

Draft

Report on competition amongst multiple operators of NGA networks in the same geographical region



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Executive Summary

BEREC already published a Common Position on geographical aspects of market analysis (for both market definition and remedies) in 2014 and a report on the application of this Common Position in 2018. Regional operators of VHCN / NGA networks play an increasingly important role on the broadband market in many countries and they may use different business strategies, e.g. to differentiate (or not) prices across their networks. This report is built on these previous BEREC activities and focuses on the competition amongst multiple operators of NGA networks in the same geographical area and the outcome of this competition, namely retail prices and product diversification. The report is based on data collected from NRAs of 31 European countries in April 2022 and the objectives are: (i) to examine the extent to which multiple NGA networks are present in the same geographical area and the resulting impact on retail prices and retail product characteristics and (ii) to analyse the impact this had on the market for wholesale local access provided at a fixed location,¹ considering both cases where market definition and/or remedies have been geographically differentiated and where this is not the case.

Presence of multiple NGA networks in the same geographical area

The number of NGA networks present in the same geographical area differs significantly and the area covered by two NGA networks is in many countries 11-50% homes passed (HP), the area covered by three NGA networks is in most countries 0-25% HP and the area covered by more than three NGA networks is in most countries 0-10% HP. Differences in retail prices and/or retail product characteristics between geographical areas have been investigated by 18 countries and only three of them found differences in retail prices and one in retail product characteristics. The main reasons for these differences in retail prices and/or retail product characteristics do not show a clear tendency and vary between the three countries (e.g. competition between networks, the underlying technology, variation of wholesale prices). The reasons why seven countries have not investigated the differences in retail prices and/or product characteristics between geographical areas are as follows. In four countries, these differences were not considered to be relevant (e.g. retail prices differ only of one operator in a limited time, regional operators) and four countries had (also) one other reason (e.g. small country, difficulties to collect data).

Outcome of the geographical analysis in the last market analysis of market 1/2020 resp. market 3a/2014

In four countries, the analysis resulted in a deregulation of this market and one country did never regulate it (see Table 1). Six countries defined sub-national geographical markets, one of them implemented also a geographic differentiation of remedies in a sub-national

¹ Market 1/2020 resp. market 3a/2014



geographic market, five other countries a geographic differentiation of remedies in a national market and 15 countries did not adopt any geographical differentiation.

Table 1: Geographic differentiation of market definition and/or remedies

Geographical differentiation	Countries	Number of countries
Definition of sub-national geographical markets	DK, EE, ES, IT, FI, HU	6
Geographic differentiation of remedies in a sub-national geographic market	IT	1
Geographic differentiation of remedies in a national market	BE, CY, IS, SI, SK	5
No geographical differentiation	CZ, DE, FR, GR, HR, LT, LV, IE, MK, MT, NL, NO, PT, ² RS, SE	15
Deregulation of market 1/2020 resp. market 3a/2014 (or market 4/2007)	AT, BG, RO, XK	4

Source: BEREC

The main reasons for the geographic differentiation of market definition and/or remedies in the countries where such a differentiation was adopted are in nine countries geographical differences in coverage of alternative networks (e.g. cable or fibre), in seven countries (also) geographical differences in retail market shares of the incumbent, in four countries (also) geographical differences in wholesale market shares of the incumbent, in four countries also population density (economies of scale), in three countries also geographical differences resulting from commercial wholesale offers of alternative operators, and in four countries there is also one other main reason.

The type of the geographical unit used in the geographical analysis is in nine countries an administrative unit, in one country the postal code and in the other country electricity distribution areas. The relevant criteria for grouping the geographical units into homogeneous submarkets and/or areas with different remedies are the number of competitors in five countries, the number of competitors with an individual infrastructure coverage above a certain threshold in six countries, the number of competitors with an individual market share above a certain threshold in three countries, the market share of the incumbent operator below a certain threshold in six countries and three countries (also) used one other criterion.

The reasons why the 15 countries did not decide to geographically differentiate market definition and/or remedies are that the presence of multiple NGA networks did not result in sufficiently different competition in 12 countries, that the geographical area(s) where multiple NGA networks are available is still small and negligible in three countries and that in four countries there is one other reason.

² In Portugal, the market definition and remedies are not geographically differentiated, except some wholesale prices.



Country case studies on particular high number of regional operators showed the following: In one country (FI), the NRA defined 150 sub-national geographical markets, however, only 21 operators have SMP and all are historical incumbents and, therefore, this is manageable. In another country (DK), the NRA defined 21 sub-national geographical markets, 10 operators have SMP, nine of them are not the historical incumbent but regional operators. In a further country (SE), the NRA has not (yet) decided a geographical differentiation of market definition, however, there are indications of a potentially large number of sub-national geographical markets which might be burdensome to administrate.



1 Introduction and objective

When defining relevant markets in accordance with Article 64(3) of the European Electronic Communications Code (EECC)³, NRAs should identify geographical areas where the conditions of competition are similar or sufficiently homogeneous, and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different. NRAs must pay attention to whether the potential SMP operator acts uniformly across its network area (territory) or whether it faces appreciably different conditions of competition to a degree that its activities are constrained in some areas but not in others.

In addition, regional operators of VHCN / NGA networks play an increasingly important role on the broadband market in many countries. The networks of different operators may for example partly overlap in some areas or could be very close to each other and could easily be expanded. Also network operators may use different business strategies, for example to differentiate (or not) prices across their networks dependent on the presence of other operators.

In 2014, BEREC already published a Common Position on geographical aspects of market analysis (for both market definition and remedies), in which BEREC explored the circumstances under which a geographically differentiated approach to market analysis could be deemed appropriate and how this approach could be implemented.⁴ In 2018, BEREC published a report on the application of this Common Position which provide an overview of experiences among NRAs applying geographical segmentation to both market definition and remedies as well as a snapshot regarding the markets in which geographical segmentation was applied (as of May 2018).⁵

This report is built on these previous BEREC activities and focuses on the competition amongst multiple operators of NGA networks in the same geographical area and the outcome of this competition, namely retail prices and product diversification. The report is based on data collected from NRAs of 31 European countries in April 2022 and the objectives are: (i) to examine the extent to which multiple NGA networks are present in the same geographical area and the resulting impact on retail prices and retail product characteristics and (ii) to analyse the impact this had on the market for wholesale local access provided at a fixed

³ Directive (EU) 2018/1972 of the European Parliament and the Council establishing the European Electronic Communications Code, OJ L 321/36 of 17 Dec. 2018, see <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L1972&from=de>

⁴ BoR (14) 73, see <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/common-approachespositions/berec-common-position-on-geographic-aspects-of-market-analysis-definition-and-remedies>

⁵ BoR (18) 213, see <https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-application-of-the-common-position-on-geographic-aspects-of-market-analysis>



location,⁶ considering both cases where market definition and/or remedies have been geographically differentiated and where this is not the case.⁷

The document first examines the various aspects of multiple NGA networks in the same geographical area (section 2) and then the outcome of the geographical analysis in the last analysis of market 1/2020 resp. market 3a/2014 (section 3). The latter considers both outcomes, those where the market definition and/or remedies were geographically differentiated (section 3.1), and those where they were not (section 3.2). Finally conclusions are drawn (section 4).

2 Multiple NGA networks in the same geographical area

This section examines the following aspects of multiple NGA networks in the same geographical area in the 31⁸ countries which provided data:

- to what extent multiple NGA networks are present in the same geographical area;
- to what extent the retail prices differ between geographical areas;
- to what extent the retail product characteristics differ between geographical areas; and
- the main reasons for the differences in retail prices and/or retail product characteristics.

2.1 Presence of multiple NGA networks in the same geographical area

This sub-section provides an overview to what extent multiple NGA networks are present in the same geographical area.⁹

Table 2 shows that the number of NGA networks present in the same geographical area differ significantly (see also Table 14 in Annex 1). In nearly half of the countries (10 out of 21) the area covered by two NGA networks accounts for 11-25% homes passed (HP). In five countries the area covered by two NGA networks exceeds 50% HP. The area covered by three NGA networks is clearly smaller, in most (18) countries 0-25% HP and only in three countries up to

⁶ Market 1/2020 resp. market 3a/2014

⁷ NGA networks are wired access networks, according to the definition of the term 'NGA networks' in the 2010 Commission NGA Recommendation (2010/572/EU, paragraph 11). Therefore, the report focuses on NGA networks, which are fixed (wired) access networks and not mobile or wireless access networks.

⁸ Five of these 31 countries (AT, BA, BG, RO, XK) do not regulate market 1/2020 resp. market 3a/2014 and one country (HR) did not undertake a geographic analysis in the analysis of market 3a/2014 and therefore did not provide any further information. These six countries are therefore not further considered in this section.

⁹ Based on data of 21 of the 31 countries examined (see Table 14 to Table 17 in Annex 1). In five countries (FI, FR, HR, IT, LV) this information was not (fully) available or confidential and another five countries (AT, BA, BG, RO, XK) are not considered because they do not or no longer regulate market 1/2020 resp. market 3a/2014 (see footnote 8).



50%. The area covered by more than three NGA networks is even smaller, in most (16) countries 0-10% HP and only in five countries larger than 10% HP.

Table 2: Overview of the presence of multiple NGA networks in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network	5	8	8	0	0	0
1 NGA network	1	5	6	5	2	2
2 NGA networks	1	1	10	4	1	4
3 NGA networks	6	4	8	3	0	0
>3 NGA networks	11	5	1	1	3	0

Source: BEREC¹⁰

The area covered by (only) one NGA networks varies between the countries rather strongly. Most (16) countries fall in the range from 2% to 50% HP and are distributed quite uniformly across the different categories within that range. The area with no NGA network is clearly smaller and at most 25% HP.

Table 3 provides an overview of the differences in the presence of multiple NGA networks in the same geographical area depending on whether or not the NRA decided in the last market analysis of market 1/2020 resp. market 3a/2014 to geographically differentiate the market definition and/or remedies (see section 3 and also Table 15 to Table 17 in Annex 1).

Table 3: Overview of the presence of multiple NGA networks in the same geographical area depending on geographic differentiation of market definition and/or remedies

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area	
	Geographic differentiation	No geographic differentiation
No NGA network	All countries <=10% HP	Many countries >10% HP, but at most 25% HP
1 NGA network	Between 2% and 75% HP, approximately equally distributed	Between 0% and 100% HP, many countries 2-50%
2 NGA networks	All countries >10% HP, most countries 11-50% HP	0-100% HP, half of the countries 11-50% HP
3 NGA networks	0-50% HP approximately equally distributed	Most countries 0-25% HP
>3 NGA networks	Many countries 0-10% HP, some 26-75% HP	Most countries 0-10% HP

Source: BEREC

Table 3 shows that there is to some extent a correlation between the coverage of NGA networks and the fact whether the market definition and/or remedies were geographically differentiated, because other factors are also relevant for geographic differentiation (see section 3.1). The presence of two NGA networks do not differ significantly, however, the area

¹⁰ Data may be based on assumptions or estimations.

with three or more than three NGA networks is larger in countries which did geographically differentiate market definition and/or of remedies and the area with no NGA networks tends to be smaller.

2.2 Differences in retail prices between geographical areas

This sub-section examines the differences in the retail prices between geographical areas as follows:

- whether the NRA has investigated in the last analysis of the market 1/2020 resp. market 3a/2014 differences in retail prices between geographical areas;
- if this is the case, the observed differences in retail prices and
- if this is not the case, the reason why this has not been investigated.

Table 4 shows that in 18 countries in the last analysis of the market 1/2020 resp. market 3a/2014 the NRA has investigated whether retail prices differ between geographical areas. Three countries found that the retail prices differ between geographical areas, 14 countries found that they do not and five countries reported other differences (e.g. temporary discounts, the content of the offers provided by service providers, see Table 18 in Annex 1).

The retail prices differ between geographical areas in three countries (see Table 4) and the differences which have been found are as follows (see Table 19 in Annex 1). In all three countries the retail prices of broadband-only differ, in two of them (DE, HU) also the retail prices of bundles. The retail prices differ in two countries only in a few areas, in one of them (DE) only slightly and in the other (HU) to some degree. In the other country (DK), the retail prices differ in many areas significantly.

Table 4: Differences in retail prices between geographical areas

Differences in retail prices between geographical areas		Countries	Number of countries
Investigated	They differ	DE, DK, HU	3
	They do not differ	BE, CZ, EE, FR, GR, IT, IE, IS, LV, MT, NL, NO, PT, SI	14
	Other differences	DK, IE, LV, SE, SI	5
Not investigated		CY, ES, FI, LT, MK, RS, SK	7

Source: BEREC

Table 20 in Annex 1 shows the reasons why in seven countries in the last analysis of the market 1/2020 resp. market 3a/2014 the NRA has not investigated whether retail prices differ between geographical areas. One country (SK) had difficulties to collect data, four countries (ES, FI, LT, MK) considered it not to be relevant (e.g. retail prices do not differ much, retail prices differed only from one operator in a limited period of time, traditionally multiple operators with regional copper, fibre and cable networks) and three countries (CY, ES, RS) had (also)



other reasons (e.g. country is small, differences in retail prices are caused by geographically differentiated remedies).

Reasons why retail prices differ between geographical areas only in three countries, although multiple NGA networks are present in many countries, could be as follows. For commercial and marketing reasons, network operators may be reluctant to set geographically different retail prices and treat their customers differently from one municipality to another. This might also negatively affect their brand image and reputation. In light of such risks there might be a first mover disadvantage and no one dare to be the first in treating differently their customers and bear the risk of losing them in favour of their competitors. Although the nominal retail prices are the same, the effective prices could be different. For example, the different availability of VHCN/NGA networks already introduces differences in the availability of retail products. Retail products with more bandwidth and more download/upload data are available if their home has a fibre connection, and the effectively paid unit price might be lower. NGA networks may only have been built rather recently and, therefore, not yet have a significant effect on competition. If wholesale price regulation is uniform over the national market, this may also be a reason why retail prices do not differ between geographical areas.

It is important to note, that geographically uniform prices of the incumbent and alternative operators do not necessarily indicate that geographical variations in competitive conditions are insufficient to justify the definition of local geographical markets (see also section 3.1.1) which is also pointed out in the BEREC Common Position.¹¹

2.3 Differences in retail product characteristics between geographical areas

This sub-section examines the differences in the retail product characteristics between geographical areas as follows:

- whether the NRA has investigated in the last analysis of the market 1/2020 resp. market 3a/2014 differences in retail product characteristics between geographical areas;
- if this is the case, the observed differences in retail product characteristics and
- if this is not the case, the reason why this has not been investigated.

Table 5 shows that in 17 countries in the last analysis of the market 1/2020 resp. market 3a/2014 the NRA has investigated whether retail product characteristics differ between geographical areas. One country found that the retail product characteristics differ between geographical areas, 16 countries found that they do not, but five of them reported other

¹¹ See BoR (14) 73, p. 27-28 (<https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/common-approachespositions/berec-common-position-on-geographic-aspects-of-market-analysis-definition-and-remedies>)



differences that are not caused by geographic differences, e.g. by different underlying access technology (e.g. FTTH, FTTC, FWA, DOCSIS and DSL, see Table 21 in Annex 1).

Table 5: Differences in retail product characteristics between geographical areas

Differences in retail product characteristics between geographical areas		Countries	Number of countries
Investigated	They differ	DK	1
	They do not differ	BE, CZ, EE, FR, GR, HU, LV, IE, IS, IT, MT, NL, NO, PT, SE, SI	16
	Other differences	GR, IE, IT, NL, SI	5
Not investigated		CY, DE, ES, FI, LT, MK, RS, SK	8

Source: BEREC

The retail product characteristics differ between geographical areas in one country (DK, see Table 5) and the differences which have been found are as follows. The retail product characteristics differ of both of broadband-only and bundles and four NGA operators have different retail product characteristics in different areas. The retail product characteristics differ in a few areas to some degree.

Table 22 in Annex 1 shows the reasons why in eight countries in the last analysis of the market 1/2020 resp. market 3a/2014 the NRA has not investigated whether retail product characteristics differ between geographical areas. One country (SK) had difficulties to collect data, three countries (FI, LT, MK) considered it not to be relevant and four countries (CY, DE, ES, RS) had other reasons (e.g. country is small, no differences between geographic areas).

The reasons why retail product characteristics differ between geographical areas only in one country, although multiple NGA networks are present in many countries, may be the same as in case of retail prices (see section 2.2).

2.4 Main reasons for the differences in retail prices and/or retail product characteristics

In three countries (DE, DK, HU) the retail prices and in one country (DK) the retail product characteristics differ between geographic areas (see Table 4 and Table 5). The main reasons for these differences vary between these three countries and are competition between networks (HU), the underlying technology (DE), the cost structure (DE), variation of wholesale prices (DK), the size of the given settlement (HU),¹² previous market analysis decision (DK) and they have always been present (DK) (see Table 23 and Table 24 in Annex 1).

¹² The bigger the size the more competition due to economies of scope and scale

3 Outcome of the geographical analysis

This section examines the outcome of the geographical analysis in the last analysis of market 1/2020 resp. market 3a/2014 in the 31 countries which provided data, beginning with an overview of whether or not the NRA decided to differentiate the market definition and/or remedies by geography.

Seven of these 31 countries have already undertaken an analysis of market 1/2020, 23 countries an analysis of market 3a/2014 (or market 4/2007) and one country (BA) never regulated these markets.

Table 6 shows the outcome of the market analysis of market 1/2020 resp. market 3a/2014 (or market 4/2007) regarding the geographic differentiation of market definition and/or remedies. Six countries defined sub-national geographical markets, one of them also a geographic differentiation of remedies in a sub-national geographic market, five other countries a geographic differentiation of remedies in a national market and 15 countries did not adopt any geographical differentiation. In four countries (AT, BG, RO, XK), the analysis resulted in a deregulation of market 1/2020 resp. market 3a/2014 (or market 4/2007).

Table 6: Geographic differentiation of market definition and/or remedies

Geographical differentiation	Countries	Number of countries
Definition of sub-national geographical markets	DK, EE, ¹³ ES, ¹³ IT, FI, HU	6
Geographic differentiation of remedies in a sub-national geographic market	IT	1
Geographic differentiation of remedies in a national market	BE, CY, ¹³ IS, SI, ¹³ SK	5
No geographical differentiation	CZ, ¹⁴ DE, FR, GR, HR, LT, LV, IE, MK, MT, NL, NO, PT, ¹⁵ RS, SE ¹³	15
Deregulation of market 1/2020 resp. market 3a/2014 (or market 4/2007)	AT, BG, RO, XK	4

Source: BEREC

¹³ CY, EE, ES, SE, and SI have already undertaken an analysis of market 1/2020. In Estonia, the NRA withdrew the draft measure of the analysis of market 1/2020 notified to the EC after the EC opened a phase II investigation pursuant to Article 32 of the EECC (see section 3.1.7). In Sweden, the EC vetoed the draft measure of the analysis of market 1/2020 (see section 3.2.4).

¹⁴ Decision of the Czech NRA taken in 2017 on the analysis of market 3a/2014. In May 2022, the Czech NRA notified to the EC a new draft measure on market 1/2020. In June 2022, the EC expressed serious doubts as to the compatibility with EU law of this draft measure and in July the Czech NRA withdrew it (see section 3.1.8).

¹⁵ However, in the specification of the remedies (e.g. ORAC, ORAP) by the Portuguese NRA, there was (and still is) a geographical differentiation of the wholesale price for access to ducts of the operator with SMP (between Lisbon/Porto versus other municipalities). The same applies to the geographical differentiation (by district) of the price of access by wholesale operators to the information contained in the infrastructure database (ducts and poles) of the operator with SMP (ORAC ORAP DB).

These results show that the number of countries which adopted a geographic differentiation of market definition and/or remedies has increased since 2018 by 57%, from seven to 11.¹⁶ In particular, nearly all countries which already finished an analysis of market 1/2020 and did not deregulate this market decided a geographic differentiation of market definition and/or remedies.

3.1 Geographic differentiation of market definition and/or remedies

This sub-section analyses the geographic differentiation of the 11 countries which decided in the last analysis of market 1/2020 resp. market 3a/2014 to geographically differentiate the market definition and/or remedies (see Table 6).¹⁷ It begins with an examination of the following aspects of the geographical analysis and differentiation:

- the main reasons for the geographic differentiation of the market definition and/or remedies on market 1/2020 resp. market 3a/2014 (section 3.1.1);
- the type of geographical unit and the number of geographical units applied in the geographical analysis (section 3.1.2);
- the reasons for selecting the type of geographical unit (section 3.1.3);
- the relevant criteria for grouping the geographical units into homogeneous submarkets and/or areas with different remedies (section 3.1.4);
- the number of sub-national markets and/or areas with different remedies that result from this grouping of the geographical units and further aspects in case of sub-national geographic markets (section 3.1.5).

Then, the geographical analysis and differentiation is also studied at the country level as follows. In the case of the Czech Republic, Denmark and Estonia, the European Commission (EC) expressed serious doubts as to the compatibility of their notified draft measure with EU law and, therefore, they are examined to gain insight in EC's view on the geographic differentiation (CZ, EE) and SMP designation on sub-national geographical markets (CZ, DK)(sections 3.1.6 to 3.1.8). In Denmark, Finland and Sweden, the number of regional operators is particularly high which could potentially result in a high number of sub-national geographical markets and, therefore, this aspect is comparatively analysed between these three countries (section 3.1.9). Belgium, Estonia, Iceland, Italy and Slovenia have

¹⁶ See BoR (18) 213, p. 2, (<https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-application-of-the-common-position-on-geographic-aspects-of-market-analysis>)

¹⁷ In Portugal the analysis of market 3a/2014 carried out by the NRA in 2017 did not result in any differentiation or geographical segmentation of the market definition and/or remedies and, therefore, Portugal is considered in section 3.2, but not in this section 3.1. However, it needs to be noted that in the specification of the remedies by the NRA, there was (and still is) a geographical differentiation to some extent of some wholesale prices (see footnote 15).



geographically differentiated the market definition and/or remedies although they did not find that the retail prices and/or retail product characteristics differ between geographic areas (see section 2.2 and 2.3) and, therefore, this aspect is comparatively analysed between these five countries (section 3.1.10).

3.1.1 Main reasons for the geographic differentiation

Table 7 shows the main reasons why the 11 countries geographically differentiated the market definition and/or remedies on market 1/2020 resp. market 3a/2014. The main reason is in nine countries geographical differences in coverage of alternative networks (e.g. cable or fibre), in seven countries (also) geographical differences in retail market shares of the incumbent, in four countries (also) geographical differences in wholesale market shares of the incumbent, in four countries (also) population density (economies of scale). In three countries also geographical differences resulting from commercial wholesale offers of alternative operators and in four countries one other main reason each. The number of main reasons in a country vary between five (ES), four (DK, HU, IT, SI), two (EE, IS, SK) and one (BE, CY).

Table 7: Main reasons for the geographic differentiation

Main reasons	Countries	Number of countries
Geographical differences in coverage of alternative networks (e.g. cable or fibre)	BE, CY, DK, ES, HU, IS, IT, SI, SK	9
Geographical differences in retail market shares of the incumbent	DK, EE, ES, HU, IS, IT, SI	7
Geographical differences in wholesale market shares of the incumbent	DK, FI, HU, IT	4
Population density (economies of scale)	EE, ES, HU, SK	4
Geographical differences resulting from commercial wholesale offers of alternative operators	ES, IT, SI	3
Geographical differences of retail prices of the incumbent operator and/or alternative operators	DK	1
Geographical differences in the take-up of regulated access services in an upstream market	ES	1
Geographical differences in retail commercial offers (other than price) or marketing strategies of the incumbent operator and/or alternative operators	- - -	0
Geographical differences of wholesale prices of the incumbent operator and/or alternative operators	- - -	0
Other	FI, ¹⁸ SI ¹⁹	2

Source: BEREC

¹⁸ In Finland, some of the main reasons have been which operators have networks and where, i.e. the reach of each network owner's networks, and whether the number of competitors varies at the wholesale level.

¹⁹ In Slovenia, another main reason is the geographical differences in presence and retail market shares of alternative operators.

The main reasons reflect the results of the examination in section 2. In 9 of the 11 countries a main reason is the geographical differences in coverage of alternative networks (e.g. cable or fibre) and the coverage of NGA networks differ between geographical areas (see section 2.1). Only in one country (DK) another main reason is the geographical differences of retail prices of the incumbent operator and/or alternative operators whilst only three countries (DE, DK, HU) observed differences of retail prices between geographical areas (see section 2.2). Two of these three countries (DK, HU) geographically differentiated the market definition, one of them (DK) reported significant retail price differences in many geographical areas and, therefore, this is (another) main reason for the geographic differentiation, and the other country (HU) reported that the retail prices differ only in a few geographical areas to some degree and, therefore, they are not a main reason for the geographic differentiation. The other country (DE) did not adopt a geographic differentiation of the market definition and/or remedies and reported that the retail prices differ only in a few areas slightly. Geographical differences in retail commercial offers other than price are not a main reason for the geographic differentiation in any of the 11 countries and only one country (DK) reported differences in the retail product characteristics between geographical areas (see section 2.3). However, the retail product characteristics differ only in a few areas to some degree and, therefore, are not a (further) main reason for the geographic differentiation.

3.1.2 Type and number of geographical units

Table 8 shows that the type of the geographical unit used in the geographical analysis is in nine countries an administrative unit, in five of them municipality, in two of them settlement level, in one of them a “statistical sector” and in the ninth the largest cities. The other two countries chose the type of the geographical unit “postal code” and “electricity distribution areas”. No country selected the geographical unit “Network based on MDF-/ODF-level of the

Table 8: Type of geographical units

Type of geographical units	Countries	Number of countries
Administrative units		
- Municipality	ES, FI, ²⁰ IS, IT, SK	5
- Settlement level ²¹	HU, SI	2
“Statistical sector”	BE	1
- The five largest cities in the country	EE	1
Postal code areas	CY	1
Electricity distribution areas	DK	1
Network based on MDF-/ODF-level of the incumbent(s)	- - -	0
Network of alternative operators	- - -	0

Source: BERECA

²⁰ In Finland, the type of unit was municipality. Some of the municipalities have been aggregated later in the analysis to bigger geographical areas combining of more than one municipality.

²¹ In Hungary, NUTS former level 5, or now LAU level 2



incumbent(s)” or “Network of alternative operators”.

Table 9 provides an overview of the number of individual geographical units that result from the selected type of geographical unit (see Table 8). The number of geographical units vary significantly among the 10 countries, from less than 100 (3 countries) to nearly 20,000 (1 country).

Table 9: Number of geographical units

Number of geographical units	Countries	Number of countries
<100	EE, DK, IS	3
101-1,000	CY, FI	2
1,001-5,000	HU, SK	2
5,001-10,000	ES, IT, SI	3
10,001-20,000	BE	1

Source: BEREC

3.1.3 Reasons for selecting the type of geographical unit

Table 10 shows that the reason for selecting the type of geographical unit is in eight countries the presence of alternative networks, in seven countries (also) the availability of data, in three countries (also) the number of the geographical units and in four countries (also) one other reason each.

Table 10: Reasons for selecting the type of geographical unit

Reason	Countries	Number of countries
The presence of alternative networks	CY, DK, EE, ES, HU, IS, IT, SI, SK	8
Availability of data	BE, CY, EE, FI, HU, SI, SK	7
Number of geographical units	CY, SK	2
Other reasons		
- Precise fit of NGA rollout	DK	1
- EC's criteria ²² for a geographical unit	FI	1
- Stable boundaries and proper size of administrative units	SI	1
- MDF unit is no longer appropriate ²³	ES	1

Source: BEREC

The presence of alternative networks is a (the) reason for selecting the type of geographical unit because it is the main source of retail and wholesale price constraint (IT), the decisive criterion was the presence of at least three VHCNs (CY), alternative networks are built on a per municipality basis (ES, IS, IT), ANOs have a quite significant market share in the largest

²² Recommendation on Relevant Markets 2014, see <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014H0710&from=EN>

²³ Since the importance of incumbent operator's copper traditional network has diminished notably the MDF unit is no longer considered as a geographical unit for regulatory purposes.

cities (EE), regional operators (DK), the BEREC Common Position on geographical aspects of market analysis (para. 86)(HU), the availability of data (SK), and mapping is simple (SI)(see Table 25 in Annex 2).

In two countries, the presence of alternative networks is not a reason for selecting the type of geographical unit because existing data was used from coverage maps already published (BE) and the presence of all networks were taken into account, since the historical incumbents were still the main operators (FI) (see Table 26 in Annex 2).

3.1.4 Criteria for grouping the geographical units

Table 11 shows that the following criteria were relevant for grouping the geographical units

Table 11: Relevant criteria for grouping the geographical units into homogeneous submarkets and/or areas with different remedies

Criterion	Countries	Number of countries
Number of competitors	CY, FI, HU, SI, SK	5
Number of competitors with an individual infrastructure coverage above a certain threshold	BE (20%, 50% ²⁴), ES (20%), HU (60%), IS (75%), IT (60%), SI (65%)	6
Number of competitors with an individual market share above a certain threshold	FI (NI), HU (15%), SI (10%)	3
Market share of the incumbent operator below a certain threshold	EE (40%), ES (50%), HU (50%), IS (50%), ²⁵ IT (40%), ²⁶ SI (40%)	6
Differences in the existence or terms of wholesale commercial offers	IT ²⁷	1
Minimum volume of total access lines supplied (by the incumbent and alternative operators)	---	0
Population or total number of (potential) access lines in the geographical unit	---	0
Retail price differences	---	0
Differences in retail commercial offers (other than price) or marketing strategies	---	0
The presence of State aid funded networks in an area	---	0
Others	DK, ²⁸ FI ²⁹	2

Source: BEREC

²⁴ In Belgium there are two thresholds. The threshold for white/grey areas: coverage of no or one NGA operators below 20%, the threshold for more competitive areas: coverage of three NGA operators above 50%.

²⁵ 50% market share of incumbent in retail internet services

²⁶ NGA retail market share < 40% and NGA wholesale market share < 80%

²⁷ A municipality is considered eligible for remedies differentiation if it is available a wholesale offer provided by an alternative operator through an independent network (in our case, the wholesale-only operator).

²⁸ Specific networks present as this presence, by itself, constitute differentiation of wholesale offers, retail prices etc. in the Danish case

²⁹ The municipalities aggregated to one sub-national market formed a uniform geographical area, i.e. the municipalities were located next to each other.



into homogeneous submarkets and/or areas with different remedies. The number of competitors in five countries, the number of competitors with an individual infrastructure coverage above a certain threshold in six countries, the number of competitors with an individual market share above a certain threshold in three countries, the market share of the incumbent operator below a certain threshold in six countries and in three countries one other criterion each.

The criteria regarding retail price differences and differences in retail commercial offers other than price were not used for grouping the geographical units, which reflects the results of the examination in section 2. The retail prices differ between geographical areas only in two countries (DK, HU) which decided a geographic differentiation of market definition and/or remedies and only in one of them (DK) they differ between many geographical areas significantly. However, this country considered the presence of NGA networks sufficient for grouping the geographical units. In the other country (HU), the retail prices differ only in a few geographical areas to some degree (see section 2.2). The retail product characteristics differ between geographical areas only one country (DK), however, only in a few areas to some degree (see section 2.3).

3.1.5 Number of sub-national markets and/or areas with different remedies

Six countries defined sub-national markets (see Table 6) and the number of sub-national markets varies from two (EE, ES, IT), six (HU), 21 (DK) and 150 (FI) (see Table 27 in Annex 2). The number of areas where the individual SMP operator is the historical incumbent varies between one (EE, IT), two (ES), three (HU), four (DK) and 132 (FI). The number of areas where the individual SMP operator is an alternative operator (not the historical incumbent) is nine in one country (DK) and zero in the other five countries. Areas with joint SMP do not exist in any of these six countries. The number of areas without SMP operator varies from zero (ES), one (EE, IT), three (HU), eight (DK) and 18 (FI). The percentage of national households that are already completely de-regulated because they are located in the areas without (individual and/or joint) SMP ranges between 0% (ES), 3% (IT), 7% (EE), 10%³⁰ (FI), 19% (HU) and 31% (DK) (see Table 29 in Annex 2).

Five countries defined areas with different remedies (see Table 6) and the number of areas with different remedies varies as follows. In two countries, the remedies differ between two areas, in one of them (CY) these two areas are (i) areas with 3 VHCN and (ii) areas with less than 3 VHCN, in the other country (SI) these two areas are (i) 15 settlements (5.3% of households) with increased level of infrastructure competition and (ii) other 6,020 settlements. In one country (BE) the remedies differ between three areas and these areas are (i) areas with three or more NGA networks (ii) areas with two NGA networks and (iii) areas with one or

³⁰ An approximation based on the amount of population in the de-regulated areas.



no NGA network and in another country (IS) the remedies differ between 17 areas (see Table 28 in Annex 2).

3.1.6 Geographic differentiation in Denmark

In Denmark, the NRA (DBA) finished the last analysis of market 3a/2014 in 2021, did not deregulate this market and has not yet undertaken an analysis of market 1/2020. DBA did however ensure that the market defined was in compliance with the 2020 Commission Recommendation on relevant markets.³¹

Regional operators and geographical analysis

The number of NGA networks present in the same geographical area in Denmark is as follows. No NGA networks are present in 8% HP, exactly one NGA network is present in 68% HP, exactly two NGA networks are present in 23% HP, three NGA networks are present in 1% HP while no households are covered with more than three NGA networks.

In the last analysis of market 3a/2014, DBA defined sub-national geographical markets regarding the market for high capacity infrastructure - the market containing NGA networks (fibre and coaxial) - and made no geographic differentiation of remedies within these sub-national geographical markets (see Table 41 in Annex 3). The main reasons for the geographical differentiation of the market for high capacity infrastructure are geographical differences in: (i) coverage of different networks (e.g. cable or fibre), (ii) retail market shares of the main networks, (iii) wholesale market shares of the main networks and (iv) retail prices of the main network operators and/or alternative operators. Regional price and product differences in Denmark are historically rooted, hence a certain amount of heterogeneity is already found across regional parts of Denmark in terms of retail conditions. As such, DBA considered it vital to analyse the supply (networks present) as its starting point of the geographical analysis. Furthermore, price differences are magnified through an increased differentiation of wholesale prices due to the wholesale openings of several regional networks in recent years.

For the geographical analysis, DBA selected the geographical unit 'electricity distribution areas' which resulted in 43 geographical units. The reasons why DBA selected this type of unit are the presence of the networks of regional operators and the precise fit of NGA rollout. In Denmark, fibre networks have been deployed predominantly by locally or regionally based energy utility companies deploying fibre within their own energy distribution areas. Consequently, fibre deployment in Denmark predominantly follows a logic of regionality and

³¹ Commission Recommendation (EU) 2020/2245 of 18 December 2020 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council establishing the European Electronic Communications Code, see <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020H2245&from=EN>



exclusivity, resulting in an insignificant degree of parallel fibre coverage. Thus, electricity distribution areas are found to be the most appropriate unit to be used as a basis for the geographical market definition in Denmark, as this unit provides stable market boundaries and reflects competitive conditions on the Danish market. Coaxial cable networks are primarily located in urban areas and are thus located inside the units of the electricity distribution areas. The main criteria for merging utility areas (the geographical unit chosen) into submarkets, were the overlapping presence of the same networks in the different utility areas. The networks themselves constitute a differentiation of e.g. wholesale-offers, retail-prices, retail products in the Danish case. In general, larger and smaller electricity supply areas were merged together, if, in the small electricity supply areas, the fibre was not rolled out by the corresponding electricity company but by the electricity company from a larger, neighbouring electricity supply area. DBA grouped the geographical units into 21 areas and defined 21 sub-national markets. DBA's investigations of the 21 submarkets led to DBA's initial conclusion that ex-ante regulation was necessary on 17 submarkets. In total, 14 operators were designated as having individual SMP on these 17 submarkets in the draft measures notified to the EC by DBA in November 2021.

Serious doubts of the EC and final decision of DBA

In December 2021, the EC expressed serious doubts as to the compatibility with EU law of the draft measures related to the high capacity infrastructure markets DBA notified to the EC. These serious doubts concerned five (out of 21) geographic markets for which the SMP designation and the fulfilment of the three criteria test appeared to the EC insufficiently justified. Although specific conditions apply for each of the five markets, the EC generally argued with regard to the SMP designations as follows:³²

- In these five markets the percentage of parallel infrastructure is above 40%, in three of them even close to or above 60 %³³. Furthermore, many of these utility companies, which are owned by energy consumers, are continuously increasing their coverage and announced that they will continue the fibre deployment until all households in their electricity distribution areas are covered with fibre.
- The EC did not share DBA's view that the commercial wholesale offers proposed by certain wholesale-only operators and one vertically integrated operator did not enable commercially sustainable access to the infrastructure, and that regulatory intervention therefore is necessary. For the EC it was unclear why the proposed terms and conditions (in particular the price) of the wholesale offers proposed by the different operators would not be fair and reasonable, or sustainable.

³² Commission Decision in Case DK/2021/2346: Market for high-capacity broadband and market for low-capacity infrastructure in Denmark, C(2021) 8890 final, Brussels, 1.12.2021, p.15-19

³³ In all cases, the vast majority of alternative infrastructure is coaxial, as parallel fibre deployment is scarce in Denmark.



- Overall, the EC concluded regarding the SMP designation on the five markets that taking into account the significant and increasing degree of parallel coverage, the competitive constraints at wholesale and retail level stemming from cable networks (in particular where these networks are open at wholesale level), the positive impact on competition of wholesale opening of the fibre networks, and the possible existence of countervailing buying power, it is insufficiently justified to conclude that these operators are able to behave independently from their competitors and customers.

In February 2022, following an in-depth investigation, the EC withdrew its serious doubts for the following reasons:³⁴

- DBA withdrew the notified draft measures in relation to four of the five geographic markets concerned.
- The additional information collected during the phase II investigation and exchanges with BEREC³⁵ and DBA sufficiently addressed the EC's serious doubts. Therefore, the EC withdrew its serious doubts regarding the SMP designation of the remaining operator.

Three of the four SMP designations which were withdrawn by DBA concerned wholesale-only operators, while the fourth of the withdrawn SMP designations concerned a vertically integrated operator which had a longer lasting commercially open infrastructure. The fifth SMP designation, which was not withdrawn by DBA, and regarding which the EC eventually withdrew its serious doubts, concerned a vertically integrated operator who offered no wholesale access.

DBA has concluded on the basis of the phase II investigation, that parallel coverage is a significant parameter that should be considered capable of altering the significance of other SMP parameters. The EC pointed to two thresholds in relation hereto – 40 percent parallel coverage being significant, and 60 percent being very significant. However, DBA still considers it essential to exercise discretion, and observe whether or not the parallel coverage indeed alters the competitive conditions or not – for example by analysing in detail customer migration between the competing infrastructures at the household level. Moreover, the presence of commercial wholesale offers must be considered as part of the three criteria test, to ensure that there are indeed structural barriers which cannot be overcome without regulatory intervention. Data is essential for both aspects and in order to even prove the presence of differentiated competitive conditions, DBA had to revise its entire approach to data and the

³⁴ Commission Decision of 1.2.2022 pursuant to Article 32(6) of Directive (EU) 2018/1972 (Lifting of reservations) Case DK/2021/2346: Market for high-capacity broadband and market for low-capacity infrastructure in Denmark, C(2022) 682 final, Brussels, 1.2.2022, p. 15

³⁵ In January 2022 after DBA withdrew the notified draft measures in relation to four of the five geographic markets concerned, BEREC published its opinion on that case with the result that BEREC considers that the EC's serious doubts are not justified (BoR (21) 190). See <https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-opinion-on-phase-ii-investigation-pursuant-to-article-32-of-directive-eu-20181972-case-dk20212346-market-for-high-capacity-infrastructure-m12020-in-denmark>



quality of its data. DBA now has a system with data on coverage, wholesale and retail-data at the household level that allows DBA to flexibly aggregate data and to test various hypothetical scenarios. DBA also conducts retail-price data gathering every month for every service provider across all networks and on every geographical submarket, allowing DBA to closely monitor the conditions.

Overall, and following the phase II investigation, the Danish market for high-capacity infrastructure include 21 geographical submarkets, 13 of them containing operators having individual SMP. In total, 10 operators are designated as having SMP on these submarkets. In four submarkets, the individual SMP operator is the historical incumbent, while in nine submarkets the individual SMP operator is not the historical incumbent but instead a regionally or locally based operator. The market contains no submarkets with joint SMP and eight submarkets without any SMP operator. 31% of the national households are already completely de-regulated on the market for high-capacity infrastructure because they are located in areas without (individual and/or joint) SMP.

The Danish SMP operators

SMP operators in Denmark vary in terms of size and business models. Six SMP operators are vertically integrated. The vertically integrated SMP operators include the largest regional operators Norlys, Fibia as well as the former incumbent TDC NET³⁶, but also some smaller regional operators designated as having SMP on smaller regional markets. The smallest vertically integrated operators have not yet offered wholesale access to their networks, while the networks of the larger vertically integrated operators are open to alternative service providers. Satisfactory wholesale access in Denmark is either established via regulation or via voluntary commercial offers. Norlys, Fibia and TDC NET have established wholesale platforms enabling wholesale openings of the networks of other regional operators by standardizing integration between network operators and service providers. Several network owners (but not all) use one of these wholesale platforms to conduct wholesale openings of their fibre networks. Norlys, Fibia and TDC NET also operate the fibre networks of some of the smaller network owners that have integrated with these wholesale platforms.

Four SMP operators in Denmark are only active at the wholesale level. However, the Danish market does not include any long-standing wholesale-only operators with more than one wholesale customer. The wholesale-only operators either had long-standing exclusive arrangements with one service provider, or were vertically integrated operators selling off their retail businesses during the recent round of market investigations. Hence, most of these operators have turned into wholesale-only operators, as defined by the EECC, recently. Since

³⁶ TDC NET has SMP in the geographical submarket containing the capital region due to its predominant fibre footprint in this area, while TDC NET also has SMP status on some smaller submarkets, mainly due to its coaxial networks in these areas.



recently, these operators have supplied their wholesale product through one of the aforementioned wholesale platforms or are intending to do so in the very near future.

Conclusions

As a conclusion, the Danish market is characterized by significant regionalisation with a variety of regional SMP operators. These operators differ both in terms of size and business model, with some being vertically integrated while others are only active on wholesale level. This has led to some differentiation of remedies across SMP operators. Generally, wholesale-only operators are subject to “lighter” regulation compared to vertically integrated operators, as they are not subject to remedies regarding wholesale pricing. Besides the different business models, the varying size of the SMP operators has also led to some differentiation of remedies. Thus, SMP operators on some smaller geographical submarkets are obliged to provide wholesale local access due to proportionality considerations, while SMP operators on the majority of the submarkets are obliged to provide wholesale central access. Furthermore, the three largest, and vertically integrated SMP operators, including the former incumbent TDC NET, are not subject to traditional remedies as these operators have offered commitments which are made binding by DBA. Hence, SMP operators on the largest submarkets are not regulated through traditional remedies but through binding commitments. These commitments generally specify conditions regarding wholesale access, non-discrimination, transparency and pricing.

3.1.7 Geographic differentiation in Estonia

In Estonia, the NRA (ECPTRA) withdrew in 2021 the draft measure it notified to the EC, because the EC opened a phase II investigation pursuant to Article 32 of the EECR (Case EE/2021/2310). This case is further considered in this sub-section. ECPTRA has already started a new market analysis and has not deregulated this market.

Regional operators and geographical analysis

The number of NGA networks present in the same geographical area in Estonia is as follows (see Table 42 in Annex 3). No NGA networks are present in 24% HP, one NGA network in 25% HP, two NGA networks in 19% HP, three NGA networks in 24% HP and more than three NGA networks also in 8% HP.

ECPTRA investigated in the last analysis of market 1/2020 it notified to the EC whether retail prices and retail product characteristics differ between geographical areas with the following



results (see Table 43 in Annex 3). ECPTRA did not find that the retail prices and/or retail product characteristics of NGA network operators differ between geographical areas.³⁷

In the last analysis of market 1/2020 notified to the EC, ECPTRA concluded concerning the geographical aspects of market analysis the definition of sub-national geographical markets without a geographic differentiation of remedies in these sub-national geographical markets (see Table 44 in Annex 3). The main reasons for the geographical differentiation of the market definition are geographical differences in retail market shares of the incumbent and in population density (economies of scale).

For the geographical analysis, ECPTRA selected the geographical unit “administrative units” which resulted in six geographical units, the five largest cities and all other regions. The reasons why ECPTRA chose that geographical unit are the presence of alternative networks (in some large cities alternative network operators have quite significant market share of end-users) and the availability of data. The relevant criterion applied to aggregate the geographical units to homogeneous sub-national markets was the incumbent operator’s market share of end-users below 40%. The differences in the retail prices and other aspects of the retail commercial offers or marketing strategies were not a relevant criterion, because the three largest operators across Estonia, which together account for more than 90% of NGA end users, do not differentiate prices or marketing strategies geographically. ECPTRA grouped the geographical units into two sub-national geographic markets. One geographic market includes two cities (Narva and Kohtla- Järve) and the other geographical market the remaining part of the Estonian territory. ECPTRA concluded that there is one area with an individual SMP operator (historical incumbent), and one area without SMP operator (the two cities Narva and Kohtla- Järve). 7 percent of the national households are located in the areas without SMP and it was planned to deregulate this area.

Serious doubts of the EC

In April 2021, the EC expressed serious doubts as to the compatibility with EU law of the notified draft measure related to the wholesale local access market (market 1/2020), because in the EC’s view there is a lack of sufficient evidence supporting (i) the definition of a national geographic market, (ii) the finding of SMP in the defined market and (iii) the definition of the relevant product markets. The EC argued in detail as follows:³⁸

- (i) The definition of a national geographic market: The geographic market definition seems to be mainly based on analysis of the retail market shares. The conclusions that the

³⁷ ECPTRA did observe only some minor retail price differences between local/regional NGA operators, but the overall picture was that prices were quite homogenous, and did not differ very much from the prices of national NGA operators.

³⁸ Cases EE/2021/2310 and EE/2021/2311: Markets for wholesale local access provided at a fixed location and for wholesale central access provided at a fixed location in Estonia. Opening of phase II investigation pursuant to Article 32 of Directive (EU) 2018/1972. C(2021) 2787 final, Brussels, 16.4.2021, p. 9-14



competitive conditions are homogenous seems to be solely based on the circumstance that Telia's retail market shares are above 40% in all areas of the country with the exception of the two excluded municipalities. However, the EC observed important variations in the retail market shares between large cities (Tallinn, Pärnu, Tartu) where Telia's retail market share differs compared to the rest of the country. In the EC's view these differences seem to be particularly important in the capital city of Tallinn which, together with the very low and decreasing take up for regulated products, indicate a developed infrastructure based competition. Therefore, the EC considered the finding that the markets are national (apart of the two municipalities) is not sufficiently justified and that it cannot be excluded that multiple geographic markets exist in Estonia.

- (ii) The finding of SMP in the defined market: It seems that infrastructure competition is relatively developed, at least in some urban areas, considering that 75% of Estonian households are covered by at least two fixed networks and 50 to 55% by three or more fixed networks.³⁹ In addition, the EC did not share ECPTRA's view that the SMP finding on the wholesale local access market is justified by the very high market share that Telia holds on this wholesale market, because it has a very limited size and decreases rapidly. In particular in 2020, only 25 unbundled copper lines were provided on the Estonian wholesale market and access to Telia's fibre network is extremely limited. Finally, the EC did not consider an economic replicability test or a retail-minus price control obligation, as foreseen by ECPTRA, to be appropriate.
- (iii) The definition of the relevant product markets: ECPTRA considered that the wholesale local access market consists of passive access to copper and fibre lines. However, the EC questioned whether the inclusion of passive access to the copper network in the product market definition for the wholesale local access market is sufficiently justified. The reasons are that ANOs have already now almost entirely ceased to use copper unbundling and Telia has started to implement a large scale upgrade of its copper network – through the implementation of the vectoring and G.fast technologies – that should concern 80 to 85 % of its copper network within the period of the market analysis. After this upgrade copper unbundling is no longer possible and ECPTRA indicated that the corresponding copper lines cease to be part of the relevant product market once vectoring is applied. The EC also noticed that the substitutability between wholesale passive products included in market 1/2020, and wholesale active and virtual products included in market 3b/2014 has not been analysed.

³⁹ In the beginning of 2022, ECPTRA did a new more detailed network coverage study, which shows that only 51% households are covered by at least two wired networks and 32% are covered by at least three or more wired networks.



3.1.8 Geographic differentiation in the Czech Republic

In the Czech Republic, the NRA (CTU) finished the last analysis of market 3a/2014 in 2017. In May 2022, CTU notified a new analysis of market 1/2020 to the EC, however, the EC opened a phase II investigation pursuant to Article 32 of the EECC (Case CZ/2022/2372) and in July 2022 CTU withdrew this draft measure.

Regional operators and geographical analysis

The number of NGA networks present in the same geographical area in the Czech Republic is as follows, according to data used in the draft of market analysis of market 1/2020 (notified to EC in May 2022). No NGA networks are present in 7% HP, one NGA network in 22% HP, two NGA networks in 27% HP, three NGA networks in 22% HP and more than three NGA networks also in 22% HP.

In the analysis of market 1/2020 notified to the EC, CTU concluded concerning the geographical aspects of market analysis the definition of sub-national geographical markets without a geographic differentiation of remedies in these sub-national geographical markets. The main reasons for the geographical market segmentation are that the Czech market is characterised by a high number of alternative providers which have their own access infrastructure while many of these operators serve only limited areas based on their own networks.

For the geographical analysis, CTU used geographical administrative units which resulted in 6,369 geographical units. The reasons why CTU chose that type of geographical unit are that competition at the retail level is mainly based on infrastructure competition stemming from regional but mostly local alternative operators. Smaller geographical units would lead to too much granularity and local operators in most cases offer their services in the area of whole municipality and do not limit their offers only to smaller parts of municipalities. Larger geographical units are considered not to be appropriate because local operators in most cases have no footprint in the area of whole district or region and therefore the competitive conditions within those geographic units may differ significantly.

CTU grouped the geographical units into two segments (categories). Segment A consists of 5,859 geographical units and is considered to be competitive, no SMP operators are identified. In these geographical units at least two significant independent competitive infrastructures (with coverage of at least 50%) are present and, at the same time, no operator with a retail market share of more than 50%. Segment B consists of 510 geographical units and is considered to be non-competitive, in most of them the historical incumbent (CETIN) is designated with SMP, and in the remaining geographic units, seven alternative operators.⁴⁰ In the geographical units of Segment B, less than two independent undertakings with individual

⁴⁰ CETIN has SMP in 308 municipalities/municipality parts of four largest cities and the seven alternative operators in 66 municipalities.



coverage higher than 50 % of dwellings are present and an undertaking with a market share of more than 50% which supplies more than 50% of the dwellings. In total, CTU defined the following sub-national geographical markets: (i) the geographical area of units (local geographical markets) belonging to Segment A (5,859 geographical units) which is not susceptible to ex-ante regulation (with no SMP), (ii) the geographical area of 308 geographical units belonging to Segment B (susceptible to ex-ante regulation) where the historical incumbent (CETIN) has SMP, (iii) the geographical area of 66 geographical units belonging to Segment B (susceptible to ex-ante regulation) where seven alternative operators have SMP⁴¹ and (iv) the geographical area of 136 geographical units belonging to Segment B (susceptible to ex-ante regulation) where no SMP has been found after analysis of further criteria (remaining units from 510 in Segment B). Around 96.9 % of the Czech population are located in the geographical units where no SMP has been found and it was planned to deregulate this area.

Serious doubts of the EC

In June 2022, the EC expressed serious doubts as to the compatibility with EU law of the notified draft measure related to the wholesale local access market (market 1/2020), because in the EC's view there is a lack of sufficient evidence supporting (i) the delineation of local geographic markets and (ii) the SMP designation of local alternative operators.⁴² The EC argued in detail as follows⁴³

- (i) The delineation of local geographic markets: CTU's market definition and in particular delineation between Segments A and B as well as determination of local markets in Segment B does not follow the principles of competition law for the following reasons. The historical incumbent (CETIN) being present in almost all defined markets (if not in all of them) keeps the same retail prices across the entire country and no differences in prices had been observed between competitive and non-competitive areas. In this regard, alternative operators would be expected to apply lower prices in the areas in which they allegedly face competitive pressure, in order to compete with other infrastructure operators. Furthermore, given the very small sizes of the identified geographic units CTU fails to provide its estimation on the stability of the market structures as described in the

⁴¹ Consisting of one to 39 separate geographical units where a particular (different) alternative operator has SMP.

⁴² Commission Decision in Case CZ/2022/2372: Wholesale local access provided at a fixed location in the Czech Republic; Commission Decision in Case CZ/2022/2373: Wholesale central access provided at a fixed location for mass-market products in the Czech Republic. Opening of Phase II investigation pursuant to Article 32 of Directive (EU) 2018/1972. C(2022) 4037 final, Brussels, 8.6.2022

⁴³ In July 2022, BEREC published its opinion on that case, concluding that the EC's serious doubts are partially justified with regard to the lack of sufficient evidence supporting the delineation of local geographic markets and the insufficient evidence supporting the SMP designation of local alternative operators (BoR (22) 117). See <https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-opinion-on-phase-ii-investigation-pursuant-to-article-32-of-directive-eu-20181972-cases-cz20222372-and-2373-wholesale-local-access-provided-at-a-fixed-location-in-the-czech-republic-wholesale-central-access>



notified draft measures, as the gaps in terms of coverage of market shares can be quickly overcome by a local competitor or a new entrant.

- (ii) The SMP designation of local alternative operators: A small operator, whose activity is limited to a local community of some hundreds customers, even if it enjoys a high market share, may not be able to act to an appreciable extent independently of its customers with sufficient bargaining strength. Stable market shares in a local area can be interpreted as a sign of a successful business case of an alternative operator. The ability of a new entrant to increase its market share quickly may also reflect that the relevant market in question is more competitive and that entry barriers can be overcome within a reasonable timeframe. In general the smaller the geographic area of a given relevant market, the more transitory the potential SMP position is. The imposition of ex-ante regulation on alternative operators – even if in a light form – can be perceived as a form of a punishment for a successful business case with a limited added value for the promotion of competition.

3.1.9 Geographic differentiation in case of a high number of regional operators

A high number of regional operators may result in a corresponding high number of sub-national geographical markets, which must be balanced so that market fragmentation is avoided.⁴⁴ This section considers the geographic differentiation of three countries (DK, FI, SE) with a particularly high number of regional operators.

In Denmark, the NRA defined 21 sub-national geographical markets, in 13 of them there is one SMP operator and eight of them have been deregulated (see section 3.1.6 and Table 12). The regional operators which roll out fibre in Denmark are primarily electric utility companies, most of which are cooperatively owned by the electricity consumers, and the unit used as a basis for defining the geographical sub-markets are the electricity supply areas.

This unit is found to be the most appropriate reflection of competitive conditions on the Danish market, as utility companies predominantly roll out fibre within their own electricity supply areas. Although there are 43 electricity supply areas, only 21 sub-markets have been defined, because some electricity supply areas have been merged in the market definition, as the competitive conditions were similar between them. In general, larger and smaller electricity supply areas were merged together, if in small electricity supply areas the fibre was not rolled out by the corresponding electricity company but by the electricity company from a larger,

⁴⁴ Commission Recommendation (EU) 2020/2245 of 18 December 2020 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council establishing the European Electronic Communications Code, paragraph 37. See <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020H2245&from=EN>



neighbouring electricity supply area. 21 sub-national geographical markets and 10 SMP operators are manageable and not a too strong fragmentation.

Table 12: Geographic differentiation of Denmark and Finland

Geographic differentiation	Denmark	Finland
Number of sub-national geographical markets:		
- In total	21	150
- With SMP (incumbent)	4	132
- With SMP (ANO)	9	0
- With joint SMP	0	0
- With no SMP	8	18
Number of SMPO	10 (1 SMPO in 4 submarkets)	21 (3 SMPO in 109 sub-markets)
Geographical unit	Electricity supply areas	Municipality
Number of geographical units	43	317

Source: BERECE

In Finland, the NRA defined 150 sub-national geographical markets, in 132 of them there is one SMP operator, one of the historical incumbents, and 18 of them (12%) have been deregulated (see Table 12). However, although 150 sub-national markets have been defined, there are only 21 SMP operators, the three largest of them have SMP in several sub-national markets, in total, in 132 sub-national markets. The number of sub-national markets is with 150 rather high and significantly higher than in Denmark, but the number of SMP operators is with 21 not that much higher than in Denmark (10 SMP operators) and therefore also manageable. In addition, this situation is already familiar, since all 21 SMP operators are historical incumbents and therefore, the designation as SMP operator is not new.

In Sweden there are around 180 local fibre network operators, to the largest extent owned by municipalities.⁴⁵ The number of regional operators is thus high but there are seldom more than three operators present within the same municipality.⁴⁶ These local operators' networks are more or less all stand-alone and rarely overlap with any other network, the historical incumbent Telia's network included. Telia had not rolled out fibre in these areas when the local operators did so, and the local fibre networks have generally been rolled out without relying on access to Telia's copper network infrastructure. Moreover, the Swedish municipalities are large compared to most other European countries. The average size of a Swedish municipality is about 32 times larger than the EU-average, in most cases sparsely populated and generally too large to accurately reflect the competitive conditions at wholesale level. Thus, there is a significant number of operators, and they generally operate without competitive pressure from any other network since there is no overlap.

⁴⁵ The Swedish NRA has not finished the analysis of market 1/2020. A national market has not been accepted by the EC (see section 3.2.4).

⁴⁶ A municipality is generally not permitted to operate outside its borders. There are 290 municipalities in Sweden with an average of 3.2 operators per municipality.



Competitive conditions between ISPs at the retail level in Sweden cannot be presumed to correlate to competitive conditions at infrastructure level. The predominant business model of the fibre infrastructure owner is to use a so-called communication operator (CO). A CO operates and manages on behalf of the fibre infrastructure owner, either as a subcontractor or by the fibre infrastructure owner itself through vertical integration, all the active components within the network. A consequence of the CO's control over the active components in the network is that the CO also offers the active wholesale access products to the ISPs. The ISPs therefore depend on the COs platform which usually only offers a highly refined wholesale access product with little or no possibility for the ISP to differentiate its own retail services (compared to e.g. virtual local access on Layer 2). Therefore, the CO controls which services the ISPs can offer the consumers and the wholesale product for ISPs is close to being a pre-packaged product for retail sale. Since all consumers can only choose between ISPs delivering through the same CO, the CO can set one price for a low-speed wholesale product and one price for a high-speed wholesale product, making it impossible for an ISP to deliver a "cheap" high-speed service. The fact that there are several ISPs operating within a network with low operating margins does not necessarily reflect the competitive environment at infrastructure level.⁴⁷

In conclusion, a common characteristic for Denmark, Finland and Sweden is a particularly high number of stand-alone networks which do not or only partly overlap. For Denmark and Sweden there is also an absence of competitive pressure from a historical incumbent network in certain areas and further common factors for Denmark and Sweden are:

- No evident national incumbent, which presents challenges when it comes to balancing a high number of geographical submarkets against a reasonable administrative burden,
- the relative size of network operators may present a challenge in terms of both analysing market power and remedies – especially for smaller operators, and
- Competitive conditions between ISPs at the retail level may not correlate to competitive conditions at infrastructure level, and hence lack in value when assessing differences between geographic areas.

In Sweden, there are further specific factors which indicate a potentially large number of local/regional geographical markets which might be burdensome to administrate (see section 3.2.4).

3.1.10 Geographic differentiation in Belgium, Estonia, Iceland, Italy and Slovenia

Belgium, Estonia, Iceland, Italy and Slovenia have investigated whether or not retail prices and retail product characteristics differ between geographical areas with the result that they

⁴⁷ A fibre infrastructure owner can be vertically integrated as CO and ISP. The CO acting as subcontractor typically is vertically integrated as ISP.



do not. Nevertheless all five countries defined sub-national geographical markets (EE, IT) or geographically differentiated remedies in a national market (BE, IS, SI). The reasons why they defined a geographic differentiation of market definition or remedies although the retail prices and retail product characteristics do not differ between geographical areas are geographical differences in coverage of alternative networks (BE,⁴⁸ IS, IT, SI), geographical differences in retail market shares of the incumbent (EE, IS, IT, SI), geographical differences in wholesale market shares of the incumbent (IT), population density (EE), geographical differences resulting from commercial wholesale offers of alternative operators (IT, SI) and geographical differences in presence and retail market shares of alternative operators (SI).

3.2 No geographic differentiation of market definition and remedies

This sub-section analyses the reasons why in the last analysis of market 1/2020 resp. market 3a/2014 15⁴⁹ countries did not decide a geographic differentiation of market definition and remedies, although the following aspects differ between geographic areas:

- the number of NGA networks present (section 3.2.1);
- the retail prices (section 3.2.2); and/or
- the retail product characteristics (section 3.2.3).

Finally, these reasons are also studied at the country level for Sweden (section 3.2.4). Sweden is examined because the EC did not accept a national market and demanded a geographically differentiation of the market definition and/or remedies, which allows insight in the EC's view on the geographic differentiation.

3.2.1 Number of NGA networks present

Table 13 shows the reasons why the NRA in the last analysis of market 1/2020 resp. market 3a/2014 did not decide on a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present. The presence of multiple NGA networks did not result in sufficiently different competition in 12 countries, the geographical area(s) where multiple NGA networks are available is still small and negligible in three countries, only the SMP operator provides different types of retail products across the country in one country, only one operator with nationwide infrastructure

⁴⁸ In Belgium, the situation is as follows. When 50% of a statistical sector (smallest administrative unit) is covered by three or more NGA networks, regulation is withdrawn one year after the 50% threshold has been reached. When less than 20% of a statistical sector has been covered by one or two NGA networks (white resp. grey zone) and the coverage was increased by a SMP operator, the operator is exempted from regulation in that zone for a grace period of five years.

⁴⁹ One of these 15 countries (HR) did not provide this data and is therefore not further examined in this section.



in one country and SMP operator having a high and relatively static market share nationally, small number of competitors and other reasons in one country.

Table 13: Reasons why the NRAs did not decide a geographic differentiation of market definition and remedies

Reasons	Countries	Number of countries
The presence of multiple NGA networks did not result in sufficiently different competition	CZ, DE, FR, GR, IE, LT, LV, MK, NL, NO, PT, SE	12
The geographical area(s) where multiple NGA networks are available is still small and negligible	GR, IE, MK	3
Only the SMP operator provides different types of retail products across the country, while all other operators have some limitations	RS	1
One operator with nationwide infrastructure	MT	1
No geographical area with sufficiently homogeneous competitive conditions was identified ⁵⁰	DE	1
SMP operator having a high and relatively static market share nationally, small number of competitors and other reasons ⁵¹	IE	1

Source: BEREC

3.2.2 Retail prices

Only in one (DE) of the 15 countries which did not adopt a geographic differentiation of market definition and remedies, the retail prices differ between geographical areas (see section 2.2). However, this country reported that the retail prices differ only in a few areas slightly. It further explained the reasons why this did not result in a geographical differentiation of the market definition and/or remedies. The incumbent operator itself did not differentiate its prices in its nationwide network and applies national pricing. At the same time price differentiation by alternative network operators within their networks was limited to a small number of network operators and was insignificant in scale.

3.2.3 Retail product characteristics

None of the 15 countries which did not decide a geographic differentiation of market definition and remedies reported that the retail product characteristics differ between geographical areas (see section 2.3).

3.2.4 Sweden

In its last analysis of market 3a/2014, finalised in February 2015, PTS did not decide on geographic differentiation within the market definition and/or remedies. The presence of

⁵⁰ Which would have lead to a subnational market with a significantly higher degree of competitive pressure.

⁵¹ A lack of differentiated pricing nationally and limited differences in demand characteristics across regions



multiple NGA networks did not result in sufficiently different competitive conditions (see Table 102 in Annex 3). PTS did not deregulate the market.

In November 2019, PTS notified a draft measure to the EC concerning market 1/2020 for wholesale local access to fibre networks in Sweden, concluding that the geographic market was national. In February 2020, the EC vetoed this conclusion, and the analysis is currently under re-evaluation by PTS.⁵²

In its veto, the EC concluded that the conditions of competition appear to be heterogeneous across Sweden, and pointed out mainly the following:⁵³

- There is a large number of non-overlapping municipal fibre networks and the reach of the incumbent's network is non-ubiquitous.
- There is no price homogeneity for wholesale access across Sweden.
- There are many municipalities with a single, distinct supplier of the relevant product and any demand for wholesale access can only be fulfilled by one supplier.
- There is a lack of demand and supply side substitution of wholesale access between the non-overlapping networks.
- The average market share of the incumbent across Sweden is 37 percent. However, this average is the result of very high market shares in some areas and very low market shares in others, and the national average does not properly reflect the incumbent's actual market power at a subnational level.

The continued work of PTS includes how to balance the presence of a very high number of non-overlapping networks with the risk of micro-analysis and market fragmentation.

The number of NGA networks present in the same area in Sweden is as follows. No NGA networks are present in 12% HP, one NGA network is present in 62% HP, two NGA networks are present in 20% HP, three NGA networks are present in 5% HP, and less than 1% are covered by more than three NGA networks.

⁵² In January 2020, BEREC published its opinion on that case, concluding that the EC's serious doubts are partially justified (BoR (20) 03). See <https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-opinion-on-phase-ii-investigation-pursuant-to-article-7-of-directive-200221ec-as-amended-by-directive-2009140ec-case-se20192216-wholesale-local-access-to-fibre-networks-provided-at-a-fixed-location-in-sweden>

⁵³ Commission Decision of 7.2.2020 pursuant to Article 7(5) of Directive 2002/21/EC (Withdrawal of notified draft measure) Case SE/2019/2216: Wholesale local access to fibre networks provided at a fixed location in Sweden, C(2020) 619 final, Brussels, 7.2.2020.



As stated in section 3.1.9, it is very common in Sweden that the fibre infrastructure owner uses a so-called communication operator (CO)⁵⁴ that operates and manages all the active components of the network based on its fibre infrastructure and which also offers active wholesale access products to the ISPs. A consequence of the CO controlling all the active components in a network and the active wholesale access products offered is that the CO also controls which retail services the ISPs can offer, and indirectly controls the consumer price. Thus, the competitive conditions at consumer level does not necessarily reflect the competitive conditions at infrastructure level.

As also stated in section 3.1.9, there are about 180 network owners (mainly municipally owned) present in Sweden. Most of these network owners are regional stand-alone networks which rarely overlap any other network, the former incumbents network included. Only a few network owners are present in more than one municipality.

Given these characteristics of the Swedish market with many regional/local stand-alone networks and no evident national incumbent, it is not obvious that it is possible to define a national market, on the contrary such findings usually indicate that there are several regional markets. Given that the Swedish municipalities are large compared to the EU-average it can be hard to motivate that municipal borders are suitable to use as a basis for defining the relevant geographical markets. In general, within the same municipality, most areas are covered by one network owner, but there are also areas with multiple (usually two) network owners present. Thus, in the Swedish context there are indications of a potentially large number of (sub-municipal) regional geographical markets. However, geographical markets defined to accurately reflect the competitive conditions in such circumstances might be burdensome to administrate.

4 Conclusions

In conclusion, 31 countries completed the questionnaire and the examinations in section 2 and section 3 show the following.

Multiple NGA networks in the same geographical area

- Number of NGA networks present in the same geographical area: This number differs significantly and the area covered by two NGA networks is in many countries 11-50% HP, the area covered by three NGA networks is in most countries 0-25% HP and the area covered by more than three NGA networks is in most countries 0-10% HP.

⁵⁴ A fibre infrastructure owner can be vertically integrated as CO and ISP. The CO acting as subcontractor typically is vertically integrated as ISP.



- Differences in retail prices and/or retail product characteristics between geographical areas: They have been investigated by 18 countries and only three of them found differences in retail prices and one in retail product characteristics.
- Main reasons for these differences in retail prices and/or retail product characteristics: These reasons vary between the three countries (e.g. competition between networks, the underlying technology, variation of wholesale prices)
- Reasons why seven countries have not investigated the differences in retail prices and/or product characteristics between geographical areas: In four countries, these differences were not considered to be relevant (e.g. retail prices differ only of one operator in a limited time, regional operators) and four countries had (also) one other reason (e.g. small country, difficulties to collect data).

Outcome of the geographical analysis in the last market analysis of market 1/2020 resp. market 3a/2014

- Market no longer or not regulated: In four countries, the analysis resulted in a deregulation of this market and one country did never regulate it.
- Geographic differentiation of market definition and/or remedies: Six countries defined sub-national geographical markets, one of them implemented also a geographic differentiation of remedies in a sub-national geographic market, five other countries a geographic differentiation of remedies in a national market and 15 countries did not adopt any geographical differentiation.
- Main reasons for the geographic differentiation of market definition and/or remedies in the countries where such a differentiation was adopted: In nine countries geographical differences in coverage of alternative networks (e.g. cable or fibre), in seven countries (also) geographical differences in retail market shares of the incumbent, in four countries (also) geographical differences in wholesale market shares of the incumbent, in four countries also population density (economies of scale), in three countries also geographical differences resulting from commercial wholesale offers of alternative operators, and in four countries one other main reason each.
- Type of the geographical unit used in the geographical analysis: In nine countries an administrative unit, in one country the postal code and in the other country electricity distribution areas.
- Number of geographical units: Vary significantly among the 11 countries, from less than 100 (3 countries) to nearly 20,000 (1 country).
- Reasons for selecting the type of geographical unit: In eight countries the presence of alternative networks, in seven countries the availability of data, in two countries the



number of the geographical units and in four countries there is (also) one other reason each.

- Relevant criteria for grouping the geographical units into homogeneous submarkets and/or areas with different remedies: The number of competitors in five countries, the number of competitors with an individual infrastructure coverage above a certain threshold in six countries, the number of competitors with an individual market share above a certain threshold in three countries, the market share of the incumbent operator below a certain threshold in six countries and in three countries (also) one other criterion each.
- Reasons why the 15 countries did not decide to geographically differentiate market definition and/or remedies: The presence of multiple NGA networks did not result in sufficiently different competition in 12 countries, the geographical area(s) where multiple NGA networks are available is still small and negligible in three countries and in four countries one other reason each.
- Case studies on particular high number of regional operators: In one country (FI) the NRA defined 150 sub-national geographical markets, however, only 21 operators have SMP and all are historical incumbents and, therefore, this is manageable. In another country (DK), the NRA defined 21 sub-national geographical markets, 10 operators have SMP, nine of them are not the historical incumbent but regional operators (typically electric utility companies). In a further country (SE), the NRA has not (yet) decided a geographical differentiation of market definition, however, there are indications of a potentially large number of sub-national geographical markets which might be burdensome to administrate.



5 Abbreviations for countries

Abbreviation	Country	Abbreviation	Country	Abbreviation	Country
AT	Austria	FI	Finland	MT	Malta
BA	Bosnia and Herzegovina	FR	France	NL	Netherlands
BE	Belgium	GR	Greece	NO	Norway
BG	Bulgaria	HU	Hungary	PT	Portugal
CY	Cyprus	HR	Croatia	RO	Romania
CZ	Czech Republic	IE	Ireland	RS	Serbia
DE	Germany	IS	Iceland	SE	Sweden
DK	Denmark	IT	Italy	SI	Slovenia
EE	Estonia	LT	Lithuania	SK	Slovakia
ES	Spain	LV	Latvia	XK	Kosovo
		MK	North Macedonia		

6 Further abbreviations

ANO	Alternative Network Operator
CO	Communication Operator
DOCSIS	Data Over Cable Service Interface Specification
DSL	Digital Subscriber Line
EC	European Commission
EECC	European Electronic Communications Code
EU	European Union
FTTH	Fibre To The Home
FTTC	Fibre To The Cabinet
FWA	Fixed Wireless Access
HP	Homes Passed
ISP	Internet Service Provider
LAU	Local Administrative Unit
MDF	Main Distribution Frame
NGA	Next Generation Access



NI	No information
NRA	National Regulatory Authority
NUTS	Nomenclature des Unités Territoriales Statistiques
ODF	Optical Distribution Frame
ORAC	Reference Offer of Access to Ducts of the SMP Operator
ORAC ORAP DB	Database of Ducts and Poles of the SMP Operator
ORAP	Reference Offer of Access to Poles of the SMP Operator
SMP	Significant Market Power
VHCN	Very High Capacity Network

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Source: BEREC	
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Annex Further data

Annex 1: Further data for section 2

Table 14 Presence of multiple NGA networks in the same geographical area per country – all countries

Number of NGA networks present in the same area	Homes passed ^{*)}	Countries ^{**)}	Number of countries
No NGA network	0-1%	BE, CY, IS, MT, NL	5
	2-10%	DE, DK, ES, HU, NO, RS, SI, SK	8
	11-25%	CZ, EE, IE, LT, MK, GR, PT, SE	8
	26-50%	---	0
	51-75%	---	0
	76-100%	---	0
1 NGA network	0-1%	MT	1
	2-10%	BE, DE, HU, NL, SK	5
	11-25%	EE, ES, IS, LT, MK, PT	6
	26-50%	CY, CZ, NO, RS, SI	5
	51-75%	DK, SE	2
	76-100%	IE, GR	2
2 NGA networks	0-1%	GR	1
	2-10%	IE	1
	11-25%	CY, CZ, EE, ES, HU, LT, MK, PT, SE, SK	10
	26-50%	DK, NO, RS, SI	4
	51-75%	DE	1
	76-100%	BE, IS, MT, NL	4
3 NGA networks	0-1%	DK, BE, GR, IE, IS, MT	6
	2-10%	NL, RS, SE, SK	4
	11-25%	CZ, DE, EE, HU, LT, MK, NO, SI	8
	26-50%	CY, ES, PT	3
	51-75%	---	0
	76-100%	---	0
>3 NGA networks	0-1%	BE, DE, DK, IE, GR, IS, NL, MT, RS, SE, SI	11
	2-10%	CY, CZ, EE, NO, PT	5
	11-25%	LT	1
	26-50%	ES	1
	51-75%	HU, MK, SK	3
	76-100%	---	0

*) Homes passed in relation to total number of homes covered by the area

**) See footnote 9

Source: BEREC



Table 15 Presence of multiple NGA networks in the same geographical area per country – countries which did decide a geographic differentiation

Number of NGA networks present in the same area	Homes passed ^{*)}	Countries ^{**)}	Number of countries
No NGA network	0-1%	BE, CY, IS	3
	2-10%	DK, ES, HU, SI, SK	5
	11-25%	---	0
	26-50%	---	0
	51-75%	---	0
	76-100%	---	0
1 NGA network	0-1%	---	0
	2-10%	BE, HU, SK	3
	11-25%	ES, IS	2
	26-50%	CY, SI	2
	51-75%	DK	1
	76-100%	---	0
2 NGA networks	0-1%	---	0
	2-10%	---	0
	11-25%	CY, ES, HU, SK	4
	26-50%	DK, SI	2
	51-75%	---	0
	76-100%	BE, IS	2
3 NGA networks	0-1%	BE, DK, IS	3
	2-10%	SK	1
	11-25%	HU, SI	2
	26-50%	CY, ES	2
	51-75%	---	0
	76-100%	---	0
>3 NGA networks	0-1%	BE, DK, IS, SI	4
	2-10%	CY	1
	11-25%	---	0
	26-50%	ES	1
	51-75%	HU, SK	2
	76-100%	---	0

*) Homes passed in relation to total number of homes covered by the area

**) See footnote 9.

Source: BEREC



Table 16 Presence of multiple NGA networks in the same geographical area per country – countries which did not decide a geographic differentiation

Number of NGA networks present in the same area	Homes passed ^{*)}	Countries ^{**)}	Number of countries
No NGA network	0-1%	MT, NL	2
	2-10%	DE, NO, RS	3
	11-25%	CZ, EE, GR, IE, LT, MK, PT, SE	8
	26-50%	---	0
	51-75%	---	0
	76-100%	---	0
1 NGA network	0-1%	MT	1
	2-10%	DE, NL	2
	11-25%	EE, LT, MK, PT	4
	26-50%	CZ, NO, RS	3
	51-75%	SE	1
	76-100%	IE, GR	2
2 NGA networks	0-1%	GR	1
	2-10%	IE	1
	11-25%	CZ, EE, LT, MK, PT, SE	6
	26-50%	NO, RS	2
	51-75%	DE	1
	76-100%	MT, NL	2
3 NGA networks	0-1%	GR, IE, MT	3
	2-10%	NL, RS, SE	3
	11-25%	CZ, DE, EE, LT, MK, NO	6
	26-50%	PT	1
	51-75%	---	0
	76-100%	---	0
>3 NGA networks	0-1%	DE, IE, GR, MT, NL, RS, SE	7
	2-10%	CZ, EE, NO, PT	4
	11-25%	LT	1
	26-50%	---	0
	51-75%	MK	1
	76-100%	---	0

*) Homes passed in relation to total number of homes covered by the area

**) See footnote 9.

Source: BEREC



Table 17 Presence of multiple NGA networks in the same geographical area depending on geographic differentiation of market definition and/or remedies

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
All countries						
No NGA network	5	8	8	0	0	0
1 NGA network	1	5	6	5	2	2
2 NGA networks	1	1	10	4	1	4
3 NGA networks	6	4	8	3	0	0
>3 NGA networks	11	5	1	1	3	0
Countries which decide a geographic differentiation of market definition and/or remedies						
No NGA network	3	5	0	0	0	0
1 NGA network	0	3	2	2	1	0
2 NGA networks	0	0	4	2	0	2
3 NGA networks	3	1	2	2	0	0
>3 NGA networks	4	1	0	1	2	0
Countries which did not decide a geographic differentiation of market definition and/or remedies						
No NGA network	2	3	8	0	0	0
1 NGA network	1	2	4	3	1	2
2 NGA networks	1	1	6	2	1	2
3 NGA networks	3	3	6	1	0	0
>3 NGA networks	7	4	1	0	1	0

Source: BEREC



Table 18: Other differences in retail prices between geographical areas

Denmark The content in offers provided by service providers vary across geographical areas (content of bundles vary, content of limited offers vary etc.)
Ireland Differences in retail prices may arise from (i) the underlying access technology delivering the retail service and (ii) the sale of the retail service on a standalone basis, or as part of a bundle.
Latvia Prices as such do not differ between geographical areas. However, incumbent operator applies temporary discounts in areas where fibre has been deployed and where infrastructure competition exist. The discount period is 2 years or even more. As a result, copper might be even more expensive compared to discounted fibre.
Slovenia We have observed only slight price differences in some parts of the geographic area, namely in certain open broadband networks with limited geographical scope and just for one operator which acts nationally, who on the top of its regular prices charge its end-users for different network usage fee. However, due to low scope and nature of abovementioned open networks, where end-users can freely choose among retail operators on the same infrastructure, no negative impact has been observed.
Sweden The majority of the Swedish broadband subscriptions are managed by communication operators, a middle-hand between netowners and ISPs. As a sweeping statement, one might say that communication operators control the pricing structure, hence strongly influencing which prices the ISPs are able to charge the end customers. The communication operators set prices (towards ISPs) for individual networks rather than geographic areas. Collective agreements may render lower retail prices, but not to such an extent that this leads to different relevant geographic markets.

Source: BEREC

Table 19: Differences in retail prices between geographical areas per country

Differences in retail prices	Germany	Denmark	Hungary
Of which type of retail products?	broadband-only and bundles	Broadband-only (bundles unknown)	broadband-only and bundles
How many NGA network operators apply different prices in different areas?	9 (out of 130 responding network operators)	8 operators in total (service providers and vertically integrated network operators)	3
Differ the retail prices only slightly / to some degree / significant?	Only slightly	Significant	To some degree
Differ the retail prices in no / a few / many / most geographical areas?	A few areas	Many areas	A few areas

Source: BEREC



Table 20: Reasons why differences in retail prices between geographical areas have not been investigated

Reasons	Countries
Difficulties to collect data	Slovakia: Yes
Not considered to be relevant	<p>Finland: In Finland, there has traditionally been multiple operators with regional copper, fibre and cable modem networks. The reach of the networks, market shares and the number of competitors have been the main criteria while analyzing and defining the geographical markets.</p> <p>Lithuania: The relevant geographic market of Market 3a corresponds to the territory of the Republic of Lithuania</p> <p>North Macedonia The prices are the same and they do not differ much</p> <p>Spain: Only O2 (a subsidiary of Telefónica) set geographically differentiated retail prices during a limited period. In fact, in August 2021 O2 set again the same retail prices (across all its products) in the entire territory. No other operator (based on either its own brand or a flanker brand) followed that pricing strategy</p>
Other reasons	<p>Cyprus: Due to Cyprus' small geographical size there is no price differentiation (the whole country is considered a NUTS3 area)</p> <p>Serbia: Commercial terms under which the retail services are provided do not differ between geographic areas.</p> <p>Spain: The above-mentioned geographic differences in retail prices resulted from the geographically differentiated remedies that were imposed in 2016 following the third review of markets 3a/2014, 3b/2014 and 4/2014. O2 retail prices were lower in the 66 municipalities (the so-called zona BAU) where Telefónica was not obliged to provide the regulated VULA service (NEBA Local).</p>

Source: BEREC



Table 21: Other differences in retail product characteristics between geographical areas

<p>Greece</p> <p>The availability of retail products depends solely on the availability of the underlying network infrastructure</p>
<p>Ireland</p> <p>Differences in retail product characteristics may arise from (i) the underlying access technology delivering the retail service and (ii) the sale of the retail service on a standalone basis, or as part of a bundle.</p>
<p>Italy</p> <p>Generally, differences in retail products reflects different network coverage (FTTH/FTTC/FTTE/FWA). In the Italian market generally all the operators apply the principle of providing to the end user the best technology available on own network coverage, thus the geographical differences are only related to the different coverage of the specific technology available. For the same operator the geographical differences can be related to the availability of a specific FTTH technology (EPON/GPON), in this case the technical characteristic of the maximum speed can be different at geographical level, or the availability of FTTC instead of FTTH. In all this cases no differences are present in terms of end user prices or kind of bundle available. In some cases when FWA is the best technology available in terms of download speed (e.g. FTTC vs FWA), it can happen that some operators apply a discount on the monthly fee for “broadband” only offers, in case of FWA in fact no voice services are available when discount is present.</p>
<p>Netherlands</p> <p>Based on the quality of the network (xDSL, p2p/p2mp FTTH, DOCSIS.x) the product characteristics could differ across geographic area's. However the product characteristics of similar networks in different area's was always homogeneous (based on a national retail plans). This was thus not based on geographic characteristics but on technical characteristics.</p>
<p>Slovenia</p> <p>In some limited parts of the geographical area, due to technical limitations of networks, some differences can be observed (for example lower broadband speed), otherwise no major differences for products characteristics have been observed for operators that acts nationally. Regional players however, are insignificant, with low market shares.</p>

Source: BEREC



Table 22: Reasons why differences in retail product characteristics between geographical areas have not been investigated

Reasons	Countries
Difficulties to collect data	Slovakia: Yes
Not considered to be relevant	<p>Finland: The retail product characteristics have not been considered as relevant as other assessment criteria. The possible differences in retail product characteristics in different geographical areas are mainly explained by the fact, that the network owner and technologies are different depending on the geographical area.</p> <p>Lithuania: The relevant geographic market of Market 3a corresponds to the territory of the Republic of Lithuania.</p> <p>North Macedonia They have similar prices and similar products</p>
Other reasons	<p>Cyprus: Due to Cyprus' small geographical size there is no product differentiation (the whole country is considered a NUTS3 area)</p> <p>Germany: Data on retails services suggest that all operators, but in particular the one designated with SMP, do not differentiate their product characteristics on a geographical basis. The network operators instead usually offer services depending on the network footprint and the given network technologies deployed within the footprint. There was no preliminary evidence that a different level of infrastructure based competition lead to specific adjustment of the quality of service.</p> <p>Serbia: Retail product characteristics being provided do not differ between geographic areas.</p> <p>Spain: Operators do not commercialized products with features that are specific to some geographical areas.</p>

Source: BEREC

Table 23: Explanation of the main reasons for the differences in retail prices and/or retail product characteristics

Explanation of how competition between networks has caused the differences
- Hungary: Operators enlisted the settlements where they apply geographically differentiated retail prices in a durable and publicly manner due competition between networks, when they provided data to the market analysis procedure.
Reasons why the differences have always been present
- Denmark: Regional operators
Explanation of how the previous market analysis decision caused these differences
- Denmark: Differentiation of wholesale prices in different areas of former national incumbent

Source: BEREC



Table 24: Explanation of the other factors which caused the differences in retail prices and/or retail product characteristics

<p>Denmark Variation in wholesale prices</p>
<p>Germany They are largely caused by the boundaries of different network footprint and available network technologies. In some cases also differences in underlying cost structures lead to price differences between some areas.</p>
<p>Hungary Retail product characteristics (e.g. average nominal bandwidth were) in positive correlation with the size of the given settlement. Bigger size can attract more competition due to economies of scope and scale.</p>

Source: BEREC



Annex 2: Further data for section 3

Table 25: Explanation why the presence of alternative networks is the reason for choosing the geographical unit

<p>Cyprus: The remedy differentiation was made based on whether three VHCN networks are present or not. When three VHCN networks are present regulatory remedies were significantly reduced.</p>
<p>Denmark: Regional operators</p>
<p>Estonia: In some large cities alternative networks operators have quite significant market share of end-users.</p>
<p>Hungary: Because that geographical unit satisfies the criteria laid down in paragraph 86 of the BEREC Common Position on geographical aspects of market analysis (BoR (14) 73). (i) They are mutually exclusive and less than national. (ii) The network structure of all relevant operators and the services sold on the market can be mapped onto the geographical units. (iii) They have clear and stable boundaries. (iv) They are small enough for competitive conditions to be unlikely to vary significantly within the unit but at the same time large enough that the burden on operators and NRAs with regard to data delivery and analysis is reasonable.</p>
<p>Iceland: Alternative networks are built on a per municipality basis, even if one operator is building in many municipalities.</p>
<p>Italy: The presence of alternative network deployment is the main source of retail and wholesale price constraint and so the main reason on investigating the competitive conditions at geographical level that can be concretely affected. Municipality is the geographical unit where ANOs are planning investments in alternative networks in the Italian case, this is exacerbated also by the fact that the administrative responsibility for civil work authorizations is in charge to the municipality authority.</p>
<p>Slovakia: Availability of data from alternative operators.</p>
<p>Slovenia: Can be simply mapped onto that geographical units.</p>
<p>Spain The municipality is the unit that both incumbent and alternative operators consider when making decisions on investing and rolling out NGA networks. New NGA deployments are based on FTTH, which has a different (i.e. larger, and variable, as the deployment grows) coverage area around each ODF than the legacy copper networks. HFC networks have also their own, independent coverage area. Therefore, a network-based analysis unit is not considered adequate, and instead an administrative unit, such as the municipality, is chosen. This was already the case in the 3rd review of 2016.</p>

Source: BEREC



Table 26: Explanation why the presence of alternative networks is not the reason for choosing the geographical unit

<p>Belgium: Existing data was used from coverage maps that are already published by the BIPT. The statistical sectors are the smallest geographical units available. For the geographical differentiation of remedies, the presence of alternative networks is the criterion used (per geographical unit), so indirectly it is studied, but it is not the reason behind the choice of geographical unit.</p>
<p>Finland: At the time of the last SMP decisions, the historical incumbents were still the main operators in their traditional geographical markets. The presence of all networks were taken into account.</p>

Source: BEREC

Table 27: Number of sub-national markets

Country	Number of sub-national markets
Denmark	21
Estonia	2 (one was all over Estonia territory and other includes two cities (Narva and Kohtla-Järve))
Finland	150 (the biggest three SMP operators were set stricter pricing obligations in their geographical markets. Their combined share of the total 150 geographical markets was 109 geographical markets)
Hungary	6
Italy	2 (municipality of Milan where no SMP is found and the rest of Italy)
Spain	2

Source: BEREC

Table 28: Number of areas with different remedies

Country	Number of areas with different remedies
Belgium	3 ((i) areas where there are 3 or more NGA networks present, (ii) areas where there are 2 NGAs network present, and (iii) areas where there is 1 or 0 NGA network present)
Cyprus	2 ((i) areas with 3 VHCN networks and (ii) areas with less than 3 VHCN networks)
Iceland	17
Slovakia	No information
Slovenia	2 (15 out of 6035 settlements are subject to remedies differentiation)

Source: BEREC



Table 29: Further information on the defined sub-national geographic markets

Further information	Denmark	Finland	Estonia	Hungary	Italy	Spain
Number of areas with individual SMP operator (historical incumbent)	4	132	1	3	2 ⁵⁵	2
Number of areas with individual SMP operator (alternative operator/not the historical incumbent)	9	0	0	0	0	0
Number of areas with joint SMP	0	0	0	0	0	0
Number of areas without SMP operator	8	18	1	3	1 ⁵⁵	0
Percent of the national households which are already completely de-regulated ⁵⁶	31%	10% ⁵⁷	7%	19% ⁵⁸	3%	0%

Source: BEREC

⁵⁵ One national market with a single SMP operator (the historical incumbent), netted off of a single municipality (Milan) where no SMP was found.

⁵⁶ Because they are located in the areas without (individual and/or joint) SMP

⁵⁷ An approximation based on the amount of population in the de-regulated areas

⁵⁸ For the whole country



Annex 3: Data per country

Annex 3 presents the data collected with the questionnaire in April 2022 per country.

Austria

The Austrian NRA (RTR) finished an analysis of market 1/2020 in 2022 and has deregulated this market.

Bosnia and Herzegovina

The Bosnian NRA (RAK) never regulated market 1/2020 resp. market 3a/2014 (or market 4/2007), therefore, RAK could not even deregulate it.⁵⁹

Bulgaria

The Bulgarian NRA (CRC) finished the last analysis of market 3a/2014 in 2019 and has deregulated this market.

Belgium

The Belgian NRA (BIPT) finished the last analysis of market 3a/2014 in 2018, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 30: Answers from BIPT (Belgium) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network	X					
1 NGA network		X				
2 NGA networks						X
3 NGA networks	X					
>3 NGA networks	X					

Source: BEREC

⁵⁹ Market „Wholesale unbundled access (including shared access) to metallic loops and sub-loops for the purpose of providing broadband and voice services“ is regulated in Bosnia and Herzegovina, in accordance with Regulation No 2887/2000.

Table 31: Answers from BIPT (Belgium) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
BIPT did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas. BIPT did not find retail product differences
BIPT did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas. BIPT did not find such differences. ⁶⁰

Source: BEREC

Table 32: Answers from BIPT (Belgium) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, BIPT concluded a geographic differentiation of remedies in a national market concerning the geographical aspects of market analysis.
The reason why the NRA in the last analysis of market 1/2020 resp. market 3a/2014 did decide a geographic differentiation is geographical differences in coverage of alternative networks (e.g. cable or fibre).
BIPT applied the administrative unit "statistical sector" for the geographical analysis. There are 19,781 statistical sectors in Belgium, which means that the average population of 1 sector is 576 inhabitants. Its size is therefore even smaller than a commune.
From the selection of this geographical unit resulted 19,781 "statistical sectors".
The reason why BIPT chose that geographical unit is:
- Availability of data. Existing data was used from coverage maps that are already published by the BIPT. The statistical sectors are the smallest geographical units available. For the geographical differentiation of remedies, the presence of alternative networks is the criteria used (per geographical unit), so indirectly it is studied, but it is not the reason behind the choice of geographical unit.
The relevant criterion applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) was:
- Number of competitors with an individual infrastructure coverage above a certain threshold. When 50% of a statistical sector is covered by 3 or more NGA networks, regulation is withdrawn one year after the 50% threshold has been reached. When less than 20% of a statistical sector has been covered by 0 or 1 NGA networks, it is considered a white resp. grey zone.
Retail price differences were not a relevant criterion because the geographical differentiation of the remedies was solely based on the presence of infrastructure. Additionally, on a national level (national market), there were no retail price differences observed.
Differences in the retail commercial offers (other than price) or marketing strategies were not a relevant criterion because the geographical differentiation of the remedies was solely based on the presence of the infrastructure. Additionally, on a national level (national market), there were no regional differences in commercial offers or marketing strategies observed.
BIPT grouped the geographic units into 3 areas: areas where there are 3 or more NGA networks present, areas where there are 2 NGAs network present, areas where there is 1 or 0 NGA network present.

Source: BEREC

⁶⁰ However, Belgium has one copper operator with a national coverage and two cable operators, covering together the nation. There are no retail price or characteristic differences within the offerings of each operator, however it is obvious that the retail prices and characteristics between all three operators differ.

Croatia

The Croatian NRA (HAKOM) finished the last analysis of market 3a/2014 in 2019, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market. HAKOM did not undertake a geographic analysis.

Cyprus

The Cypriot NRA (OCECPR) finished the analysis of market 1/2020 in 2022 and notified it to the EC in Q2/2022. Deregulation will apply in areas where three VHCNs are present.

Table 33: Answers from OCECPR (Cyprus) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network	X					
1 NGA network				X		
2 NGA networks			X			
3 NGA networks				X		
>3 NGA networks		X				

Source: BEREC

Table 34: Answers from OCECPR (Cyprus) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
OCECPR did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas. The reason is that due to Cyprus' small geographical size there is no price differentiation (the whole country is considered a NUTS3 area).
OCECPR did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas. The reason is that due to Cyprus' small geographical size there is no product differentiation (the whole country is considered a NUTS3 area)

Source: BEREC



Table 35: Answers from OCECPR (Cyprus) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, OCECPR concluded a geographic differentiation of remedies in a national market concerning the geographical aspects of market analysis.
The reason why the NRA in the last analysis of market 1/2020 resp. market 3a/2014 did decide a geographic differentiation is geographical differences in coverage of alternative networks (e.g. cable or fibre).
OCECPR applied the <u>geographical unit postal code areas</u> for the geographical analysis.
From the selection of this geographical unit resulted 858 postal code areas.
The reasons why OCECPR chose that geographical unit are:
- The presence of alternative networks (The remedy differentiation was made based on whether 3 VHCN networks are present or not. When 3 VHCN networks are present regulatory remedies were significantly reduced)
- Availability of data
- Number of geographical units
The relevant criteria applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) was:
- Number of competitors (3 VHCN networks for remedy differentiation are required)
OCECPR grouped the geographic units into 2 types of remedy differentiation areas. Those with 3 VHCN networks and those with less than 3 VHCN networks.

Source: BEREC



Czech Republic

The Czech NRA (CTU) finished the last analysis of market 3a/2014 in 2017, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 36: Answers from CTU (Czech Republic) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network			X			
1 NGA network				X		
2 NGA networks			X			
3 NGA networks			X			
>3 NGA networks		X				

Source: BEREC

Table 37: Answers from CTU (Czech Republic) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
CTU did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas.
CTU observed some retail price differences but they are not quantified/assessed yet.
CTU did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas.
CTU observed some differences but they are not quantified/assessed yet.
CTU found the following main reasons for these differences in retail prices and/or retail product characteristics.
- CTU has not found differences of retail products between geographical areas which have been offered by same operator. The main operator on the retail market (O2 Czech Republic) applied uniformed prices on the national level as well as conditions and characteristics of its products.
- Differences in prices or product characteristic in some geographical areas have been found only among operators due to other reasons - especially due to network footprint of individual operators and/or usage of different technologies in access network by operators which determined qualitative characteristic of retail product (e.g. lower speed but lower price).

Source: BEREC



Table 38: Answers from CTU (Czech Republic) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, CTU concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reasons why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present are:
<p>The presence of multiple NGA networks did not result in sufficiently different competition for the following reasons. CTU based its geographical analysis not only on presence of multiple NGA networks but took into account all competitive infrastructure/networks (according to market definition). Therefore answer to this question is based on all lines (e.g. in incumbent's network NGA was available only on approximately 1/3 of its lines in 2015; coverage of incumbent's FTTH/B network was negligible).</p> <p>The presence of multiple networks did not result in sufficiently different competition due to the homogeneity of prices and the absence of geographic differences in the characteristics of the products of one (same) operator, as well as the homogeneity of competitive conditions across the country. Overall, the conditions across the Czech Republic were the same or very similar - these competitive conditions were characterized by the presence of incumbent and at least one other operator (which could be different in each municipality) - including operators providing FWA access (there is more than 1500 of such operators in CZ). From this point of view the competitive conditions did not geographically differ to significant degree.</p> <p>The coverage of fibre networks or higher DOCSIS standard (which has potential to provide access with higher quality than copper based access) was relatively low (regarding 2015 data), and their more widely coverage was expected - in terms of further increase of their coverage, in particular in a high-density areas /municipalities. At the same time, there was no (at the time of market analysis) sufficient information about areas where future deployment of NGA/VHCN networks will take place. From wholesale level perspective only DSL+FTTC and FTTH/B were included into market definition. Therefore geographical scope of the market was, due to limited coverage of alternative FTTH/B network, defined as national. Incumbent (CETIN) applied uniform prices and conditions across the Czech Republic.</p>

Source: BEREC



Denmark

The Danish NRA (DBA) finished the last analysis of market 3a/2014 in 2021, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 39: Answers from DBA (Denmark) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network		X				
1 NGA network					X	
2 NGA networks				X		
3 NGA networks	X					
>3 NGA networks	X					

Source: BEREC

Table 40: Answers from DBA (Denmark) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
DBA did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas.
DBA observed the following differences in retail prices between geographic areas:
- The retail price of broadband-only differ (bundles unknown).
- 8 operators ⁶¹ apply different prices in different areas.
- The retail prices differ significantly in many geographical areas.
DBA did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas.
DBA observed the following differences of retail product characteristics:
- The retail product characteristics of NGA network operators differ between geographical areas
- The retail product characteristics differ of both broadband-only and bundles
- 4 operators ⁶¹ apply different product characteristics in different areas
- The retail product characteristics differ in a few areas to some degree
DBA also found the following differences:
- The content in offers provided by service providers vary across geographical areas (content of bundles vary, content of limited offers vary etc.)
DBA found the following main reasons for these differences in retail prices and/or retail product characteristics:
- They are caused by previous market analysis decision (differentiation of wholesale prices in different areas of former national incumbent)
- They are caused by variation in wholesale prices
- They have always been present because of regional operators

Source: BEREC

⁶¹ Service providers and vertically integrated network operators

Table 41: Answers from DBA (Denmark) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, DBA concluded concerning the geographical aspects of market analysis the definition of sub-national geographical markets.
The main reasons for the geographical differentiation of the market definition on market 1/2020 resp. market 3a/2014 are:
- Geographical differences in coverage of alternative networks (e.g. cable or fibre)
- Geographical differences in retail market shares of the incumbent
- Geographical differences in wholesale market shares of the incumbent
- Geographical differences of retail prices of the incumbent operator and/or alternative operators
DBA applied the geographical unit "electricity distribution areas" for the geographical analysis.
From the selection of this geographical unit resulted 43 electricity distribution areas.
The reasons why DBA chose that geographical unit are:
- The presence of alternative networks (regional operators)
- Precise fit of NGA rollout
The relevant criteria applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) were:
- Specific networks present as this presence, by itself, constitute differentiation of wholesale offers, retail prices etc. in the Danish case
- Retail price differences were not a relevant criterion because the focus was on availability of various retail offers and of NGA rollout
- Retail commercial offers (other than price) or marketing strategies were not a relevant criterion because DBA do not see the relevance.
DBA grouped the geographic units into 21 sub-national geographic markets.
Further information on the defined sub-national geographic markets
- There are four areas with individual SMP operator (historical incumbent)
- There is nine areas with individual SMP operator (alternative operator/not the historical incumbent)
- There is no area with joint SMP
- There is eight areas without SMP operator
- 31% percent of the national households are located in the areas without (individual and/or joint) SMP and are therefore already completely de-regulated

Source: BEREC



Estonia

In 2021, the Estonian NRA (ECPTRA) withdrew the draft measure it notified to the EC, because the EC opened a phase II investigation pursuant to Article 32 of the EECC (Case EE/2021/2310). The data below (answers to the questionnaire) are based on this case (Case EE/2021/2310). ECPTRA has already started a new market analysis. ECPTRA has not deregulated this market.

Table 42: Answers from ECPTRA (Estonia) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network			X			
1 NGA network					X	
2 NGA networks				X		
3 NGA networks			X			
>3 NGA networks		X				

Source: BEREC

Table 43: Answers from ECPTRA (Estonia) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
ECPTRA did investigate in the last analysis of market 1/2020 whether retail prices differ between geographic areas.
ECPTRA did not find that the retail prices of NGA network operators differ between geographical areas.
ECPTRA did investigate in the last analysis of market 1/2020 also whether retail product characteristics differ between geographic areas.
ECPTRA did not find that the retail product characteristics of NGA network operators differ between geographical areas.

Source: BEREC



Table 44: Answers from ECPTRA (Estonia) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020, ECPTRA concluded concerning the geographical aspects of market analysis the definition of sub-national geographical markets.
The main reasons for the geographical differentiation of the market definition on market 1/2020 are:
- Geographical differences in retail market shares of the incumbent
- Population density (economies of scale)
ECPTRA applied for the geographical analysis the geographical unit “administrative units”. ECPTRA separately analysed the five largest cities in Estonia.
From the selection of this geographical unit resulted six geographical units, the five largest cities and all other regions.
The reasons why ECPTRA chose that geographical unit are:
- The presence of alternative networks (in some large cities alternative network operators have quite significant market share of end-users)
- Availability of data
The relevant criterion applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) was the incumbent operator’s market share of end-users below 40%.
The retail price differences were not a relevant criterion because the retail prices of the three largest operators across Estonia, which together account for more than 90% of NGA end users, do not differ geographically.
The differences in the retail commercial offers (other than price) or marketing strategies were not a relevant criterion because the three largest operators across Estonia, which together account for more than 90% of NGA end users, do not differentiate prices or marketing strategies geographically.
ECPTRA grouped the geographic units into two sub-national geographic markets. One geographic market includes two cities (Narva and Kohtla- Järve) and the other geographical market the remaining part of the Estonian territory.
Further information on the defined sub-national geographic markets
- There is one area with individual SMP operator (historical incumbent)
- There is no area with individual SMP operator (alternative operator/not the historical incumbent)
- There is no area with joint SMP
- There is one area without SMP operator
- 7% percent of the national households are located in the areas without (individual and/or joint) SMP and there was a plan to deregulate this area.

Source: BEREC



Finland

The Finnish NRA (TRAFICOM) finished the last analysis of market 3a/2014 in 2018, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 45: Answers from TRAFICOM (Finland) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
TRAFICOM did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas.
TRAFICOM did not investigate the retail prices between geographical areas because it did not consider this to be relevant. In Finland, there has traditionally been multiple operators with regional copper, fibre and cable modem networks. The reach of the networks, market shares and the number of competitors have been the main criteria while analyzing and defining the geographical markets.
TRAFICOM did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail product characteristics differ between geographic areas.
TRAFICOM did not investigate if the retail product characteristics of NGA network operators differ between geographical areas because it did not consider this to be relevant. The retail product characteristics have not been considered as relevant as other assessment criteria. The possible differences in retail product characteristics in different geographical areas are mainly explained by the fact, that the network owner and technologies are different depending on the geographical area.

Source: BEREC



Table 46: Answers from TRAFICOM (Finland) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, TRAFICOM concluded concerning the geographical aspects of market analysis the definition of sub-national geographical markets. The outcome of the last SMP decisions were in total 150 geographical market, of which 132 were regulated. 21 operators were designated as SMP operators in these 132 geographical markets. The biggest three SMP operators had several geographical SMP market areas each, and based on their size and resources, stricter pricing obligations were set on the biggest three SMP operators.
The main reasons for the geographical differentiation of the market definition on market 1/2020 resp. market 3a/2014 are:
- Geographical differences in wholesale market shares of the incumbent
- Other (some of the main reasons have been which operators have networks and where, i.e. the reach of each network owner's networks, and whether the number of competitors varies at the wholesale level)
TRAFICOM applied for the geographical analysis the geographical unit "administrative units". The unit of analysis was municipality. Some of the municipalities have been aggregated later in the analysis to bigger geographical areas combining of more than one municipality.
From the selection of this type of geographical unit resulted 317 geographical units (municipalities).
The reasons why TRAFICOM chose that geographical unit are:
- Availability of data
- Municipality fulfilled the EC's criteria for a geographical unit. According to the Recommendation on Relevant Markets 2014, the NRAs should ensure that geographical 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.
The presence of alternative networks was not the reason for choosing that geographical unit because at the time of the last SMP decisions, the historical incumbents were still the main operators in their traditional geographical markets. The presence of all networks were taken into account.
The relevant criteria applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) were:
- Number of competitors (in the municipalities aggregated to one sub-national market, the number of competing operators was almost the same (± 1 operator))
- Number of competitors with an individual market share above a certain threshold (in the municipalities aggregated to one sub-national market, the market leader's market share based on the number of LLUs was almost the same ($\pm 10\%$), and the market leader in all those municipalities was the same operator)
- The municipalities aggregated to one sub-national market formed a uniform geographical area, i.e. the municipalities were located next to each other)
TRAFICOM grouped the geographic units into 150 geographical markets. The biggest three SMP operators were set stricter pricing obligations in their geographical markets. Their combined share of the total 150 geographical markets was 109 geographical markets.
Further information on the defined sub-national geographic markets
- 132 areas with individual SMP operator (historical incumbent)
- There is no area with individual SMP operator (alternative operator/not the historical incumbent)
- There is no area with joint SMP
- There are 18 areas without SMP operator
- Approximately 10% percent of the national households are located in the areas without (individual and/or joint) SMP and are therefore already completely de-regulated.

Source: BEREC



France

The French NRA (ARCEP) finished the last analysis of market 3a/2014 in December 2020, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 47: Answers from ARCEP (France) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
ARCEP did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas and did not find retail price differences. [Q4]
ARCEP did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas and did not find differences in retail product characteristics [Q7]

Source: BEREC

Table 48: Answers from ARCEP (France) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, ARCEP concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reasons why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present is because the presence of multiple NGA networks did not result in sufficiently different competition.
The presence of multiple NGA networks did not result in sufficiently different competition for the following reasons. In line with point 48 of the European Commission Guidelines on market analysis (2018/C 159/01), ARCEP set specific criteria in order to assess if the conditions of competition are sufficiently homogeneous inside each area, and which can be distinguished from neighboring areas in which the prevailing conditions of competition are significantly different. As a result of this exercise, ARCEP defined 14 areas. Moreover, ARCEP examined, under a Modified Greenfield Approach, how competition would be sustainable in the absence of symmetrical regulation. Regarding the effectiveness of competition, the first criterion set by ARCEP allows to measure, across the 14 geographical areas, the proportion of premises served by at least 3 access seekers. The NRA found that none of areas defined had a sufficient level of premises served by at least 3 access seekers. Regarding the sustainability of competition, the criteria used in the evaluation led to the conclusion that access seekers depend on the incumbent's infrastructure. ARCEP conclude, that alternative access seekers are strongly dependent on the incumbent infrastructure, and that effective and sustainable competition would not develop in any of the 14 areas without a regulatory intervention.

Source: BEREC



Germany

The German NRA (BNetzA) finished the last analysis of market 3a/2014 in October 2019, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 49: Answers from BNetzA (Germany) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network		X				
1 NGA network		X				
2 NGA networks					X	
3 NGA networks			X			
>3 NGA networks	X					

Source: BEREC

Table 50: Answers from BNetzA (Germany) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
BNetzA did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas
BNetzA observed the following differences in retail prices between geographic areas:
- The retail price of broadband-only and bundles differ.
- 9 operators (out of 130 responding network operators) apply different prices in different areas.
- The retail prices differ only slightly between few geographical areas.
BNetzA found that the observed differences in retail prices are largely caused by the boundaries of different network footprint and available network technologies. In some cases also differences in underlying cost structures lead to price differences between some areas.
BNetzA did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail product characteristics differ between geographic areas. The reason behind that is that data on retail services suggest that all operators, but in particular the one designated with SMP, do not differentiate their product characteristics on a geographical basis. The network operators instead usually offer services depending on the network footprint and the given network technologies deployed within in the footprint. There was no preliminary evidence that a different level of infrastructure based competition lead to specific adjustment of the quality of service.

Source: BEREC

Table 51: Answers from BNetzA (Germany) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, BNetzA concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reasons why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present are:
- The presence of multiple NGA networks did not result in sufficiently different competition, because areas for the differentiation of geographic markets did not have sufficiently clear and stable boundaries over time.
- Another reason is that no geographical area with sufficiently homogeneous competitive conditions was identified, which would have led to a subnational market with a significantly higher degree of competitive pressure.
BNetzA observed that retail prices differ between geographic areas and the reason why this did not result in a geographical differentiation of the market definition and/or remedies is:
- The incumbent operator itself did not differentiate its prices in its nationwide network and applies national pricing. At the same time price differentiation by alternative network operators within their networks was limited to a small number of network operators and was insignificant in scale.

Source: BEREC



Greece

The Greek NRA (EETT) finished the last analysis of market 3a/2014 in December 2016, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 52: Answers from EETT (Greece) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network			X			
1 NGA network						X
2 NGA networks	X					
3 NGA networks	X					
>3 NGA networks	X					

Source: BEREC

Table 53: Answers from EETT (Greece) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
EETT did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas and did not find such retail price differences.
EETT did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas and did not find such differences in retail product characteristics. However, the EETT observed the following other differences. The NRA found that the availability of retail products depends solely on the availability of the underlying network infrastructure. ⁶²

Source: BEREC

Table 54: Answers from EETT (Greece) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, EETT concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reasons why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present are:
- The geographical area(s) where multiple NGA networks are available is still small and expected to be small in the near future and, therefore, negligible
- The presence of multiple NGA networks did not result in sufficiently different competition, because the geographical area(s) where multiple NGA networks are available was extremely small and is still very limited.

Source: BEREC

⁶² In most areas in Greece there is only one network (NGA or not) in each area. The availability and the product characteristics of retail products depends on and is defined by the availability of the underlying Infrastructure. On the other hand, EETT did not observe any differences in the nominal prices of the retail products.

Hungary

The Hungarian NRA (NMHH) finished the last analysis of market 3a/2014 in 2017, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 55: Answers from NMHH (Hungary) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network		X				
1 NGA network		X				
2 NGA networks			X			
3 NGA networks			X			
>3 NGA networks					X	

Source: BEREC

Table 56: Answers from NMHH (Hungary) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
NMHH did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas.
NMHH observed the following differences in retail prices between geographic areas:
- The retail price of broadband-only and also of bundles differ.
- Three NGA network operators apply different prices in different areas.
- The retail prices differ in a few areas to some degree.
NMHH did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas and found that this is not the case. NMHH solely observed some differences but they are not quantified/assessed yet.
NMHH found the following to be the main reason for these differences in retail prices and/or retail product characteristics:
- They are caused by competition between networks. Hungarian operators enlisted the settlements where they apply geographically differentiated retail prices in a durable and publicly manner due competition between networks, when they provided data to the market analysis procedure.
- They are also caused by other factors. Retail product characteristics (e.g. average nominal bandwidth were) in positive correlation with the size of the given settlement. Bigger size can attract more competition due to economies of scope and scale.

Source: BEREC

Table 57: Answers from NMHH (Hungary) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, NMHH concluded concerning the geographical aspects of market analysis the definition of sub-national geographical markets.
The main reasons for the geographical differentiation of the market definition on market 1/2020 resp. market 3a/2014 are:
- Geographical differences in coverage of alternative networks
- Geographical differences in retail market shares of the incumbent
- Geographical differences in wholesale market shares of the incumbent
- Population density (economies of scale)
NMHH applied for the geographical analysis the geographical unit “administrative units”. According to NUTS former level 5, or now LAU level 2, which NMHH calls settlement level.
From the selection of this type of geographical unit resulted 3,174 geographic units, among them 23 are districts of the capital (Budapest), according to LAU level 2.
The reasons why NMHH chose that geographical unit are:
- The presence of alternative networks. Because that geographical unit satisfies the criteria laid down in paragraph 86 of the BEREC Common Position on geographical aspects of market analysis (BoR (14) 73): (i) They are mutually exclusive and less than national, (ii) The network structure of all relevant operators and the services sold on the market can be mapped onto the geographical units, (iii) They have clear and stable boundaries, and (iv) They are small enough for competitive conditions to be unlikely to vary significantly within the unit but at the same time large enough that the burden on operators and NRAs with regard to data delivery and analysis is reasonable.
- Availability of data.
The relevant criteria applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) were:
- Number of competitors (the number of significant alternative operators with market shares above 15% in a settlement are 2 or more. With the SMP operator included there are 3 or more competitors.)
- Number of competitors with an individual market share above 15%
- Number of competitors with an individual infrastructure coverage above 60%
- Market share of the incumbent operator below 50%.
Retail price differences were not a relevant criterion because taking these behavioural factors into account did not change the results which were the outcome of the classification of settlements based on structural criteria listed above.
The differences in the retail commercial offers (other than price) or marketing strategies were not a relevant criterion because taking these behavioural factors into account did not change the results which were the outcome of the classification of settlements based on structural criteria listed above.
NMHH grouped the geographic units into 6 sub-national geographic markets.
Further information on the defined sub-national geographic markets:
- Three areas with individual SMP operator (historical incumbent)
- There is no area with individual SMP operator (alternative operator/not the historical incumbent)
- There is no area with joint SMP
- There are three areas without SMP operator
- Approximately 16%, 28%, 30% per area (19% for the whole country) of the national households are located in the areas without (individual and/or joint) SMP and are therefore already completely de-regulated

Source: BEREC



Iceland

The Icelandic NRA (ECOI) finished the last analysis of market 3a/2014 in 2021, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 58: Answers from ECOI (Iceland) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network	X					
1 NGA network			X			
2 NGA networks						X
3 NGA networks	X					
>3 NGA networks	X					

Source: BEREC

Table 59: Answers from ECOI (Iceland) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
ECOI did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas and found that this is not the case.
ECOI did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas and found that this is not the case.

Source: BEREC

Table 60: Answers from ECOI (Iceland) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, ECOI concluded concerning the geographical aspects of market analysis the geographical differentiation of remedies in a national market.
The main reasons for the geographical differentiation of remedies on market 1/2020 resp. market 3a/2014 are:
- Geographical differences in coverage of alternative networks (e.g. cable or fibre)
- Geographical differences in retail market shares of the incumbent
ECOI applied for the geographical analysis the geographical unit “administrative units”. The unit of analysis was municipality.
From the selection of this type of geographical unit resulted 69 geographic units (municipalities).
The reasons why ECOI chose that geographical unit is the presence of alternative networks. Alternative networks are built on a per municipality basis, even if one operator is building in many municipalities.
The relevant criteria applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) were:
- Number of competitors with an individual infrastructure coverage above 75% (75% of homes and businesses passed by alternative FTTH operator)
- Market share of the incumbent operator below 50% (50% market share of incumbent in retail internet services)

Source: BEREC

Ireland

The Irish NRA (ComReg) finished the last analysis of market 3a/2014 in 2018, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 61: Answers from ComReg (Ireland) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network			X			
1 NGA network						X
2 NGA networks		X				
3 NGA networks	X					
>3 NGA networks	X					

Source: BEREC

Table 62: Answers from ComReg (Ireland) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
ComReg did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas.
ComReg did not find that retail prices differ between geographic areas. However, ComReg observed that differences in retail prices may arise from (i) the underlying access technology delivering the retail service and (ii) the sale of the retail service on a standalone basis, or as part of a bundle.
ComReg did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas.
ComReg did not find that retail product characteristics differ between geographic areas. However, ComReg observed that differences in retail product characteristics may arise from (i) the underlying access technology delivering the retail service and (ii) the sale of the retail service on a standalone basis, or as part of a bundle.

Source: BEREC

Table 63: Answers from ComReg (Ireland) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, ComReg concluded concerning the geographical aspects of market analysis no geographical differentiation.
The reasons why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present are:
- The geographical area(s) where multiple NGA networks are available is still small and expected to be small in the near future and, therefore, negligible
- The presence of multiple NGA networks did not result in sufficiently different competition (only one other NGA network offering WLA had commenced rollout at the time. Accordingly, that network had extremely limited geographic presence on the market at the time of assessment)
- Other reasons why ComReg considered that the WLA market was national in scope are: (i) the existence of a small number of competitors in the WLA Market, (ii) Eircom having a high and relatively static market share nationally, (iii) a lack of differentiated pricing nationally and (iv) limited differences in demand characteristics across regions)

Source: BEREC

Italy

The Italian NRA (AGCOM) finished the last analysis of market 3a/2014 in 2019,⁶³ has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 64: Answers from AGCOM (Italy) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
AGCOM did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas and found that this is not the case.
AGCOM did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas.
AGCOM did not find that retail product characteristics differ between geographic areas. However, AGCOM observed that differences in retail products reflects different network coverage (FTTH/FTTC/FTTE/FWA). In the Italian market generally all the operators apply the principle of providing to the end user the best technology available on own network coverage, thus the geographical differences are only related to the different coverage of the specific technology available. For the same operator the geographical differences can be related to the availability of a specific FTTH technology (EPON/GPON), in this case the technical characteristic of the maximum speed can be different at geographical level, or the availability of FTTC instead of FTTH. In all this cases no differences are present in terms of end user prices or kind of bundle available. In some cases when FWA is the best technology available in terms of download speed (eg. FTTC vs FWA), it can happen that some operators apply a discount on the monthly fee for “broadband” only offers, in case of FWA in fact no voice services are available when discount is present.

Source: BEREC

Table 65: Answers from AGCOM (Italy) – Outcome of the geographical analysis (part 1)

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, AGCOM concluded concerning the geographical aspects of market analysis:
- Definition of sub-national geographical markets
- Geographic differentiation of remedies in a national market.
The geographic differentiation of remedies in a sub-national geographic market is as follows:
- The price control remedy in market 3a/2014, only for VULA products, not including ULL/SLU over copper, has been differentiated between municipalities that have been found more competitive with respect to the rest of the municipalities that form the subnational geographic market, conditioned to the fulfillment of some specific conditions (see next paragraph).
- Fully differentiation, without any conditions, applies for market 3b/2014.
- For VULA products (FTTC/H) price flexibility could be allowed overcoming the obligation of cost orientation for monthly fee and one-off fee conditionally to the following situation. More specifically, SMP operator may apply price flexibility for VULA services in competitive municipalities conditionally to the verification by AGCOM that retail take-up over FTTH services at national level passes the 15% of all broadband lines by June 2021 (the verification in 2021 failed).

Source: BEREC

⁶³ Decision n. 348/19/CONS (case n. IT/2019/2181-2182)

Table 66: Answers from AGCOM (Italy) – Outcome of the geographical analysis (part 2)

The geographic differentiation of remedies in a sub-national geographic market is as follows (contd.):
- The price flexibility over VULA products, in case threshold has been reached, would be allowed following the following rules: (i) different prices should be applied to the whole municipality; (ii) prices should follow the principle of fair and reasonable prices; (iii) prices should follow non-discrimination principle; iv) if SMP proposes lower prices than the cost oriented prices, fixed at national level, AGCOM would verify that those prices for every municipality will guarantee at wholesale level a fair competition and the evaluation will be done by considering costs at single municipality level; and (iv) if SMP proposes higher prices than the cost oriented prices at national level, AGCOM would verify the impact of those wholesale prices on the economic condition of the retail offers.
- In 2021 AGCOM verified that the FTTH take-up threshold of 15% of the total retail Broadband lines was not reached by June 2021, so no price flexibility was granted to the SMP operator for VULA products along this market review. Regarding bitstream services, TIM applied different prices for competitive areas. The market analysis established as well as that the list of competitive municipalities should be annually updated. At the end of the market analysis (2019) 26 municipalities have been found “more competitive” (about 5% of the national population), the list of competitive municipalities has been updated in 2021 reaching 43 municipalities (about 7% of population) applying the same criteria.
- A municipality in the sub national market was considered more competitive if cumulatively the following criteria were fulfilled: (i) More than two NGA alternative networks (FTTH/FTTC) to the one of the SMP operator are present in the municipality and cover more than 60% of customer locations each, where cumulative alternative NGA (FTTH/FTTC) networks reach 75% of customer locations. (ii) SMP NGA retail broadband market share is less than 40%. (iii) SMP NGA wholesale broadband active services share is less than 80% (VULA and bitstream).
The main reasons for the geographical differentiation of the market definition and/or remedies on market 1/2020 resp. market 3a/2014 are:
- Geographical differences in coverage of alternative networks (e.g. cable or fibre)
- Geographical differences in retail market shares of the incumbent
- Geographical differences in wholesale market shares of the incumbent
- Geographical differences resulting from commercial wholesale offers of alternative operators
AGCOM applied for the geographical analysis the geographical unit “administrative units”. The administrative unit of analysis was the municipality. ⁶⁴
From the selection of this type of geographical unit resulted the following. One municipality has been deregulated (city of Milan, for which no SMP has been assessed) and 43 municipalities have been considered as candidates to be more competitive in market 3a/2014 in the last revision of the condition for 2021.

Source: BEREC

⁶⁴ Municipality is in line with the general criteria expressed at point 37 of the Commission recommendation (EU) 2020/2245: (i) has an appropriate size, i.e. small enough to avoid significant variations of competitive conditions within each unit, but big enough to avoid a resource-intensive and burdensome microanalysis that could lead to market fragmentation, (ii) is able to reflect the network structure of all relevant operators, and (iii) has clear and stable boundaries over time. In the Italian case municipality is the main geographical area for planning investments over VHCN network also due to the fact that administrative responsibility for civil work authorizations is in charge to the municipality authority.

Table 67: Answers from AGCOM (Italy) – Outcome of the geographical analysis (part 3)

The reasons why AGCOM chose that geographical unit are that municipality is the geographical unit where ANOs are planning investments in alternative networks in the Italian case, and moreover, that the municipality authority is entitled to provide permit granting for civil work authorizations.
The relevant criteria applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) were:
- Number of competitors with an individual infrastructure coverage above a certain threshold. Two alternative networks with a threshold coverage of 60% of customer locations each and 75% in combinations. Only FTTC and FTTH have been considered relevant alternative networks, not FWA even if included in the corresponding market product of market 3a/2014.
- Market share of the incumbent operator below a certain threshold. The NGA retail market share < 40% and NGA wholesale market share < 80%. The NGA wholesale 3a market share (including the self-production) has been evaluated not including SLU services provided to other access operators.
- Differences in the existence or terms of wholesale commercial offers. A municipality is considered eligible for remedies differentiation if it is available a wholesale offer provided by an alternative operator through an independent network (in the Italian case, the wholesale-only operator).
The reason why differences in the retail commercial offers (other than price) or marketing strategies were not a relevant criterion is:
- Differences in the retail commercial offer are driven by the presence of alternative networks, and so differences in the retail commercial offer (other than price) are a consequent effect generally driven by infrastructure competition. In the Italian case, where the competitive model is mainly driven by the presence of a national alternative wholesale-only operator, the coverage of this operator is the main driver for competitive constrain in market 3a/2014, and the presence of different commercial offers for example in terms of quality of services reflects the availability of the alternative networks as a consequence.
The number of areas (either sub-national markets or geographically differentiated remedies) AGCOM grouped the geographic units into is as follows:
- Within the relevant national geographical market AGCOM netted off a single municipality that has been deregulated (municipality of Milan), the list of “competitive areas” in 2019, at the end of the market analysis, was composed by 26 municipalities. 43 municipalities have been found in 2021 (updated list, 26 plus additional 17 municipalities).
Further information on the defined sub-national geographic markets:
- One national market with a single SMP operator (the historical incumbent), netted off of a single municipality (Milan) where no SMP was found.

Source: BEREC



Kosovo

The Kosovan NRA (ARKEP) finished the last analysis of market 1/2020 in 2022 and has deregulated this market.

Latvia

The Latvian NRA (SPRK) finished the last analysis of market 3a/2014 in October 2018, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 68: Answers from SPRK (Latvia) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
SPRK did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas.
SPRK did not find that retail prices differ between geographic areas. However, SPRK observed the following other differences. Prices as such do not differ between geographical areas. But the incumbent operator applies temporary discounts in areas where fibre has been deployed and where infrastructure competition exist. The discount period is two years or even more. As a result, copper might be even more expensive compared to discounted fibre.
SPRK did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas and found that this is not the case.

Source: BEREC

Table 69: Answers from SPRK (Latvia) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, SPRK concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reason why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present is as follows:
- The presence of multiple NGA networks did not result in sufficiently different competition. Due to demographic situation, SPRK assessed competition conditions and technologies deployed in Riga and areas outside Riga. In Latvia, FTTP coverage is high - 88.1% (73.8% in rural areas). The competition in Riga is higher compared to other areas but the results of the assessment of competitive conditions in Riga and areas outside Riga did not indicate on necessity to apply geographic differentiation. Incumbent operator, Tet is still regulated. SPRK is planning to start market1/2020 analysis and to assess the impact of unlimited and dedicated mobile broadband on the fixed broadband. Depending on the results of the assessment, it might change the structure of overall market definition.

Source: BEREC



Lithuania

The Lithuanian NRA (RRT) finished the last analysis of market 3a/2014 in 2019, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 70: Answers from RRT (Lithuania) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network			X			
1 NGA network			X			
2 NGA networks			X			
3 NGA networks			X			
>3 NGA networks			X			

Source: BEREC

Table 71: Answers from RRT (Lithuania) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
RRT did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas. The reason is that the NRA did not consider this to be relevant. The relevant geographic market of market 3a/2014 corresponds to the territory of the Republic of Lithuania.
RRT did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas. The reason is that the NRA did not consider this to be relevant. The relevant geographic market of market 3a/2014 corresponds to the territory of the Republic of Lithuania.

Source: BEREC

Table 72: Answers from RRT (Lithuania) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, RRT concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reason why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present is as follows:
- The presence of multiple NGA networks did not result in sufficiently different competition. RRT used four criteria to analyze competition conditions in market 3a/2014 in different (60) municipalities of the Republic of Lithuania. This analysis showed that competition conditions are homogenous in the whole territory of country.

Source: BEREC

Malta

The Maltese NRA (MCA) finished the last analysis of market 4/2007 in 2013, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 73: Answers from MCA (Malta) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network	X					
1 NGA network	X					
2 NGA networks						X
3 NGA networks	X					
>3 NGA networks	X					

Source: BEREC

Table 74: Answers from MCA (Malta) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
MCA did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas and found that this is not the case.
MCA did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas and found that this is not the case.

Source: BEREC

Table 75: Answers from MCA (Malta) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, MCA concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reason why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present is as follows. In Malta is one operator with nationwide infrastructure. Fibre is currently being deployed in Malta and replacing the copper network.

Source: BEREC



Netherlands

The Dutch NRA (ACM) finished the last analysis of market 3a/2014 in 2018. However, in 2020 this analysis was annulled by the Dutch Court and since then, the market is not deregulated but unregulated.

Table 76: Answers from ACM (Netherlands) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network	X					
1 NGA network		X				
2 NGA networks						X
3 NGA networks		X				
>3 NGA networks	X					

Source: BEREC

Table 77: Answers from ACM (Netherlands) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
ACM did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas and found that this is not the case.
ACM did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas.
ACM did not find that retail prices differ between geographic areas. However, ACM observed that based on the quality of the network (xDSL, p2p/p2mp FTTH, DOCSIS.x) the product characteristics could differ across geographic areas. However the product characteristics of similar networks in different areas were always homogeneous (based on a national retail plans). This was thus not based on geographic characteristics but on technical characteristics.

Source: BEREC

Table 78: Answers from ACM (Netherlands) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, ACM concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reason why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present is as follows:
- The presence of multiple NGA networks which did not result in sufficiently different competition. The copper/fibre incumbent (KPN) and the cable incumbent (VodafoneZiggo) were found to be joint dominant on a national market, with comparable network coverage, retail products and high market shares (>40%).

Source: BEREC



North Macedonia

The Macedonian NRA (AEC) finished the last analysis of market 3a/2014 in 2017, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 79 Answers from AEC (North Macedonia) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network			X			
1 NGA network			X			
2 NGA networks			X			
3 NGA networks			X			
>3 NGA networks					X	

Source: BEREC

Table 80: Answers from AEC (North Macedonia) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
AEC did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas, because it was not considered to be relevant. The prices are the same and do not differ much between geographical areas.
AEC did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas, because it was not considered to be relevant. Network operators have similar prices and products.

Source: BEREC

Table 81: Answers from AEC (North Macedonia) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, AEC concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reason why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present are:
- The geographical area(s) where multiple NGA networks are available is still small and expected to be small in the near future and, therefore, negligible.
- The presence of multiple NGA networks did not result in sufficiently different competition, because of the similar prices on retail and/or same products on market.

Source: BEREC

Norway

The Norwegian NRA (NKOM) finished the last analysis of market 3a/2014 in 2018, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 82: Answers from NKOM (Norway) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network		X				
1 NGA network				X		
2 NGA networks				X		
3 NGA networks			X			
>3 NGA networks		X				

Source: BEREC

Table 83: Answers from NKOM (Norway) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
NKOM did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas and found that this is not the case. ⁶⁵
NKOM did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas and found that this is not the case.

Source: BEREC

Table 84: Answers from NKOM (Norway) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, NKOM concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reason why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present is as follows:
- The presence of multiple NGA networks did not result in sufficiently different competition. NKOM concluded that a chain of substitution led to broadband services based on FTTH and DSL being in the same product market. However, due to the fragmented and limited coverage of alternative NGA networks, NKOM considered that access to the ubiquitous Telenor fixed copper network was the only option for an entrant to provide a close to nationwide broadband service offer. There was very limited overlapping coverage of FTTH networks. Telenor, as an SMP operator, was imposed access obligation in its fibre access network.

Source: BEREC

⁶⁵ In the analysis of market 3a/b/2014 completed in 2018, NKOM did observe some minor retail price differences between local/regional NGA operators, but the overall picture was that prices were quite homogenous, and did not differ very much from the prices of national NGA operators.

Portugal

The Portuguese NRA (ANACOM) finished the last analysis of market 3a/2014 in March 2017, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 85: Answers from ANACOM (Portugal) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network			X			
1 NGA network			X			
2 NGA networks			X			
3 NGA networks				X		
>3 NGA networks		X				

Source: BEREC

Table 86: Answers from ANACOM (Portugal) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
ANACOM did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas and found that this is not the case.
ANACOM did investigate in the last analysis of market 1/2020 resp. market 3a/2014 also whether retail product characteristics differ between geographic areas and found that this is not the case.

Source: BEREC

Table 87: Answers from ANACOM (Portugal) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, ANACOM concluded concerning the geographical aspects of market analysis no geographical differentiation.
The reason why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present is as follows:
- The presence of multiple NGA networks did not result in sufficiently different competition. The reason is that operators generally do not differentiate their strategies regarding prices and discount and other conditions associated with the provision of broadband access for mass-market products, depending on the areas of the territory, both at the retail and wholesale level. The latter case applies only to MEO (the SMP operator on market 3a/2014), as the remaining operators do not have wholesale offers for wholesale local access at a fixed location – except the case of Vodafone that (by that time) has entered into an NGN infrastructure sharing agreement with MEO, and Fibroglobal and DStelecom, that are “wholesale-only operators” that have State Aid NGN installed in certain rural areas of the mainland Portugal and in the Autonomous Regions. In this sense, ANACOM concluded by that time that wholesale local accesses at a fixed location were available in an homogeneous way throughout the national territory, and some (minor) differences in competitive conditions have not allowed to identify in a clear and permanent way a geographical differentiation. Additionally, by that time, ANACOM concluded that the factors taken into account in that analysis would not change significantly in the short/medium term, until the next market analysis is carried out.

Source: BEREC

Romania

The Romanian NRA (ANCOM) finished an analysis of market 1/2020 in 2020 and has deregulated this market.

Serbia

The Serbian NRA (RATEL) finished the last analysis of market 3a/2014 in 2022, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 88: Answers from RATEL (Serbia) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network		X				
1 NGA network				X		
2 NGA networks				X		
3 NGA networks		X				
>3 NGA networks	X					

Source: BEREC

Table 89: Answers from RATEL (Serbia) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
RATEL did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas. The reason is that commercial terms under which the retail services are provided do not differ between geographic areas.
RATEL did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail product characteristics differ between geographic areas. The reason is that retail product characteristics being provided do not differ between geographic areas.

Source: BEREC

Table 90: Answers from RATEL (Serbia) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, RATEL concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reason why in the last analysis of market 1/2020 resp. market 3a/2014 the NRA did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present is as follows:
- The SMP operator (historical incumbent) is the only to provide different types of retail products across the country (NGA coverage dependable), while all other operators have some limitations.

Source: BEREC

Slovakia

The Slovakian NRA (RU) finished the last analysis of market 3a/2014 in 2016, has not yet undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 91: Answers from RU (Slovakia) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network		X				
1 NGA network		X				
2 NGA networks			X			
3 NGA networks		X				
>3 NGA networks					X	

Source: BEREC

Table 92: Answers from RU (Slovakia) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
RU did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas.
RU did not investigate the retail prices between geographical areas because it was difficult to collect data.
RU did not investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail product characteristics differ between geographic areas.
RU did not investigate if the retail product characteristics of NGA network operators differ between geographical areas because it was difficult to collect data.

Source: BEREC

Table 93: Answers from RU (Slovakia) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, RU concluded concerning the geographical aspects of market analysis the geographic differentiation of remedies in a national market.
The main reasons for the geographical differentiation of the remedies on market 1/2020 resp. market 3a/2014 are:
- Geographical differences in coverage of alternative networks (e.g. cable or fibre)
- Population density (economies of scale)
RU applied for the geographical analysis the geographical unit “administrative units”. The unit of analysis was municipality.
From the selection of this type of geographical unit resulted 2,890 geographical units
The reasons why RU chose that geographical unit are:
- The presence of alternative networks
- Availability of data
- Number of geographical units.
The relevant criteria applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) was:
- Number of competitors (704 internet providers)
RU grouped the geographic units into 1 national market.

Source: BEREC

Slovenia

The Slovenian NRA (AKOS) finished the last analysis of market 1/2020 in 2021 and has not deregulated this market.

Table 94: Answers from AKOS (Slovenia) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network		X				
1 NGA network				X		
2 NGA networks				X		
3 NGA networks			X			
>3 NGA networks	X					

Source: BEREC

Table 95: Answers from AKOS (Slovenia) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
AKOS did investigate in the last analysis of market 1/2020 whether retail prices differ between geographic areas.
AKOS did not find that retail prices differ between geographic areas. AKOS has observed only slight price differences in some parts of the geographic area, namely in certain open broadband networks with limited geographical scope and just for one operator which acts nationally, who on the top of its regular prices charge its end-users for different network usage fee. However, due to low scope and nature of abovementioned open networks, where end-users can freely choose among retail operators on the same infrastructure, no negative impact has been observed.
AKOS did investigate in the last analysis of market 1/2020 whether retail product characteristics differ between geographic areas.
AKOS did not find that retail product characteristics differ between geographic areas. In some limited parts of the geographical area, due to technical limitations of networks, some differences can be observed (for example lower broadband speed), otherwise no major differences for products characteristics have been observed for operators that acts nationally. Regional players however, are insignificant, with low market shares.

Source: BEREC

Table 96: Answers from AKOS (Slovenia) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020, AKOS concluded concerning the geographical aspects of market analysis the geographic differentiation of remedies in a national market.
The main reasons for the geographical differentiation of remedies on market 1/2020 are:
- Geographical differences in coverage of alternative networks (e.g. cable or fibre)
- Geographical differences in retail market shares of the incumbent
- Geographical differences resulting from commercial wholesale offers of alternative operators
- Geographical differences in presence and retail market shares of alternative operators
AKOS applied for the geographical analysis the geographical unit “administrative units”. The unit of analysis was “settlement”.
From the selection of this type of geographical unit resulted 6,035 geographical units (settlements).
The reasons why AKOS chose that geographical unit are:
- The presence of alternative networks (it can be simply mapped onto that geographical units).
- Availability of data
- Stable boundaries of administrative units, proper size - small and large enough.
The relevant criteria applied to aggregate the geographic units to homogeneous areas where geographically differentiated remedies were imposed were:
- Number of competitors (2 beside the incumbent)
- Number of competitors with an individual market share above a certain threshold. The value used for the threshold is 10%. Operators with lower market shares are not yet competitive enough. However, AKOS will update settlements list every year after the final market 1/2020 decision enters into force.
- The Number of competitors with an individual infrastructure coverage above a certain threshold. The value used for the threshold is 65%. Threshold was defined based on EU benchmark conducted, consistency with AKOS’s previous round of market 3a/2014 analysis as well as to prevent negative impact on retail market steaming from insufficient infrastructure coverage, having in mind that networks in Slovenia are overlapping partly and overlapping level differs across the country. Also, no sufficient commercial wholesale offer in sufficient scope is currently available in Slovenia and that is additional reason for more conservative criteria.
- Market share of the incumbent operator below a certain threshold. The value you used for the threshold is 40%.
AKOS grouped the geographic units into one national market, however, 15 out of 6,035 settlements are subject to remedies differentiation.

Source: BEREK



Spain

The Spanish NRA (CNMC) finished an analysis of market 1/2020 in October 2021 and has not deregulated this market.

Table 97: Answers from CNMC (Spain) – Number of NGA networks present in the same area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network		X				
1 NGA network			X			
2 NGA networks			X			
3 NGA networks				X		
>3 NGA networks				X		

Source: BEREC

Table 98: Answers from CNMC (Spain) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
CNMC did not investigate in the last analysis of market 1/2020 whether retail prices differ between geographic areas.
CNMC did not investigate the retail prices between geographical areas for the following reasons:
- CNMC did not consider this to be relevant. Only O2 (a subsidiary of Telefónica) set geographically differentiated retail prices during a limited period. In fact, in August 2021 O2 set again the same retail prices (across all its products) in the entire territory. No other operator (based on either its own brand or a flanker brand) followed that pricing strategy. ⁶⁶
- Other reasons are that the observed geographic differences in retail prices resulted from the geographically differentiated remedies that were imposed in 2016 following the third review of markets 3a/2014, 3b/2014 and 4/2014. O2 retail prices were lower in the 66 municipalities (the so-called zona BAU) where Telefónica was not obliged to provide the regulated VULA service (NEBA Local).
CNMC did not investigate in the last analysis of market 1/2020 whether retail product characteristics differ between geographic areas because operators do not commercialized products with features that are specific to some geographical areas. It is worth stressing that the functionalities of the broadband products differ between the two identified sub-national markets to the extent that the take-up of traditional (DSL) and NGA products varies notably. In market 1_1 (696 municipalities -70% of the Spanish population), where the NGA infrastructure based competition is stronger and the coverage of NGA networks is larger, the NGA connections account for more than 90% of the total number of broadband connections in that sub-national market while they account for less than 70% of market 1_2 (remaining municipalities).

Source: BEREC

⁶⁶ Please note that following the decision of 6th October 2021 concerning the fourth review of markets 1/2020 and 3b/3014 O2 set geographically differentiated prices (between regulated and non-regulated areas) again.



Table 99: Answers from CNMC (Spain) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020, CNMC concluded concerning the geographical aspects of market analysis the definition of sub-national geographical markets.
The main reasons for the geographical differentiation of the market definition on market 1/2020 are:
- Geographical differences in coverage of alternative networks (e.g. cable or fibre)
- Geographical differences in the take-up of regulated access services in an upstream market
- Geographical differences in retail market shares of the incumbent
- Geographical differences resulting from commercial wholesale offers of alternative operators
- Population density (economies of scale)
CNMC applied for the geographical analysis the geographical unit “administrative units”. The unit of analysis was municipality.
From the selection of this type of geographical unit resulted 8,131 geographic units (municipalities).
The reasons why CNMC chose that geographical unit are (i) the presence of alternative networks and (ii) that the MDF unit is no longer appropriate. The reason why the MDF unit is no longer appropriate is that a very important migration from traditional (copper) to both incumbent and alternative operators' NGA (mainly FTTH) networks is observed and thus NGA connections account for more than 85% of the market in December 2021; in sharp contrast to 40% in December 2015. Since the importance of incumbent operator's copper traditional network has diminished notably the MDF unit is no longer considered as a geographical unit for regulatory purposes. The municipality is the unit that operators consider when making decisions on investment (and NGA roll-out) and it was already chosen as the geographical unit for setting geographically differentiated access remedies on Telefónica's FTTH network in the context of the previous (third) review, whose final decision was adopted in February 2016.
The relevant criteria applied to aggregate the geographic units to homogeneous sub-national markets (or equivalently, areas where geographically differentiated remedies were imposed) were:
- Number of competitors with an individual infrastructure coverage above 20%
- Market share of the incumbent operator below 50%
Further information on the defined sub-national geographic markets:
- There are 2 areas with individual SMP operator (historical incumbent)
- There is no area with individual SMP operator (alternative operator/not the historical incumbent)
- There is no area with joint SMP
- There is no area without SMP operator
- 0% percent of the national households are located in the areas without (individual and/or joint) SMP and are therefore already completely de-regulated.

Source: BERECA



Sweden

The Swedish NRA (PTS) has already undertaken an analysis of market 1/2020 and has not deregulated this market.

Table 100: Answers from PTS (Sweden) – Number of NGA networks present in the same geographical area

Number of NGA networks present in the same area	Homes passed in relation to total number of homes covered by the area					
	0-1%	2-10%	11-25%	26-50%	51-75%	76-100%
No NGA network			X			
1 NGA network					X	
2 NGA networks			X			
3 NGA networks		X				
>3 NGA networks	X					

Source: BEREC

Table 101: Answers from PTS (Sweden) – Differences in retail prices and/or retail product characteristics

Differences in retail prices and/or retail product characteristics
PTS did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail prices differ between geographic areas.
PTS observed the following retail price differences:
<ul style="list-style-type: none"> - The majority of the Swedish broadband subscriptions are managed by communication operators, a middle-hand between network owners and ISPs. As a sweeping statement, one might say that communication operators control the pricing structure, hence strongly influencing which prices the ISPs are able to charge the end customers. The communication operators set prices (towards ISPs) for individual networks rather than geographic areas. - Collective agreements may render lower retail prices, but not to such an extent that this leads to different relevant geographic markets.
PTS did investigate in the last analysis of market 1/2020 resp. market 3a/2014 whether retail product characteristics differ between geographic areas, however, PTS did not find such differences.
PTS found the following main reasons for these differences in retail prices and/or retail product characteristics:
<ul style="list-style-type: none"> - The majority of the Swedish broadband subscriptions are managed by communication operators, a middle-hand between network owners and ISPs. As a sweeping statement, one might say that communication operators control the pricing structure, hence strongly influencing which prices the ISPs are able to charge the end customers. The communication operators set prices (towards ISPs) for individual networks rather than geographic areas. - Collective agreements may render lower retail prices, but not to such an extent that this leads to different relevant geographic markets.

Source: BEREC

Table 102: Answers from PTS (Sweden) – Outcome of the geographical analysis

Outcome of the geographical analysis
In the last analysis of market 1/2020 resp. market 3a/2014, PTS concluded concerning the geographical aspects of market analysis no geographical differentiation (neither market definition nor remedies).
The reasons why the NRA in the last analysis of market 1/2020 resp. market 3a/2014 did not decide a geographic differentiation (neither market definition nor remedies), although there are geographical areas where multiple NGA networks are present are:
- The presence of multiple NGA networks did not result in sufficiently different competition because there are not enough differences in competitive conditions, combined with ongoing roll-outs in many areas.
PTS observed that retail prices differ between geographic areas and the reasons why this did not result in a geographical differentiation of the market definition and/or remedies are:
- The majority of the Swedish broadband subscriptions are managed by communication operators, a middle-hand between network owners and ISPs. As a sweeping statement, one might say that communication operators control the pricing structure, hence strongly influencing which prices the ISPs are able to charge the end customers. The communication operators set prices (towards ISPs) for individual networks rather than geographic areas.
- Collective agreements may render lower retail prices, but not to such an extent that this leads to different relevant geographic markets.

Source: BEREC

