT, PL, SE

[36] Obligation to ensure that prices are not excessive.
[37] Certification process related to technology or energy.
[38] Joints in case of dark fibre acquisition.

Annex 2: Overview of the relevant issues that may be taken into account if a separate market for access to physical infrastructure is considered

This Annex provides a detailed overview of the way a market analysis would be conducted, in the event an NRA was to consider access to physical infrastructure as a separate market[39].

1. Assessment of prevailing conditions downstream

When performing a market analysis for the purposes of *ex ante* regulation, the starting point should be an assessment of retail markets over a given time horizon, taking into account demand-side and supply-side substitutability. The analysis should consider whether the identified retail market is prospectively competitive or whether any lack of competition is durable, by taking into account expected or foreseeable market developments.

If a retail market is not deemed effectively competitive from a forward-looking perspective, NRAs will then have to identify and assess the corresponding wholesale markets, which may be candidates for *ex ante* regulation. On the contrary, if the retail market is effectively competitive in the absence of *ex ante* wholesale regulation on the corresponding relevant market(s), this should lead the national regulatory authority to conclude that regulation is no longer needed.

On the basis of the modified Greenfield approach, the assessment of whether retail markets are effectively competitive should be undertaken assuming the absence of regulation based on a finding of SMP. The analysis should however take into account the effects of other types of regulation applicable to the relevant retail and related wholesale market(s) throughout the relevant period. For the purposes of this report, that means in particular that the NRA will have to ascertain to what extent the existence of general legislation (namely the BCRD), as well as other instruments that are different from SMP regulation and that might be in place (such as symmetric regulation regulating access to physical infrastructure), may be sufficient on their own to prevent distortions of competition at the retail level.

2. Market definition

The definition of relevant markets and the assessment of SMP should be based on the same methodologies as under EU competition law. For these purposes, the jurisprudence of EU courts, as well as the administrative practice of the European Commission, for example as reflected in the 1997 Market Definition Notice[40], can be taken into account.

As noted in the 2018 EC Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and

[39] Most of the topics highlighted below might be considered irrespective of whether physical infrastructure is deemed (i) a segment or sub-market of an already identified relevant market for the purpose of ex ante regulation (such as e.g. a sub-market within market 3a); or (ii) a wholly independent relevant market, outside the scope of the Commission Recommendation on Relevant Markets. ThisHowever, this is not the case with regard to whether the three criteria test is fulfilled, which is an issue that would only have to be addressed in the event that physical infrastructure is defined as a new, separate relevant market.

[40] Commission Notice on the definition of relevant market for the purpose of Community competition law, 1997 OJEC C372/5. See: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31997Y1209%2801%29

services (the Guidelines[41]), market definition is not a mechanical or abstract process but requires the analysis of all available evidence of past market behaviour and an overall understanding of the mechanics of a given sector. In particular, a dynamic rather than a static approach is required when carrying out a forward-looking market analysis[42].

The extent to which a product in a given geographical area constitutes a relevant market depends on the existence of competitive constraints on the price-setting behaviour of the service provider(s) concerned. There are two main competitive constraints to consider in assessing the behaviour of undertakings in the market: (i) demand-side and (ii) supply-side substitution. A third source of competitive constraint on an operator's behaviour is the existence of potential competition, which is however generally not taken into account at the stage of market definition but rather at a later stage of the analysis[43].

In telecommunications markets, it is not uncommon that the incumbent is the only undertaking that is in a position to provide a wholesale service, usually on regulated terms. Absent *ex ante* regulation of SMP operator, it may thus be the case that no merchant market exists, if it is in the best interest of (vertically integrated) suppliers that the relevant wholesale product or service is only available for internal (self-supply) purposes, in view of the provision of retail services.

In some jurisdictions, the situation described above may apply, in particular if there is no significant supply of physical infrastructure on commercial terms or on the basis of the BCRD. In those instances, and in the event that consumer harm may materialise at the retail level, NRAs may want to construct a **notional market**, whereby the implicit self-supply of the relevant wholesale input (access to physical infrastructure) by the incumbent to itself would be taken into account. Defining hypothetical or notional markets where currently there is only self-supply is not unfamiliar under the Regulatory Framework. Market 3a largely did not exist beyond self-supply until the introduction of the local loop unbundling remedies.

2.1 Product market definition

As indicated in the Guidelines, the relevant product market comprises all products or services that are sufficiently interchangeable or substitutable, not only in terms of their objective characteristics, their prices or their intended use, but also in terms of the conditions of competition and/or the structure of supply and demand in the market in question.

NRAs should thus start their analysis by grouping together products or services that are used for the same purpose (end user)[44].

The first step in the process would include identifying the focal point against which the substitution analysis will be undertaken. In this regard, **wholesale access to telecommunications physical infrastructure** could constitute a valid starting point.

For the purpose of the analysis, physical infrastructure could be defined along the lines set in

[41] 2018 OJEU C159/1. Commission Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services, 2018 OJEU C159/1. See: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018XC0507%2801%29
[42] Paragraph 25 of the Guidelines.
[43] Paragraph 27 of the Guidelines. As noted in the Guidelines, the difference between potential competition and supply-side substitution lies in the fact that supply-side substitution responds promptly to a price increase, whereas potential entrants may need more time before starting to supply the market. Put in other words, supply-side substitution involves no additional significant costs, whereas potential entry may occur at significant sunk costs.
[44] Paragraph 33 of the Guidelines.

the BCRD, according to which physical infrastructure:

"means any element of a network which is intended to host other elements of a network without becoming itself an active element of the network, such as pipes, masts, ducts, inspection chambers, manholes, cabinets, buildings or entries to buildings, antenna installations, towers and poles".

Telecommunications physical infrastructure would thus be described as all physical infrastructures – as defined in the BCRD – that have been primarily made available or could be made available for the purpose of deploying a telecommunications network, and that will typically be owned (or at least, operated) by telecommunications operators.

In view of identifying the focal point, a number of additional issues may be considered by NRAs.

Firstly, NRAs may want to assess whether the candidate focal product markets should be defined in reference to a specific set of downstream services or more broadly, for example if it should be defined as (i) wholesale access to telecommunications physical infrastructure for the purpose of deploying the **local access parts of a telecommunications network**, or if it should be defined more broadly as (ii) wholesale access to telecommunications physical infrastructure.

In this context, the different degrees of competition that may prevail may need to be factored in. For instance, the local access network is characterised by a higher degree of capillarity than the backhaul network, which may make it more difficult to be replicated; therefore, some physical infrastructure access providers may be capable of providing wholesale services for the purpose of deploying a backhaul telecommunications network, but not for the purpose of deploying the access part of the network.

However, when considering market boundaries, NRAs should be cognizant of how network functions are converging (i.e. networks are being constructed for multiple purposes).

Regardless of the stance that an NRA may take in each individual case, it is worth noting that the EECC appears to endorse the view that wholesale access to physical infrastructure could be granted for the purpose of providing a full range of products and services, when indicating that access to physical infrastructure should not merely be deemed an ancillary remedy to other wholesale products/services or a remedy limited to undertakings availing themselves of such other wholesale products/services[45].

The increasing convergence of products and services (a feature that may be accelerated when 5G technology becomes widely available), and the risk that new disruptive services outside traditional definitions may arise, may also be factors that would provide reason for a broad (multi-service) definition of the relevant market.

- *Demand-side substitutability*

As noted in the Guidelines, demand-side substitutability is used to measure the extent to which customers are prepared to substitute the service or product that constitutes the focal point by other services or products, in response to a hypothetical small but significant and non-transitory relative price increase. The possibility for customers to substitute a product or

[45] Although such a consideration could be more appropriately dealt with in the remedy design rather than in the market definition.

service for another may be hindered, among other things, by significant switching costs.

When performing an analysis of demand-side substitution, NRAs may want to assess to what extent wholesale access to **non-telecommunications physical infrastructure** (that is, physical infrastructure that was in principle not available for the purpose of deploying a telecommunications network) may pose a direct constraint over telecommunications physical infrastructure.

In this regard, it is worth highlighting that on the basis of the BCRD, a whole range of "network operators" other than telecommunications operators are requested to negotiate in good faith access to their physical infrastructure for the purpose of deploying a high-speed electronic communications network. This includes *inter alia* (i) utilities (including gas, electricity, heating, water companies); and (ii) undertakings with infrastructure intended to provide transport services (including railways, roads, ports and airports). Additionally, in some Member States, public administrations owning physical infrastructure must also provide wholesale access to their infrastructure.

Access to non-telecommunications physical infrastructure may be provided on commercial terms, or in the case of disagreements on the access or pricing terms, via the dispute resolution mechanisms foreseen in the BCRD.

ARCEP's 2017 decision regarding market 3a[46] provides a recent example of the way an analysis of demand-side substitution could be performed. According to ARCEP's decision, the physical infrastructure owned by public administrations is substitutable with the physical infrastructure of telecommunications operators, as in general in France public infrastructure can usually host high-speed broadband networks.

In ARCEP's view, however, this is not the case for the physical infrastructure available for the disposal or treatment of waste water and sewage, as even in large cities such as Paris this infrastructure poses a number of technical and operational constraints that make it a poor substitute for the telecommunications physical infrastructure[47].

Likewise, ARCEP concludes that the physical infrastructure of utilities (electricity, heating, water and gas companies) and transport companies are also poor substitutes for telecommunications physical infrastructure. In its decision, ARCEP points to a number of factors for excluding alternative wholesale physical infrastructure access services from the scope of the relevant product market, such as the existence of technical and operational constraints, the lack of capillarity of some of the infrastructure (e.g. that of railway and road companies) and the absence of demand by telecommunications operators thus far.

In this regard, the existence (or absence) of demand for non-telecommunications physical infrastructure may provide some empirical evidence as to substitutability between the different types of infrastructure. For instance, ARCEP refers in its decision to the fact that some telecommunications operators have decided to modify their NGA deployment strategy in Paris by ceasing to use the physical infrastructure available for the disposal or treatment of waste water and sewage and having access instead to the telecommunications physical infrastructure of the SMP operator as indirect evidence regarding the lack of substitutability

[46] Decision nº 2017-1347 of 14 December 2017.

[47] IncludingThese constraints include the saturation of some segments of the infrastructure, the existence of dangerous and hazardous conditions for the deployment and maintenance of the network, as well as the need for strict security measures that increase the deployment costs.

between both types of products.

When performing an analysis of demand-side substitutability, NRAs may also want to evaluate to what extent **indirect constraints** may exert competitive pressure over the prices that could be set for access to the telecommunications physical infrastructure. As detailed in the Explanatory Note to the Commission Recommendation on Relevant Markets, if there is competitive pressure stemming from alternatives available at the retail level, such alternatives could be included in the wholesale reference market if the following conditions are met: (i) access seekers would be forced to pass a hypothetical wholesale price increase onto their consumers at the retail level based on the wholesale/retail price ratio; (ii) there would be sufficient demand substitution at the retail level based on indirect constraints such as to render the wholesale price increase unprofitable; and (iii) the customers of the access seekers would not switch to a significant extent to the retail arm of the integrated hypothetical monopolist, in particular if the latter does not raise its own retail prices.

Broadly, in this context, it would thus be necessary to ascertain to what extent a price increase by the hypothetical monopolist in the reference market (wholesale access to the telecommunications physical infrastructure) may be counteracted by the switching that would occur at the retail level to alternative means of access that do not make use of the wholesale input (the telecommunications physical infrastructure).

- *Supply-side substitutability*

As noted in the Guidelines, supply-side substitutability assesses the extent to which suppliers other than those offering the product or service in question would be able to switch their line of production or offer the relevant products or services in the immediate-to-short term, without incurring significant additional costs. The exact timeframe to be used to assess the likely response of other suppliers to a relative price increase will depend on the characteristics of each market.

NRAs would thus need to ascertain whether alternative suppliers would be capable of rapidly switching their productive assets to supply physical infrastructure that is apt for the deployment of telecommunications networks, without incurring significant sunk costs.

Additional factors that might be taken into account include an evaluation of whether the capacity of alternative suppliers is committed under long-term supply agreements, as well as an analysis of the existing legal and regulatory requirements that could hinder time-efficient entry into the market and as a result discourage supply-side substitution[48].

2.2 Geographic market definition

Once the relevant product market has been identified, the next step is to define the geographical dimension of the market. The process of defining geographic markets follows the same principles as those seen when delineating the relevant product markets, including an assessment of demand- and supply-side substitution in response to a relative price increase.

As noted in the Guidelines, 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 homogeneous and which can

[48] Paragraphs 41-42 of the Guidelines.

be distinguished from neighbouring areas in which the prevailing conditions of competition are significantly different. Areas in which the conditions of competition are heterogeneous do not constitute a uniform geographic market[49].

When assessing this dimension of the market, the choice of the relevant **geographic unit** becomes of the utmost importance. In this regard, the Explanatory Note to the Commission Recommendation on Relevant Markets indicates that NRAs should ensure that geographic units are (i) of an appropriate size, i.e. small enough to avoid significant variations of competitive conditions within each unit but yet big enough to avoid a resource intensive and burdensome micro-analysis that could lead to a fragmentation of markets, (ii) able to reflect the network structure of all relevant operators, and (iii) have clear and stable boundaries over time[50].

For the purpose of selecting the relevant geographic unit, NRAs may also want to take into consideration BEREC's Common Position on geographical aspects of market analysis (definition and remedies)[51], as well as the earlier findings that may have been made in the context of the *ex ante* regulation of markets 3 and 4 (if such exercise was undertaken by the NRA).

In order to gain a better understanding of the way telecommunications operators make their investment decisions, NRAs may want to appraise their strategic or business plans, which may provide some insights into what is the geographic unit that is deemed relevant for the purpose of seeking access to telecommunications physical infrastructure.

Depending on the circumstances of each case, the relevant geographic unit may in the end be related to the network topology of the telecommunications operators, but it may also be linked to administrative boundaries (e.g. towns, communes, municipalities, postal codes, etc.) if competitive conditions are sufficiently homogenous within -and appreciably different outside- the chosen administrative area.

Following the delineation and a first assessment of the situation prevailing in the geographic units, those units that have largely **homogeneous competitive conditions** can be aggregated. When undertaking this exercise, NRAs should look *inter alia* at the number and size of competitors, the distribution of their market shares, the price differences or variation in prices across geographies, and other related competitive aspects which may result from relevant competitive variations between geographic areas (nature of demand, differences in commercial offers, marketing strategies, etc.).

The key issue to be addressed is thus the extent to which the competitive conditions that govern wholesale access to the telecommunications physical infrastructure[52] may be affected by the varying presence in each geographic unit of alternative providers of telecommunications physical infrastructure. For instance, if there is no credible alternative presence to that of the incumbent operator in the whole territory, it may be concluded that the market is national (if the physical infrastructure of the incumbent operator is available nationally).

The conclusion may however be different in the event that the NRA identifies some geographic areas where alternative operators supplying telecommunications physical infrastructure are

[49] Paragraph 48 of the Guidelines.
[50] Section 2.5 of the Commission Recommendation on Relevant Markets.
[51] BoR (14) 73 of 5 June 2014.
[52] In the event that was deemed to be the relevant product market.

capable of providing wholesale access services that are fully equivalent to the type of access provided by the incumbent operator.

In this regard, relevant parameters that may be taken into account by the NRA when studying the competitive conditions prevailing in the different geographic areas are (i) the area covered by the alternative telecommunications physical infrastructure (e.g. in terms of the number of building units passed); (ii) the type of infrastructure available (e.g. whether the infrastructure provides a connection to the dwellings where electronic communications services are to be provided); and (iii) the existence (or not) of coverage gaps in the alternative telecommunications physical infrastructure.

3. Application of the three criteria test

The three criteria test would need to be satisfied in the event that an NRA would consider access to the telecommunications physical infrastructure as a relevant market, separate from e.g. markets 3 or 4 of the Commission Recommendation on Relevant Markets.

In this respect, the Recommendation notes that when identifying markets other than those set out in the Annex to the Recommendation, NRAs should demonstrate that the following three criteria are cumulatively met:

a) the presence of high and non-transitory structural, legal or regulatory barriers to entry;

b) a market structure which does not tend towards effective competition within the relevant time horizon, having regard to the state of infrastructure-based and other competition behind the barriers to entry;

c) competition law alone is insufficient to adequately address the identified market failure(s).

The fulfilment of the three criteria test would need to be demonstrated by the NRA, on the basis of the specific circumstances applying to its national case.

In broad terms, it can be assumed that, if an NRA was to consider applying *ex ante* regulation to the telecommunications physical infrastructure market due to the existence of competition problems that have an effect at the retail level, the **first criterion** would be readily satisfied. In fact, NRAs that have imposed access obligations on telecommunications physical infrastructure have in general considered that civil engineering is an essential asset, which cannot be easily replicated by new entrants.

In this regard, the BCRD indicates (in Recital 7) that *"the roll-out of high-speed fixed and wireless electronic communications networks across the Union requires substantial investments, a significant proportion of which is represented by the cost of civil engineering works. Limiting some of the cost-intensive civil engineering works would make broadband roll-out more effective"*. The BCRD goes on to state at Recital 9 that *"measures aiming at increasing efficiency in the use of existing infrastructures and at reducing costs and obstacles in carrying out new civil engineering works should provide a substantial contribution to ensuring a fast and extensive deployment of high-speed electronic communications networks while maintaining effective competition […]"*.

Concerning the **second criterion**, the Explanatory Note to the Commission Recommendation on Relevant Markets refers to the relationship between the three criteria test and the SMP assessment. According to the Explanatory Note, the three criteria test focuses on the overall

characteristics and structure of a given *market*, while the assessment of SMP determines whether an *operator* active in a market should be made subject to *ex ante* regulation.

The set of indicators that may be used for performing the three criteria test and the SMP assessment may nevertheless be similar, in particular with regards to the fulfilment of the second criterion. In this regard, the discussion of the SMP assessment below may also be of interest in the context of the second criterion.

With regard to the **third criterion**, the Explanatory Note points to several factors that might be taken into consideration when assessing whether competition law is sufficient on its own to remedy the identified market failures. This might not be the case when (i) the regulatory obligation that is deemed appropriate to solve the problem cannot be readily imposed under competition law (e.g. access obligations or cost accounting obligations); (ii) the compliance requirements are extensive and must be maintained over time (e.g. the need for detailed accounting for regulatory purposes, assessment of costs, monitoring of terms and conditions including technical parameters and so on); (iii) frequent and/or timely intervention is indispensable; (iv) creating legal certainty is of paramount concern (e.g. multi-period price control obligations).

In this regard, it is worth noting that access to the physical infrastructure of the SMP operator may require the introduction of a number of additional regulatory and compliance measures (including e.g. the determination of the terms, prices and technical conditions that will govern access) that may not be immediately available under competition law. Likewise, some of the obligations imposed on the SMP operator – such as publication of a reference offer or cost accounting – may have to be revised regularly, to take into account market developments.

The impact of **national legislation implementing the BCRD** may also be relevant for the purpose of the application of the three criteria test. Although this assessment would have to be performed by each NRA individually, it is worth noting that there seem to be some differences between the BCRD and the obligations that can be imposed under *ex ante* regulation, as discussed in the report.

4. SMP assessment

According to Article 14(2) of the Framework Directive, an undertaking is deemed to have SMP if, either individually or jointly with others, it holds 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 its competitors, customers and consumers.

If an NRA was to define wholesale access to telecommunications physical infrastructure as a relevant market, the SMP assessment would in most cases be premised on the potential existence of **single SMP**, that is of an entity that individually holds such a position of economic strength (though the potential for joint SMP, at least in some limited geographies, must be acknowledged).

In this regard, the Guidelines point to a number of factors that may be relevant for assessing single SMP in a (hypothetical) telecommunications physical infrastructure market, including *inter alia*: barriers to entry and expansion; control of an infrastructure not easily duplicated; economies of scale and scope; absence of or low countervailing buying power; vertical integration; conclusion of long-term and sustainable access agreements; and engagement in contractual relations with other market players that could lead to market foreclosure.

One of the problems that may be confronted by an NRA engaging in such an assessment relates to the **gathering of data**. Information on parameters such as capillarity and availability of the physical infrastructure, effective use, saturation of the ducts, technical procedures and operations necessary to enable access, prospective investments in infrastructure, etc. may to some extent be available from the incumbent operator and even from large alternative telecommunications players. However, such detailed information may be more difficult to gather from smaller players (who may not have the resources to administer the data) or for instance from local public administrations that have physical infrastructure at their disposal.

Issues with data gathering may be exacerbated in the event that an NRA concludes that the physical infrastructure market includes both telecommunications and non-telecommunications physical infrastructure. Indeed, even large players, such as utilities with a national presence, may have difficulties in providing granular information on assets that are not strictly related to what constitutes their core business. Likewise, the information gathered by the NRA may not be uniform and consistent, due to the (potential) large number of players that might be required to provide the same sets of data.

In this regard, the creation of single information points at the national level, as encouraged by the BCRD, may to some extent assist NRAs in gathering the data that is needed for performing an SMP assessment.[53]

In countries where cable operators are present, another issue that may be raised in an SMP assessment is the extent to which the **physical infrastructure that was used by the cable operator** for the purpose of deploying its own network may also be used for the purpose of deploying other types of networks (such as copper/fibre networks) and thus may effectively constrain to some degree the market power of the incumbent operator (or be argued to be in a position of joint dominance).

In this respect, while cable networks rely on a different technology for the provision of retail electronic communications services than other providers (such as e.g. copper/fibre operators), *prima facie* the physical infrastructure of cable and other telecommunications operators is used in the same way in order to deploy their respective networks.

This does however not exclude the possibility that access to the physical infrastructure of the cable operator by other telecommunications providers may pose some technical and operational constraints (due e.g. to the different network topology of cable). It will in the end be up to each NRA to decide whether these (potential) differences should be evaluated at the stage of market definition or later when performing the SMP analysis, if at all.

Other features, such as coverage, may also become relevant for the purpose of assessing the competitive pressure that the physical infrastructure of the cable operator may exert. In many Member States, the coverage of cable is not equivalent to that of the incumbent operator, which normally has a ubiquitous, nation-wide network. The existence of coverage gaps, even in the geographic areas where the cable operator has a presence (e.g. depending on the neighbourhoods within a given city), may also be a relevant factor when assessing the extent to which cable physical infrastructure can constrain the market power of the incumbent operator.

[53] Some Member States are progressing in the development of the information systems and processes that are needed for processing the information pertaining to the availability of physical infrastructure.

Lastly, as part of the SMP assessment, NRAs may want to evaluate the existence of **countervailing buyer power** and the prospects of **potential entry**.

In an analysis of countervailing buyer power, the extent to which customers could counteract a potential price increase, due for instance to the volumes purchased or their ability to switch providers or sponsor new entry, would be assessed. Regarding the scope for potential entry, the existence of high entry barriers is a factor that, if confirmed, would militate against the prospects of new entry.

Annex 3: Sustaining regulation through the modified Greenfield approach

At this time, consideration of physical infrastructure mostly as a remedy to market 3a may tie wholesale access to the infrastructure of the SMP operator to the findings of the NRA in that reference market, as defined in the Commission Recommendation on Relevant Markets. Yet, the very success of the remedy under market 3a or other markets could, in some cases, lead to pressure for deregulation and its removal.

A “modified Greenfield approach” is intended to study the functioning of markets in the absence of *ex ante* regulation. In this case, deregulating market 3a would automatically lead to a deregulation of access to physical infrastructure, which would open the possibility for the incumbent operator to discriminate against its competitors that deployed their networks based on the assumption that they could rent access to the incumbent (although to an extent limited by the BCRD).

In the long run, this could allow for the incumbent to drive its competitors out of the retail market, or it would at least provide the incumbent with an unfair competitive advantage. In this context, it could be argued that the deregulation of market 3a would then be inappropriate, even if market 3a was considered to be currently competitive.

In this scenario, a market analysis recommending the imposition of remedies only on access to physical infrastructure (and no other remedy) on market 3a products could be envisaged. However, it is unusual to apply such reasoning when it concerns a remedy associated with a market[54]. Indeed, the “modified Greenfield approach” is traditionally applied by considering remedies that apply to products actually included in the market.

[54] This problem arises when access to physical infrastructure is a remedy to market 3a. It does not necessarily arise when physical infrastructure is integrated in market 3a.

Annex 4: Limits of the BCRD as a safety net

In the context of a potential deregulation of market 3a, the symmetric regulation provided for in the BCRD could mitigate the aforementioned risks. Notably, the BCRD requires "fair and reasonable treatment" when providing access to physical infrastructure, which for example would constrain the prices offered by the incumbent. However, the concept of "fair and reasonable treatment" is very broad and could be interpreted quite widely between Member States. Furthermore the BCRD is not very prescriptive on potential approaches with regard to access to physical infrastructure. For instance, some NRAs impose obligations on the SMP operator with the aim of making the request for access as easy as possible for alternative operators in order to ensure non-discriminatory access to the physical infrastructure.

Given the context of symmetric regulation, the BCRD is not made to deal with problems linked to the vertical integration of incumbent fixed operators, which are both managers of physical infrastructure and electronic communications operators.

Indeed, in the absence of asymmetric regulation, the incumbent operator may implement practices aimed at discriminating against its competitors by developing cross-subsidy mechanisms between its physical infrastructure and its activities of electronic communications, i.e. the incumbent could notably increase its access price and use the revenue to decrease its retail price, driving competitors out of the retail market. It could also make the process of requesting access very burdensome, *de facto* increasing its access price for alternative operators.

While in theory the magnitude of such practices would be constrained by the "fair and reasonable treatment" required by the BCRD, they could in practice be difficult to detect and to sanction by the competition authority, given the variety of offers marketed in retail markets and the complexity of the cost structure of electronic communications operators. Obligations of accounting separation and accounting for the costs imposed in the framework of *ex ante* asymmetric regulation would normally deal with this issue.

Moreover, as the Commission also highlighted in its comments letter on cases CZ/2018/2067-9 (review of markets 3 and 4 in the Czech Republic[55]) (i) the determination of the access prices via dispute resolution (as foreseen under the BCRD) may not be appropriate in cases where SMP has been found, as it may unnecessarily prolong the time necessary for access seekers to have access to the physical infrastructure; (ii) it is typically insufficient to subject an operator that has SMP, and which can thus act independently of its customers and consumers, to the same set of minimum standards that apply to all operators under the BCRD; (iii) the Commission Recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment provides for the application of a full-fledged BULRIC+ cost model to physical infrastructure, which may yield different results from those that would apply if wholesale prices are set in the context of dispute resolution proceedings.

[55] Commission comments letter of 27 April 2018.

Annex 5: Abbreviations

Abbreviations for countries

Abbreviation	Country
AT	Austria
BE	Belgium
BG	Bulgaria
CH	Switzerland
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland

Abbreviation	Country
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
LI	Liechtenstein
ME	Montenegro
FYROM	Former Yugoslav Republic of Macedonia

Abbreviation	Country
MT	Malta
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
RS	Serbia
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

Abbreviations for NRAs

Abbreviation	Country
ACM	Netherlands
AEC	Former Yugoslav Republic of Macedonia
AGCOM	Italy
AK	Liechtenstein
AKOS	Slovenia
ANACOM	Portugal
ANCOM	Romania
ARCEP	France
BAKOM	Switzerland
BIPT	Belgium
BNetzA	Germany
CNMC	Spain

Abbreviation	Country
COMREG	Ireland
CRC	Bulgaria
CTU	Czech Republic
DBA	Denmark
EETT	Greece
EKIP	Montenegro
ETRA	Estonia
FICORA	Finland
HAKOM	Croatia
ILR	Luxembourg
MCA	Malta
NKOM	Norway

Abbreviation	Country
NMHH	Hungary
OCECPR	Cyprus
OFCOM	United Kingdom
PTS	Sweden
RRT	Lithuania
RATEL	Serbia
RTR	Austria
RU	Slovakia
SPRK	Latvia
UKE	Poland