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COMMISSION RECOMMENDATION

of **XXX**

on the regulatory promotion of Gigabit connectivity

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 292 thereof,

Having regard to Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (the Code),

- (1) The availability of gigabit connectivity is one of the essential building blocks of the digital transition, and is therefore at the forefront of the EU's digital vision for 2030, as laid out in the Digital Compass Communication¹ and the Decision establishing the Digital Policy Program².
- (2) The Code seeks, in addition to the three other general objectives of promoting competition, the internal market and end-user interests, to promote connectivity and access to, and take-up of, very high capacity networks, including fixed, mobile and wireless networks, for the benefit of all citizens and businesses of the Union. The appropriate incentives for investment in new, very high capacity networks, which foster the development of innovative services, will strengthen the international competitiveness of the Union while delivering benefits to its consumers and businesses. It is therefore crucial to promote sustainable investment in the development of very high capacity networks, including fibre and 5G, by means of an appropriately designed and predictable regulatory framework.
- (3) Taking into account the competitive dynamics shown in many electronic communications markets in recent years, which have made it possible further to reduce the extent of ex-ante intervention, as reflected in the 2020 Recommendation on Relevant Markets³, the present Recommendation complements the toolbox and aims to promote the EU internal market for electronic communications network and services, through consistent regulatory approaches that favour investment in very high capacity networks while maintaining and ensuring effective competition. Consistency between the regulatory approaches taken by the National Regulatory Authorities (NRAs) of the various Member States is of fundamental importance to avoid distortions of the single

¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 2030 Digital Compass: the European way for the Digital Decade, COM/2021/118 final, 9. 3. 2021.

² Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme 2030 (*OJ L 323, 19.12.2022, p. 4–26*)

³ From 18 markets in 2003, only 2 markets are now considered at European level as justifying the imposition of regulatory obligations (Commission Recommendation EU/2020/8750 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (*OJ L 439, 29.12.2020, p. 23*).

market and to create legal certainty for all undertakings, in particular those investing in network deployment. It is therefore appropriate to provide guidance to NRAs aimed at preventing any inappropriate divergence in regulatory approaches, encouraging regulation focused on bottlenecks and the attenuation or complete lifting of regulatory obligations when it is justified by market developments, while allowing NRAs to take due account of national circumstances when designing appropriate remedies in those circumstances where such regulation is still necessary.

- (4) Creating regulatory predictability is essential to promoting efficient investment and innovation in very high capacity networks. Applying a consistent and stable regulatory approach over time is crucial to give investors the confidence needed to design sustainable business plans. In order to provide the necessary predictability over a longer time period, i.e. beyond the lifetime of an individual market review, NRAs should clarify, when imposing regulatory remedies under the Code, as far as possible how foreseeable changes in market circumstances might affect the relevant remedies.
- (5) The scope of this Recommendation covers the regulatory obligations to be imposed upon operators designated with Significant Market Power (SMP) on the basis of a market analysis procedure carried out under Articles 64 and 67 of the Code. As a result of the development of competition in electronic communications markets, ex ante regulation should at this stage only focus on remaining competition bottlenecks. In line with Commission Recommendation EU/2020/8750, two markets are considered to be susceptible to ex ante regulation at the EU level: the market for wholesale local access provided at fixed location (market 1) and the wholesale dedicated capacity market (market 2). This Recommendation primarily focuses on the market for wholesale local access provided at fixed location (market 1 of Commission Recommendation EU/2020/8750). This Recommendation is also applicable mutatis mutandis to other fixed wholesale access markets not included in Commission Recommendation EU/2020/8750, for which, in order to be able to regulate ex ante, the NRA needs to prove that the three criteria set out in Article 67(1) of the Code are met. This could concern, in particular, wholesale markets also encompassing or limited to central access provided at fixed location (market 3b listed in the 2014 Recommendation on relevant markets), where such markets are still regulated. This Recommendation is not, in principle, applicable to the wholesale dedicated capacity market (market 2 of Commission Recommendation EU/2020/8750) given the specific characteristics of products demanded by large and/or technologically advanced businesses, and the heterogeneity and specificity of the retail and wholesale products, and associated processes, on this market. However, the guidance provided in this Recommendation with respect to access to civil engineering infrastructure should be applicable irrespective of whether such access is imposed in the context of regulating the market for wholesale local access provided at a fixed location (market 1); of any other market, including the wholesale dedicated capacity market (market 2); or in the context of regulating a separate upstream market for access to civil engineering infrastructure when such a market has been identified and deemed susceptible to ex-ante regulation. Moreover, measures adopted by NRAs with respect, in particular, to migration to VHC networks (copper switch-off) may have an impact on market 2. Where such an impact exists, it should be duly taken into account by NRAs.
- (6) Commercial agreements, including agreements on wholesale access, co-investment agreements and reciprocal access agreements between operators, are likely to become more common in the future and should be taken into account by NRAs when assessing the competitive dynamics of a particular wholesale market. If such agreements have

been entered into on a lasting basis, are sustainable and improve competitive dynamics, they can contribute to the conclusion that a particular wholesale market no longer warrants ex ante regulation. Such market developments should therefore be duly considered by the NRA when analysing the relevant market, in particular when assessing whether it is susceptible to ex ante regulation, and whether one (or several) operators have SMP in the market.

- (7) Where a market is found not to be competitive and undertaking(s) have been designated as having SMP, the Code foresees situations whereby market-driven solutions such as self-regulation or co-regulation tools should be preferred over regulatory obligations, in particular intrusive obligations such as price control. Under certain conditions, the Code foresees the withdrawal of regulatory obligations, or the application of lighter-touch regulation, in particular in the case of co-investment offers, commercial wholesale offers or other cooperative arrangements, including those proposed by the SMP operator pursuant to Article 76, and/or Article 79 of the Code, or where the SMP operator is a wholesale-only operator (Article 80 of the Code). Furthermore, and as a general principle, NRAs should encourage and duly take into consideration market initiatives and business models that contribute to VHC network deployment while enabling sustainable competition in downstream markets.
- (8) As the deployment of alternative networks progresses, in particular at local/regional level, competitive conditions will increasingly vary between different areas of the same Member State (for instance between urban and rural areas). NRAs should take geographic differences in competitive conditions into account already at the level of market definitions
- (9) Where separate geographic markets are defined, NRAs should ensure that regulation is withdrawn in geographic markets that are found to be effectively competitive in the absence of regulation. However, in cases where such differences are either not stable enough or insufficient to define separate geographic markets, NRAs should apply geographically segmented remedies if necessary in order to solve, in a proportionate way, the competition problems identified in the various areas defined. The segmentation should be based on objective criteria, similar in nature to the ones used for geographic market segmentation, which include the number and characteristics of competing networks, distribution of and trends in market shares, prices and behavioural patterns. Geographic surveys performed under Article 22 of the Code are likely to be relevant for NRAs to perform this task.
- (10) When variations of competitive conditions are not stable enough to define separate geographic markets that would have constant boundaries throughout the validity of the market review, NRAs may define differentiated remedies in clearly defined areas, with a view to adapting regulation to the competitive conditions observed in a given area, and lift regulation when it is no longer necessary. They should update the list of areas subject to geographically segmented remedies based on the criteria thoroughly established in the market review. The parameters of these updates (their periodicity, the nature of the different remedies applied in the different areas and, where adequate, a notice period) should be defined from the start, in order to preserve the balance between the adaptation of remedies to specific competitive circumstances and the necessary predictability and transparency for all stakeholders.
- (11) Recommendation 2010/572/EU of 20 September 2010 on regulated access to Next Generation Access Networks⁴ and Recommendation 2013/466/EU of 11 September

⁴ OJ L 251, 25.9.2010, p. 35–48

2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment⁵ should be replaced by this Recommendation.

APPLICATION OF A NON-DISCRIMINATION OBLIGATION

- (12) The obligation of non-discrimination, under Article 70 of the Code, is one of the key remedies that can be imposed on SMP operators in order to promote effective competition in a relevant market. It also serves as a safeguard mechanism in those cases in which SMP still exists but competition is developing and hence pricing flexibility is applied.
- (13) NRAs' experience in imposing non-discrimination obligations under Article 10 of former Directive 2002/19/EC and currently under Article 70 of the Code indicate that regulatory approaches still vary across the Union. Nevertheless, there is a broad agreement that the non-discrimination obligation is an essential tool of *ex ante* regulation to foster competition in the presence of a vertically integrated SMP operator. Nonetheless, where the SMP operator is a wholesale-only operator meeting the conditions prescribed in Article 80(1) of the Code, it would in principle have no incentive to discriminate between downstream providers. As a consequence, NRAs should refrain from imposing non-discrimination obligations on wholesale-only operators, unless they establish that there are specific circumstances that justify imposing such obligations.
- (14) Equivalence of Inputs (EoI) is in principle the surest way of achieving effective protection from discrimination; in practice, however, its advantages over Equivalence of Output (EoO) may vary considerably from one wholesale access product to the next. Where the NRA finds that EoI would not be proportionate for a given product or process, a well-crafted EoO regime, with appropriate monitoring and suitable KPIs/SLAs/SLGs, can in many cases be adequate and contribute to the further development of competition. For both EoO and EoI, the effectiveness of the non-discrimination obligation is heavily dependent on (1) the quality of the Reference Offer, (2) the degree to which KPIs, SLAs and SLGs are comprehensive, effective, and reflect the real needs of alternative operators; and (3) the effectiveness of monitoring and enforcement of non-discrimination obligations on the part of the NRA.
- (15) NRAs should encourage the SMP operator(s) to offer commitments under Article 79 of the Code with a view to ensuring an effective and efficient application of the non-discrimination obligation. NRAs should assess the costs and benefits of imposing the provision of regulated wholesale inputs on an EoI basis, compared to other forms of non-discrimination obligations, in particular EoO. While providing regulated EoI is likely to trigger higher compliance costs than other forms of non-discrimination, the cost-benefit analysis should also factor in long term monitoring costs of NRAs, which might be higher for EoO and in some instances outweigh the implementation costs in the long term. A case by case proportionality assessment of EoI versus EoO should therefore be undertaken. In practice, NRAs need to take into account a number of factors (e.g. a quantitative cost/benefit analysis, including implementation costs both for the SMP operator and the access seeker, qualitative estimation of the need to ensure 'stricter' non-discrimination for the wholesale access products at stake) when determining if the obligation of EoI is likely to be implemented in practice as it depends on the wholesale products in question. In particular, NRAs might consider

⁵ OJ L 251, 21.9.2013, p. 13–32

that the provision of wholesale inputs over new systems on an EoI basis is more likely to create sufficient net benefits, and thus be proportionate, given the comparatively lower incremental compliance costs to ensure that newly built systems are EoI-compliant. On the other hand, national regulatory authorities should also consider whether obligations are proportionate for affected undertakings, for example, by taking into account implementation costs and weighing up possible disincentives to the deployment of new systems, relative to more incremental upgrades, in the event that the former would be subject to more restrictive regulatory obligations. In Member States with a high number of small-scale undertakings designated as having SMP, the imposition of EoI on each of those undertakings can be disproportionate. In general it is assumed that a wholesale product is built up from various inputs (such as assets, IT processes, etc.), in practice, the boundary between EoI and EoO at product level will not be clear-cut and EoI is unlikely to be implemented across all of the inputs to wholesale products.

- (16) When imposing a non-discrimination obligation under Article 70 of the Code, in order to ensure its effective application, NRAs should require the SMP operator to implement KPIs, corresponding SLAs alongside KPIs, and corresponding SLGs, in case of a breach of the SLAs. A mechanism to update the KPIs, SLAs and SLGs whenever needed should be in place. When necessary, NRAs should require the SMP operator to include in the reference offer the KPIs, SLAs and SLGs.
- (17) KPIs play a key role in ensuring effective monitoring of non-discrimination. The process of monitoring KPIs should be fully transparent. NRA should make public any reports and/or decisions to remedy non-compliance. Indeed, almost all NRAs mandate KPIs to be available to all authorised operators (systematically or on request)⁶. Aggregated values are available and operators can compare KPIs to the industry average. Also penalties related to KPIs must be proportional, but should be large enough to be dissuasive. In assessing whether the level of wholesale penalties is sufficiently dissuasive, the NRA should bear in mind that a breach of wholesale obligations on the part of the SMP operator may cause the alternative operator that uses the wholesale access product to be subject to indemnities imposed by the same NRA for problems at the retail level – the wholesale penalty should be large enough to cover the retail indemnity.

ACCESS TO CIVIL ENGINEERING INFRASTRUCTURE

- (18) Effective access to civil engineering infrastructure is of prime importance for the deployment of VHC networks. Aside from symmetric or asymmetric regulation imposed pursuant to the Code, providers of electronic communications networks can require access, on fair and reasonable terms, to the existing physical infrastructure of network operators including those operating in other sectors than the electronic communications sector, following Member States' transposition into national law of Directive 2014/61/EU [*or its replacement - placeholder for Gigabit Infrastructure Act, if adopted before the recommendation*]. According to Article 67(2) of the Code, when carrying out market analyses NRAs should take into account, inter alia, the impact of other types of regulation or measures imposed. National measures transposing Directive 2014/61/EU [*placeholder for Connectivity Infrastructure Act, if adopted before the recommendation*], even though this directive is not an instrument intended to address competition problems, are relevant in this regard and NRAs should assess

⁶ In one Member State only aggregated values are available and operators can compare KPIs to the industry average, BEREC BOR (16) 219, p.42.

their effects on the relevant markets. Notwithstanding, where the operator holding SMP controls a well-developed civil engineering infrastructure that can be reused for deployment of VHC networks and to which no equivalent alternative exists, the application of national measures transposing Directive 2014/61/EU [placeholder for Connectivity Infrastructure Act, if adopted before the recommendation] would generally not be sufficient adequately to address the competition problems identified in the market analysis.

- (19) In accordance with the legal principle of *lex specialis*, whenever an asset is subject to an access obligation under the Code, in particular under the asymmetric regulation, this obligation prevails over the one that results from national measures transposing Directive 2014/61/EU [placeholder for Connectivity Infrastructure Act, if adopted before the recommendation]. Consequently, the regulatory access obligation to the civil engineering infrastructure of an operator holding SMP takes precedence over access requirements resulted from national measures transposing Directive 2014/61/EU [placeholder for Connectivity Infrastructure Act, if adopted before the recommendation].
- (20) According to Article 73(2) of the Code, before imposing any access obligation on networks the NRAs should assess whether imposing access to civil engineering infrastructure alone would be proportionate to promote competition and end-users' interests. This is likely to be the case where access to civil engineering infrastructure controlled by the SMP operator enables the development of end-to-end infrastructure-based competition. Moreover, under certain market conditions⁷, NRAs may define a separate market for civil engineering infrastructure.
- (21) In some Member States, regulated access to ducts has played a key role in the deployment of VHC networks. As such deployment materialises in urban areas and gradually moves towards more rural areas, regulated access to poles will increase its relevance. Furthermore, Article 72 of the Code allows for extensive access to civil engineering infrastructure, going beyond the assets strictly corresponding to the downstream product market.
- (22) In order to contribute to the achievement of the connectivity targets set out by the [proposal for a] Digital Decade Policy Program [placeholder for the DPP decision] access conditions to the civil engineering infrastructure of the SMP operator should enable all access seekers that deploy VHC networks to roll out these networks at large scale across the territory. For this reason, NRAs should ensure that, for instance, the SMP operator provides pre-set forms for access requests to its civil engineering infrastructure, requests from access seekers, where necessary, documents and information in standard format, and uses automated tools to deal with such access requests. Likewise, NRAs should ensure that the SMP operator permits access requests for multiple locations simultaneously, responds to such requests at short notice and enables full exchange of necessary data with access seekers via electronic means.
- (23) The effectiveness of regulated access to the civil engineering infrastructure of the SMP operator is highly reliant on the availability for access seekers of information about the location, spare capacity and availability of said infrastructure. Where the relevant information is contained in an internal database of the SMP operator, all access seekers, including the SMP operator's retail arm, should be provided with equivalent access to this database. The access of alternative operators to the SMP operator's

⁷ Staff Working Document accompanying Commission Recommendation EU/2020/8750, C(2020) 8750 final

database should not be denied on grounds of information confidentiality. Depending on national circumstances, the SMP operator could be required to fulfil its regulatory obligation to make available information on its civil engineering infrastructure via the Single Information Point (SIP) provided for by Directive 2014/61/EU [*placeholder for Connectivity Infrastructure Act, if adopted before the recommendation*]. The SMP operator could reduce in this way its costs of compliance, as it might not need to maintain a separate database or web portal for regulatory purposes. Access seekers paying for access to the SMP operator's data base or web portal might also reduce their costs, as in general access to the SIP is free of charge. Access seekers could also have efficiency gains, as the SIP would contain not only information on the SMP operator's civil engineering infrastructure, but also on existing physical infrastructure of other entities.

NON-IMPOSITION OF REGULATED WHOLESALE ACCESS PRICES ON VHC NETWORKS

- (24) NRAs that consider imposing price control obligations with respect to VHC networks should carefully assess the appropriateness and proportionality of such obligations, taking into account in particular their possible impact on incentives to invest in VHC networks, and the need to protect competition. In conducting this assessment, NRAs should take into consideration market initiatives, including binding commitments proposed by SMP operators under Article 79 of the Code, that allow parties to diversify the investment risk while enabling sustainable competition in the downstream markets. The implementation of functional or voluntary separation in accordance with Article 78 of the Code should be duly taken into account in the assessment of the appropriateness of not imposing price regulation on VHC wholesale access inputs.
- (25) Taking into account the rate of materialisation of demand for the provision of very high capacity services, it is important, in order to promote connectivity and access to, and take-up of, very high capacity networks, to allow those operators investing in very high capacity networks a certain degree of pricing flexibility. Such pricing flexibility is necessary to enable SMP operators to test price points and conduct appropriate penetration pricing. It also allows SMP operators and access seekers to share some of the investment risk by differentiating wholesale access prices according to access seekers' chosen level of commitment. This could result in lower prices for long-term agreements with volume guarantees, which could reflect access seekers taking on some of the risks associated with uncertain demand. In addition, pricing flexibility at wholesale level is necessary to allow both the access seeker and the SMP operator's retail business to introduce price differentiation on the retail broadband market in order better to address consumer preferences and foster penetration of very high-speed broadband services. Given that competition, and in particular infrastructure competition, has significantly progressed in many markets and areas across Europe since the adoption of Recommendation 2013/466/EU, there is room to apply pricing flexibility on a significantly larger scale than has been the case hitherto. As a result, it is expected that price control obligations will become exceptional with respect to access to VHC networks.
- (26) With respect to VHC networks, NRAs should consider not imposing or lifting price control obligations pursuant to Article 74 of the Code, provided that sufficient competitive safeguards are in place. Such competitive safeguards are necessary to

prevent such pricing flexibility leading to excessive prices in markets where SMP has been found, and/or to practices undermining competition.

- (27) First, a demonstrable retail price constraint resulting from infrastructure competition or a price anchor stemming from other regulated access products, or both, should be present. In the case where an operator would still have SMP, such a demonstrable retail price constraint would not be sufficiently strong to conclude that the relevant wholesale market is effectively competitive. This retail price constraint, however, should prevent the operator that has SMP at the wholesale level from setting excessive retail prices. Moreover, pricing flexibility should be accompanied by additional safeguards to protect competition. To this end, effective non-discrimination obligations should be complemented by guaranteed economic replicability of downstream products.
- (28) The demonstrable retail price constraint can result from the presence of alternative infrastructure and the services provided over this infrastructure. Moreover, in the context of increasing VHC networks coverage and more granular geographic analysis, emerging or prospective infrastructure-based competition could also be found to sufficiently constrain the SMP's operators' ability to raise its prices. Where VHCN deployment has not yet started within the area, NRAs should assess the likelihood and viability of future VHC network deployment. In order to assess the likelihood of future deployments within a given area, the NRA should, inter alia, be able to refer to the information collected for the purpose of Article 22 of the Code, provided that planned deployments are considered sufficiently credible and there is no risk of their being frustrated by anti-competitive strategies of the SMP operator. The existence of effective regulated access to civil engineering infrastructure, following the principles set out in the present Recommendation, is an important factor that can contribute to making infrastructure competition a viable and realistic prospect within the review period.
- (29) Furthermore, a demonstrable retail price constraint can also result from a price anchor stemming from other regulated access products which are subject to cost orientation. Where copper-based products (including VULA products provided over an upgraded copper network) are still able to exert a demonstrable retail price constraint over VHC networks on a forward-looking basis, these products should be defined as the regulated anchor. Where the product offered by the SMP operator on the legacy access network is no longer able to exercise a demonstrable retail price constraint on the VHC wholesale product (for example in the event of a copper switch-off, or where the NRA finds that retail products provided over copper are not substitutable with those provided over VHC networks), it could be replaced by a VHC-based product, such as an entry-level fibre product. The technical performances of this regulated product should be limited to what is required to exert a demonstrable retail price constraint. The NRA should therefore identify the technical characteristics of this virtual, or active, anchor product with a view to ensuring that pricing flexibility is preserved for other VHC-based products providing higher levels of performance.
- (30) In order to establish whether access seekers can economically replicate a downstream offer provided by the SMP operator using the regulated wholesale input available, in cases where wholesale price regulation is not imposed the NRA should undertake an economic replicability test. Such a test is without prejudice to ex-post margin squeeze tests applied pursuant to competition law by the Commission and/or national competent authorities.

- (31) In addition, NRAs may also apply an ex ante margin squeeze test to regulated wholesale inputs where necessary, in particular in the context of long-term pricing and volume discounts, or in order to ensure adequate economic space between different regulated wholesale inputs. NRAs should specify in advance the methodology they will follow to conduct these tests. The guidance provided in this Recommendation with respect to the economic replicability test does not apply to such cases.
- (32) The purpose of the economic replicability test is to ensure, in combination with other competition safeguards, that SMP operators do not abuse pricing flexibility in order to exclude actual and potential competitors from the market.
- (33) NRAs should ensure that the margin between the retail price of the SMP operator and the price of the VHC wholesale input covers the incremental downstream costs and a reasonable percentage of common costs. Where wholesale price regulation for VHC wholesale inputs is not imposed on the SMP operator and additional safeguards are implemented in accordance with this Recommendation, a lack of economic replicability can be demonstrated by showing that the SMP operator's own downstream retail arm could not trade profitably on the basis of the upstream price charged to its competitors by the upstream operating arm of the SMP operator ('equally efficient operator' (EEO) test). The use of the EEO standard enables NRAs to support the SMP operator's investments in VHC networks and provides incentives for innovation in VHC-based services.
- (34) The possibility to apply a scale adjustment to the economic replicability test should be used where justified by specific market circumstances. This could be the case in particular where market entry or expansion has been frustrated in the past or where very significant imbalances in terms of economies of scale and scope exist between the SMP operator and its competitors. In such cases, NRAs should determine the scaling factor with care in order to ensure that efficient competitive entry and economic replicability are a realistic prospect.
- (35) The NRA should set out and make public in advance in its adopted measure following a market analysis the procedure and parameters it will apply when carrying out the ex-ante economic replicability test. The NRA may carry out the test before the launch of a new retail offer by the SMP operator, e.g. if the NRA considers it appropriate to align the timing of the economic replicability test with the technical replicability test if this is also undertaken before launch. The NRA does not need to carry out the test for each and every new retail offer but only in relation to those flagship products which it identifies. An NRA may carry out the test at its own initiative, for example in the initial stages of the implementation of a measure that allows pricing flexibility on VHC networks, particularly where regulated wholesale access prices were imposed in the past, or to respond to changes in the structure of the market, for example as a result of technological developments.
- (36) The economic replicability test can be applied either to individual products (which can either be bundled offers or stand-alone products, for instance an internet-only offer) or to a portfolio of products (which is a set of individual products). A portfolio approach provides the SMP operator with more flexibility in the pricing of individual products and may better reflect market realities, for example in Member States with mature markets in which competition in the relevant segments of the product market mainly concerns a specific set of retail products in each segment. However, in Member States with less mature VHCN markets and characterised by a high degree of concentration

and/or very high degree of market power of the SMP operator, the portfolio approach may not be appropriate.

- (37) The economic replicability test set out by the NRA in advance should be adequately detailed and should include, at a minimum, a set of relevant parameters in order to ensure predictability and the necessary transparency for operators. NRAs should apply an LRIC + model while taking into account the SMP operator's audited downstream costs, and assess the margin earned between the most relevant retail products including broadband services (flagship products) and the regulated VHC access input most used, or identified, under a forward- looking approach, as the most relevant for delivering the retail products for the market review period in question. The design of the test, applying to the SMP operator's audited downstream costs and only for flagship products, aims to ensure that VHC network investments and the effect of the recommended pricing flexibility are not hindered by this safeguard. In order to exclude cross-subsidisation between different products in a bundle or portfolio, NRAs should conduct only a single-level test, i.e. between the retail services and the most relevant VHC access input for access seekers (for example fibre access at the cabinet or virtual unbundling). However, a new VHC access input can over time become more relevant (for example fibre unbundling at the ODF), in which case the economic replicability test should be run with reference to this new input instead of the input initially most used. Should national competitive circumstances show a difference between geographic areas in terms of the VHC network access input used (for example in rural and densely populated areas), NRAs should vary the test based on specific inputs identified as the most relevant. In this case, the economic replicability test should seek to ensure that prices for flagship retail services leave enough economic space for competitors relative to the price or prices of the main SMP wholesale access products that could be used to produce them in each geographically differentiated area.
- (38) NRAs might not be able to find the abovementioned competitive constraints across the entire defined market. Where the NRA cannot conclude that the different competitive conditions are stable over time and are such that they could justify the definition of subnational markets, NRAs should nevertheless consider responding to these diverging competitive conditions by applying differentiated remedies, e.g. by lifting wholesale price regulation only in those areas where the necessary competition safeguards apply. Where an NRA considers that competitive and regulatory conditions are such that the SMP operator is sufficiently constrained in its price setting, the NRA may refrain from imposing price regulation with respect to wholesale VHC products.

CONSISTENT APPROACHES TO PRICE CONTROL OBLIGATIONS

- (39) Where the conditions for pricing flexibility are not met and where the imposition of regulated wholesale access prices is warranted, NRAs should ensure that the costing methodology provides a clear incentive for investment through predictable and stable regulated prices.
- (40) Cost recovery is a key principle, ensuring that operators can recover the costs that are efficiently incurred and receive an appropriate return on capital invested.
- (41) A costing methodology that provides the appropriate "build-or-buy" signal strikes an appropriate balance between ensuring efficient entry (static efficiency) and sufficient incentives to invest and, in particular, to deploy VHC networks and hence deliver new, faster and better quality broadband services (dynamic efficiency).

- (42) The recommended costing methodology should ensure transparency and consistency across the EU whilst reflecting specific national circumstances. In that regard, the guidance provided in Recommendation 2013/466/EU with respect to costing methodology has been largely followed by NRAs and its main principles remain relevant, including in properly enabling to take account of prevailing and foreseeable specific economic conditions. The guidance should therefore mainly be adjusted to reflect in particular the progressive shift towards VHC networks.
- (43) The bottom up long run incremental cost plus (BU LRIC+) costing methodology best meets this objective when setting prices for wholesale access services in the markets in question. This methodology models the incremental capital (including sunk) and operating costs borne by a hypothetically efficient operator providing all access services and adds a mark-up for a strict recovery of common costs. The BU LRIC+ methodology consequently allows for the recovery of the total efficiently incurred costs.
- (44) The BU LRIC+ methodology calculates the current costs on a forward looking basis (i.e. based on up to date technologies, expected demand, etc.) that an efficient network operator would incur to build a modern VHC network today, which is able to provide all such services. Therefore, the BU LRIC+ methodology provides for efficient and reliable signals for entry.
- (45) Where cable, fibre (FTTH and FTTB) and, to a lesser extent, wireless networks are competing against copper networks, SMP operators typically react by progressively replacing their copper with VHC networks. Therefore, since operators would not build a copper network today, the BU LRIC+ methodology calculates the current costs of deploying a modern efficient VHC network.
- (46) Such an efficient VHC network would be capable of delivering the targets set out in the Digital Decade Policy Program⁸ *[placeholder for the DPP decision]*. In practice, a modern efficient VHC network would generally be an FTTH network.
- (47) Valuation of the assets of such VHC network based on current costs best reflects the underlying competitive process and, in particular, the replicability of these assets.
- (48) In contrast to assets such as the technical equipment and the transmission medium (e.g. fibre), civil engineering assets (i.e. ducts, trenches and poles) are assets that are unlikely to be replicated. Technological change and the level of competition and retail demand are not expected to allow alternative operators to deploy a parallel civil engineering infrastructure, at least where the legacy civil engineering infrastructure assets can be reused for the purpose of deploying a VHC network.
- (49) The Regulatory Asset Base (RAB) corresponding to the reusable legacy civil engineering assets would not be valued at the cost of replacing them with new civil engineering infrastructure but at the depreciated replacement cost, which would take into account their elapsed useful lifetime and thus the costs already recovered by the regulated SMP operator. As long as it is based on replacement costs this approach sends efficient market entry signals for build or buy decisions while avoiding the risk of over-recovering costs for reusable legacy civil infrastructure. A cost over-recovery would not be justified to ensure efficient entry and preserve the incentives to invest because the build option would not be economically feasible for this asset category.

⁸ Proposal for a Decision of the European Parliament And of the Council establishing the 2030 Policy Programme “Path to the Digital Decade”, COM(2021) 574 final

- (50) The indexation method would be applied to calculate such depreciated replacement cost. The preference for such method is due to its practicability, robustness and transparency. It would rely on (i) historical data on expenditure, accumulated depreciation, asset disposal which are available from the regulated SMP operator's statutory and regulatory accounts and financial reports and (ii) a price index such as the retail price index which is publicly available.
- (51) Therefore, the initial RAB corresponding to the reusable legacy civil engineering assets would be set at the regulatory accounting value, net of the accumulated depreciation at the time of calculation, indexed by an appropriate price index, such as the retail price index (RPI).
- (52) The initial RAB would be further locked in and rolled forward from one regulatory period to the next to ensure that once a non-replicable reusable legacy civil engineering asset is fully depreciated, such asset is no longer part of the initial RAB and therefore it no longer represents a cost for the access seeker, in the same way as it is no longer a cost for the SMP operator. This approach would further ensure adequate remuneration for the SMP operator and concurrently provide regulatory certainty to both the SMP operator and access seekers over time.
- (53) An alternative approach could be used in situations where the NRA has established that the indexation method would be inappropriate, in particular where the historical records of the SMP operator are unreliable, or where the civil engineering infrastructure of the SMP operator is limited or almost inexistent. In such cases, the RAB corresponding to the reusable legacy civil engineering assets may be valued on the basis of current costs adjusted for depreciation over the assets' lifetime. The NRA should ensure that the asset valuation method employed is such that civil infrastructure assets would in general not be replicated.
- (54) Pricing of access to newly built civil engineering infrastructure of the SMP operator for VHC network deployment by alternative operators could have an impact on the SMP operator's incentives to build new civil engineering infrastructure with sufficient capacity to host alternative networks. Where the new civil engineering infrastructure of the SMP operator has been deployed, within the geographic scope of the market or within the clearly established areas inside the geographic scope of the market, and co-exists with the legacy civil engineering infrastructure, NRAs should set individual prices for access to the newly built civil engineering infrastructure assets, applicable within the area concerned. The price for access to the newly built civil engineering infrastructure should reflect current market conditions and should be based on the full actual costs incurred by the SMP operator, as long as strict non-discrimination is ensured in the terms and conditions of access to such infrastructure. Such an approach would provide the right incentives for investing in new civil engineering infrastructures. Moreover, building significant new civil engineering infrastructure may represent for the SMP operator, depending on market circumstances, both in terms of incurred costs and expected revenues, a risk investment profile higher than the risk profile associated with the reuse of legacy civil engineering infrastructure. NRAs should carefully assess the relevant market circumstances and, when applicable, should reward the higher and quantifiable risk investment profile by way of a (higher) risk premium.
- (55) Active copper lines are decreasing as customers migrate to cable, fibre and/or mobile networks. Modelling a single efficient VHC network for copper and VHC access products would neutralise the inflationary volume effect that arises when, modelling a

copper network, fixed network costs must be distributed over a decreasing number of active copper lines. It allows for progressively transferring the traffic from copper to VHC networks with the deployment of and switching to VHC networks. Only traffic volume moving to other infrastructures (e.g. cable, mobile) would result in a rise in unit costs.

- (56) In light of the principle of technological neutrality and of different national circumstances, NRAs require sufficient flexibility to model such an efficient VHC network. The VHC network could therefore be based on any of the various access technologies and network topologies available to operators for rolling-out a VHC network.
- (57) An FTTH/FTTB network could be considered to be the typical form of a modern efficient VHC network. Under this approach, the cost calculated for the VHC network should be adjusted to reflect the different features of a copper network where it is necessary to determine the wholesale access price to the copper network. For this purpose, the NRAs should estimate the cost difference between an access product based on a VHC network and an access product based on copper by making the relevant network engineering adjustments in the VHC network model.
- (58) In cases where the topology of the VHC network to be modelled is different from the copper network to the extent that adjustment within the VHC network engineering model is not feasible, NRAs could obtain the copper cost by modelling an overlay network, where two parallel networks (copper and fibre) share to an extent the same network for civil infrastructure. Under this approach, the inflationary volume effect would be neutralised for civil engineering assets because the modelled copper and fibre networks would share the use of civil engineering assets and therefore the unit costs of these assets would remain stable. However, except for civil engineering assets the modelling of two parallel networks (copper and fibre) could still lead to an inflationary volume effect with regards to copper assets because of the declining traffic on the copper network.

LONG-TERM ACCESS PRICING AND VOLUME DISCOUNTS

- (59) Volume discounts and/or long-term access pricing agreements are an important tool to foster VHC network investment, in particular where take-up by consumers is still low. However, in order to ensure that market entry by efficient competitors is possible, NRAs should accept volume discounts by SMP operators to their own downstream businesses, for example their retail arm, only if they do not exceed the highest volume discount offered in good faith to third party access seekers. Equally, NRAs should accept long-term access pricing agreements by SMP operators to their own downstream businesses, e.g. its retail arm, only if they do not exceed the highest discount for long term access that has been offered in good faith to third party access seekers.

ADEQUATELY REWARDING THE INVESTMENT RISK

- (60) The weighted average cost of capital (WACC) employed should reflect the current market situation. In case the applicable WACC does not sufficiently take into account the current economic conditions (for instance a high inflation rate not reflected in the applicable WACC at the time), it could be relevant to update the applicable WACC, hereby ensuring the relevant macroeconomic parameters for the applicable WACC.

- (61) The return on capital allowed ex ante for investment into VHC networks should strike a balance between providing adequate incentives for operators to invest (implying a sufficiently high rate of return) and promoting allocative efficiency, sustainable competition and maximum consumer benefits on the other (implying a rate of return that is not excessive).
- (62) In cases of price control obligations with respect to VHC networks wholesale access products on a specific market, the regulated return allowed should adequately reflect both the cost of deploying the network as well as the risk taken by the SMP operator at the time of the investment. If the additional risk of investing into new VHC networks is not adequately reflected, the investor will hold back investments to the detriment of end-users and overall connectivity in society.
- (63) SMP operators investing into separate VHC networks projects may face a wide array of possible risks. These risks may vary significantly between types of projects and between geographical areas. Accounting for this, NRAs should acknowledge the additional risk for each project undertaken by the SMP operator. In principle, such considerations may result in multiple risk premiums being applicable, i.e. a premium for each specific VHC network project or, in cases where the projects are sufficiently similar, one common risk premium. It would be for the NRA to address, whether one common risk premium sufficiently covers the differences in each area or if several risk premiums at the same time should apply. Regardless of the approach taken, adding the project specific risk premium to the applicable WACC results in the project specific WACC.
- (64) The risk premium should be applied on top of the applicable WACC to ensure maximum transparency. Such approach is to emphasise that the risk premium only encompasses and rewards the specific additional risk in the situation for which it is intended.
- (65) Once the project specific WACC has been established, it would appear relevant to conduct a sensitivity check of the total value derived, i.e. the sum of the applicable WACC and the risk premium. Such a check could be based on expert and industry surveys or other reasonable forward-looking methods to evaluate if the derived value is aligned with reasonable investor expectations.
- (66) A project specific WACC should be evaluated at the time of the investment and should provide stability and consistency for the SMP operator. Risks and uncertainties change over time and may therefore change the NRAs perception of the risk premium allowed for the specific project.
- (67) To ensure that investors are rewarded for the risk taken at time of the investment, NRAs should allow for a stable risk premium for the specific project over a sufficiently long period of time.

MIGRATION

- (68) The Code has introduced the objective of promoting connectivity and access to, and take-up of, VHC networks and stated that unjustified delays to migration to VHC networks should be avoided. Therefore, Article 81 of the Code, that foresees the possibility of withdrawal of access obligations on the copper network to enable its switch-off, should be applied in a way that makes the migration and copper switch-off process as smooth and fast as possible, while preserving effective competition.

- (69) Once the conditions in Article 81(2) of the Code are fulfilled and a relevant notice period is respected, access obligations on the copper network may be lifted in order to allow for switch-off. Moreover, in order to encourage migration, a certain number of regulatory obligations might already be relaxed prior to the full lifting of access obligations. A prerequisite for the relaxation of certain access obligations is that the end-users and access seekers on which the relaxation will have an impact should have effective access to products on VHC networks constituting relevant alternatives to products delivered over the legacy network, in accordance with Article 81(2) of the Code. Once such access is effectively established, migration should be encouraged and switch-off should be authorized within a reasonable timeframe. The duration recommended in the 2010 NGA Recommendation (5 years) does not correspond anymore to the pace of VHC network rollout and of the migration from copper to VHC networks and should be reduced.
- (70) NRAs should ensure the availability of alternative products provided over the VHC network of at least comparable quality to those that were provided over the legacy network on the basis of Article 73 of the Code. Depending on their characteristics and on the conditions under which they are offered, wholesale access products provided over a VHC network on a commercial basis or by a different operator than the SMP operator may be considered as a relevant alternative to wholesale access products provided over the legacy network.
- (71) As part of the gradual relaxation of regulatory obligations prior to the lifting of all obligations, a commercial closure of the legacy network encourages migration and can constitute a relevant intermediary step towards full switch-off.
- (72) Predictability is a key factor in ensuring a favourable framework for investment in VHC network rollout. The recommended costing methodology contributes to this aim by neutralising, in whole or in part, the inflationary effect of end user migration from legacy to VHC networks on copper wholesale access prices.
- (73) Once a decommissioning plan has been notified by the SMP operator of the legacy network in accordance with Article 81(1) of the Code, and where the conditions set in accordance with Article 81(2) of the Code are met in a given area, the existence of a transparent timetable and conditions for the decommissioning process will ensure predictability for all stakeholders. As part of the gradual relaxation of regulatory obligations prior to the total withdrawal of these obligations in the context of the decommissioning of the copper network, NRAs may take into account the inflationary effect of the migration of customers from copper to VHC networks on the costs of the copper network by allowing the SMP operator to increase the prices of copper wholesale access products in areas where the wholesale and retail customers present on the copper network effectively have the possibility to migrate to a VHC network. This would make it possible to take into account the economic inefficiencies resulting from maintaining two networks in parallel, in order to incentivize the SMP operator of the legacy network to present a decommissioning plan and effectively proceed to decommissioning as soon as possible. By potentially bringing copper prices closer to VHC network prices, this would also incentivize end-users and access seekers to migrate to the VHC network prior to switching off services on the legacy network.
- (74) This price increase should be a transitory measure, applicable only in areas where the notice period for the copper switch-off has started. The NRA should ensure that the application of the price increase is not prolonged by any undue delay in the implementation of the switch-off plan. Where such a measure is implemented, it

should be accompanied by adequate safeguards in order to preserve competition, as laid out in paragraph 81 of the Recommendation.

HAS ADOPTED THIS RECOMMENDATION:

AIMS AND SCOPE

- (1) The aim of this Recommendation, in line with Article 3 of the Code, is to improve the regulatory conditions needed to promote connectivity and access to, and take-up of, very high capacity (VHC) networks, promote effective competition, contribute to the development of the single market for electronic communications networks and services and promote the interests of citizens of the Union. It also aims to increase legal certainty and regulatory predictability in view of the long-term horizons for investment in VHC networks.
- (2) Where, in the course of the market analysis procedures carried out under Articles 64 and 67 of the Code, national regulatory authorities (NRAs) determine that a market referred to in [paragraph 8] below is not effectively competitive and identify undertakings that individually or jointly have significant market power (SMP) on that market (as SMP operator(s)), they shall assess what are the proportionate and appropriate obligations to be imposed pursuant to Article 68 of the Code.
- (3) This Recommendation concerns the application of the obligations mentioned in Article 68 par.1 of the Code and sets out a common approach for promoting their consistent and effective implementation with regard to legacy and VHC networks where they allow for the provision of broadband services.
- (4) This is without prejudice to the treatment of situations justifying the withdrawal of regulatory obligations, or market-driven solutions in accordance with the provisions of the Code, in particular in the presence of co-investment offers, commercial wholesale offers or other cooperative arrangements, including those proposed by the SMP operator pursuant to Article 76, and/or Article 79 of the Code, or where the SMP operator is a wholesale-only operator in the sense of Article 80 of the Code.
- (5) In particular, NRAs should encourage and duly take into consideration the provisions of the Code under which market initiatives, including commercial agreements and cooperative arrangements, and business models can contribute to VHC network deployment, by diversifying the risk of investment, while enabling sustainable competition in the downstream markets.
- (6) Where the SMP operator opens a new VHC network to co-investment under Article 76 of the Code, in accordance with the conditions and procedures set out in Articles 76 and 79 of the Code, the commitment shall be made binding and no additional obligation shall, in principle, be imposed with respect to the VHC network elements subject to the commitments.
- (7) Without prejudice to Article 76 of the Code, the existence of commercial agreements and cooperative arrangements (including those to which the SMP operator is not a party) should be duly taken into account by the NRA also when considering the imposition of possible regulatory obligations on SMP operators. This is the case in particular, but not only, where the SMP operator offers legally binding commitments regarding conditions for access, including cooperative arrangements. In particular, in areas where commercial agreements and/or legally binding commitments pursuant to which access to a VHC network is available to third parties, NRAs should assess whether the terms and conditions proposed by the SMP operator can be considered

fair and reasonable and whether the agreements or commitments can preserve competition. Where this is the case, NRAs should consider monitoring the impact of these agreements and refrain from introducing intrusive remedies, in particular price control obligations. Such price control obligations should be considered by NRAs only where necessary to address significant competition problems emerging on the market.

- (8) The principles set out in this Recommendation apply to the market for wholesale local access provided at a fixed location (market 1 of the Recommendation (EU) 2020/2245). The principles set out in this Recommendation also apply to other wholesale fixed access markets identified by NRAs, which are not included in the Recommendation (EU) 2020/2245 but are susceptible to ex ante regulation, and cover the following network layers: (i) access to the civil engineering infrastructure, (ii) unbundled access to the copper and fibre loops, or the copper sub-loop, (iii) virtual network access, and (iv) wholesale broadband access (bitstream services) over copper and fibre networks. This Recommendation is not applicable to the wholesale dedicated capacity market (market 2 of the Recommendation (EU) 2020/2245), except where, and to the extent that, access to civil engineering infrastructure is regulated on the basis of an SMP finding in this market.

DEFINITIONS

- (9) For the purpose of this Recommendation, the relevant definitions in the Code shall apply. The following definitions shall also apply:
- (a) ‘Bottom-up modelling approach’ means an approach that develops a cost model starting from the expected demand in terms of subscribers and traffic. It then models the efficient network required to meet the expected demand, and assesses the related costs using a theoretical network-engineering model, for the purpose of calculating the cost on the basis of an efficient network using the latest technology employed in large-scale networks.
 - (b) ‘Civil engineering infrastructure’ encompasses physical infrastructure assets and other facilities that could host electronic communications networks elements. Civil engineering infrastructure includes, but is not limited to, buildings or entries to buildings, building cables, including wiring, antennae, towers and other supporting constructions, poles, masts, ducts, conduits, inspection chambers, manholes, and cabinets.
 - (c) ‘Commercial closure’ means the stage of the decommissioning process where the SMP operator stops selling, at wholesale and retail level, new accesses on the legacy network infrastructure to be decommissioned.
 - (d) ‘Common costs’ are shared costs for products or services produced jointly which are not attributable to any single product or service.
 - (e) ‘Current costs’ means the costs resulting from valuing an asset at its replacement cost, i.e. the cost of replacing it with either the same asset or another asset of similar performance characteristics, allowing for wear and tear and adjustments for efficiency.
 - (f) ‘Depreciation methods’ are methods for allocating the value of an asset over the life of the asset, thus influencing the profile of the allowable earnings for the asset owner in any given period.

- (g) ‘Downstream costs’ are the costs of retail operations, including marketing, customer acquisition, billing, and other network costs, incurred in addition to those network costs already included in the wholesale access service.
- (h) ‘Equivalence of Inputs (EoI)’ means the provision of services and information to internal and third-party access seekers on the same terms and conditions, including price and quality of service levels, within the same time scales using the same systems and processes, and with the same degree of reliability and performance. EoI as defined here may apply to the access products and associated and ancillary services necessary for providing the ‘wholesale inputs’ to internal and third-party access seekers.
- (i) ‘Equivalence of Output (EoO)’ means the provision to access seekers of wholesale inputs comparable, in terms of functionality and price, to those the SMP operator provides internally to its own downstream businesses albeit using potentially different systems and processes.
- (j) ‘Incremental costs’ are costs that are directly associated with the production of a business increment, i.e. the additional cost of supplying a service over and above the situation where the service was not provided, assuming all other production activities remain unchanged.
- (k) ‘Key Performance Indicators (KPIs)’ are indicators that measure the level of performance in the provision of the relevant wholesale services.
- (l) ‘Long Run Incremental Costs (LRIC)’ means the incremental costs corresponding to a time horizon where all factors of production, including capital equipment, are variable in response to changes in demand due to changes in the volume or in the structure of production. Therefore all investments are considered as variable costs.
- (m) ‘Mark-up’ means the addition made to the incremental cost of a specific service in order to allocate and recover the common costs through allocation to all services for which those common costs are relevant.
- (n) ‘New retail offer’ means any new retail offer of services, including bundles of services, by an SMP operator based on already existing or new regulated ‘wholesale inputs’.
- (o) ‘Regulatory accounting value’ is the value of an asset as recorded in the audited regulatory accounts of an undertaking which considers actual utilisation and lifetimes of the assets, which are typically longer than those recorded in statutory accounts and which are more in line with technical lifetimes.
- (p) ‘Regulatory Asset Base (RAB)’ means the total capital value of the assets used to calculate the costs of the regulated services.
- (q) ‘Non-reusable civil engineering assets’ are those legacy civil engineering assets that are used for the copper network but cannot be reused to accommodate a VHC network.
- (r) ‘Reusable civil engineering assets’ are those legacy civil engineering assets that are used for the copper network and can be reused to accommodate a VHC network.
- (s) ‘Service Level Agreements (SLAs)’ means commercial agreements under which the SMP operator is obliged to provide access to wholesale services with a specified level of quality.

- (t) ‘Service Level Guarantees (SLGs)’ form an integral part of SLAs and specify the level of compensation payable by the SMP operator if it provides wholesale services with a quality inferior to that specified in the SLA.
- (u) Very high capacity network (VHC network)’ means a network as defined in Article 2(2) of Directive (EU) 2018/1972.
- (v) ‘VHC networks-based wholesale layer’ means a network layer at which access is granted to access seekers on a VHC-based network and where several ‘wholesale inputs’ can be provided.
- (w) ‘Weighted average cost of capital (WACC)’ represents the percentage-value the investor demands to be compensated for an investment.
- (x) ‘Wholesale inputs’ means an access product required for access seekers to supply end-users with a broadband service on a retail market and consisting of an active or passive product or a virtual access product offering equivalent functionalities to a passive access product. Wholesale inputs can be provided over legacy copper network infrastructures or VHC-based infrastructures.

GEOGRAPHIC SEGMENTATION OF REMEDIES

- (10) Where geographic differences in the conditions of competition are insufficient, or not stable enough, to lead to the definition of separate geographic markets, NRAs should impose, where justified, differentiated remedies per geographic area within a given geographic market.
- (11) The criteria that NRAs may use for geographic segmentation of remedies can be the same as those used for geographic segmentation of markets and include in particular the number and characteristics of competing networks, distribution of and trends in market shares, prices and behavioural patterns.
- (12) When NRAs differentiate remedies because differences in the conditions of competition are not stable enough to define separate geographic markets, they should consider updating the resulting segmentation periodically, and potentially annually, within the period of validity of the market analysis in which the segmentation is applied. The conditions of such updates should be clearly defined in the said market analysis itself, and should be based on the same criteria as those used for the initial geographic segmentation of remedies.

NON-DISCRIMINATION

Ensuring equivalence of access

- (13) The surest way to achieve effective non-discrimination and promote competition is, in principle, by the application of ‘equivalence of input’ (EoI), which ensures a level playing field between the SMP operator’s downstream businesses and third-party access seekers. Where NRAs consider the imposition of a non-discrimination obligation on SMP operators pursuant to Article 70 of the Code, they should examine whether it would be proportionate to require SMP operators to provide relevant wholesale inputs on an EoI or equivalence of output (‘EoO’) basis.
- (14) In conducting such proportionality assessment, the NRA should take into account, inter alia: (i) incremental costs and compliance delays resulting from the application of EoI or EoO respectively, including the costs of monitoring non-discrimination; (ii) the potentially linked non-imposition of regulated wholesale access prices on VHC

- networks; (iii) the potentially positive effect the application of strict non-discrimination in the form of EoI or EoO might have on investment in VHC networks, innovation and competition; (iv) any voluntary commitment by the SMP operator to provide wholesale inputs to access seekers on an EoI or EoO basis, as long as such voluntary offer meets the conditions set out in this Recommendation; and (v) the number and size of the SMP operator(s).
- (15) Where proportionate, strict non-discrimination in the form of EoI or EoO should be applied at the most appropriate level(s) in the value chain to those wholesale inputs which the SMP operator provides to its own downstream businesses. In general, NRAs should justify their choices between EoI and EoO on a wholesale product by product basis, taking national circumstances into account. If, however, a single wholesale input is used in multiple retail products, then the decision should be made on an input by input basis.
- (16) When considering the application of EoI, NRAs should first consider introducing it at the deepest possible network level at which competition will be effective and sustainable in the long term. Where civil engineering infrastructure access is imposed pursuant to paragraphs [30 to 37], NRAs should carefully consider the benefits and costs of implementing EoI for civil engineering infrastructure, taking into account in particular how such a measure could contribute to enabling infrastructure-based competition.
- (17) NRAs should ensure that when a non-discrimination obligation is imposed, access seekers can use the relevant systems and processes with the same degree of reliability and performance as the SMP operator's own downstream retail arm.

Ensuring technical replicability of the vertically integrated SMP operator's new retail offers

- (18) NRAs should require SMP operators which are subject to a non-discrimination obligation to provide access seekers with regulated wholesale inputs that allow the access seeker effectively to replicate new retail offers of the downstream retail arm of the SMP operator from a technical perspective, in particular where strict non-discrimination based on EoI is not fully implemented.
- (19) To that end, and in order to guarantee a level playing field between the SMP operator's downstream retail arm and third-party access seekers, NRAs should ensure that internal and third-party access seekers have access to the same technical and commercial information regarding the relevant regulated wholesale input, without prejudice to applicable rules regarding business confidentiality. The relevant information includes information on new regulated wholesale inputs or on changes to existing regulated wholesale inputs, to be provided in accordance with lead-times defined on a case-by-case basis.
- (20) When assessing the technical replicability of the SMP operator's new retail offer, the NRA should take into account: (i) whether the corresponding wholesale input(s) for ordering, delivery and repair necessary for an efficient operator to develop or adapt its own systems and processes in order to offer competitive new retail services are made available to access seekers and (ii) the availability of corresponding SLAs and KPIs.
- (21) The required technical replicability test can be carried out by either the SMP operator or the NRA. If the SMP operator conducts the technical replicability test itself, the NRA should require the SMP operator to provide it with the results of the test

including all information needed to demonstrate that technical replicability is fully ensured, with sufficient notice for the NRA to validate the results of the test and for access seekers to be able to replicate the relevant retail offer in a timely fashion should they choose to do so.

- (22) Alternatively, if the NRA conducts the technical replicability test, it should require the SMP operator to notify to the NRA the details of the new retail offers that make use of a relevant particular regulated wholesale input together with all information needed for the NRA to assess replicability, with sufficient notice prior to the launch of such retail offers. Such notice should be sufficient for the NRA to conduct the technical replicability test and for access seekers to be able to replicate the relevant retail offer in a timely fashion should they choose to do so.
- (23) Where the NRA considers that technical replicability of the new retail offer is not ensured, it should require the SMP operator to amend the relevant regulated wholesale input(s) in a way that ensures technical replicability.
- (24) If the NRA considers that a retail offer which is not technically replicable would result in significant harm to competition, it should require, under Article 30 of the Code, the SMP operator to withdraw or delay the provision of the relevant retail offer pending compliance with the requirement of technical replicability.

Compliance monitoring of non-discrimination obligations

- (25) When imposing a non-discrimination obligation under Article 70 of the Code, in order to ensure compliance and effective application, NRAs should require the SMP operator to implement KPIs, SLAs alongside KPIs, and SLGs in case of a breach of the SLAs, in accordance with the principles set in Annex [I]. A mechanism to update the KPIs, SLAs and SLGs whenever needed should be in place. When necessary, NRAs should require the SMP operator to include the KPIs, SLAs and SLGs in the reference offer.
- (26) NRAs should encourage and duly consider any commitments proposed by the SMP operator in relation to non-discrimination in accordance with Article 79 of the Code. Such commitments can be proposed in particular in relation to KPIs, SLAs and SLGs, including for their conditions, in particular when access seekers agree with the proposals advanced by the SMP operator. NRAs should use their powers to foster the proposal of commitments by the SMP operator. NRAs should foster a multi-stakeholder dialogue between the SMP operator and access seekers to reach an agreement on a comprehensive set of KPIs, SLAs and SLGs, as well as on their terms and conditions, including an appropriate interval for updating the KPIs, SLAs and SLGs.

Monitoring by the NRA

- (27) NRAs should ensure that the principle of equivalence is effectively applied. Where KPIs indicate that the SMP operator may not be complying with its non-discrimination obligation, the NRA should intervene by investigating the matter in more detail, and where necessary enforce compliance. NRAs should make public, for example on their website, decisions to remedy non-compliance.
- (28) In addition to KPI reports, NRAs should ensure that SMP operators keep track of all elements necessary to monitor compliance with the equivalence of access requirement. This information should allow NRAs to run regular controls, verifying that the SMP operator provides the required level of information to third-party access

seekers and that the procedures, in particular for ordering and provisioning are correctly applied.

Asymmetry of information

- (29) When the wholesale arm of the SMP operator has prior knowledge of access seekers' deployment plans, NRAs should ensure such information is not shared with the retail arm of the SMP operator, to prevent the SMP operator from gaining an undue competitive advantage. NRAs at a minimum should ensure that the personnel involved in the retail activities of the SMP operator do not participate in company structures of the SMP operator responsible, directly or indirectly, for managing access to wholesale inputs. NRAs should require the SMP operator to provide an annual report documenting its practices to prevent the sharing of sensitive information between its wholesale and retail arms, any allegations of violation, and any corrective actions that it has taken.

ACCESS TO CIVIL ENGINEERING INFRASTRUCTURE OF THE SMP OPERATOR

- (30) Where necessary and proportionate to address the competition problems identified, and where capacity is available in the civil engineering infrastructure of the SMP operator, NRAs should mandate access to civil engineering infrastructure pursuant to Article 72 of the Code. Such obligation may only be imposed in geographic markets where the operator has been identified as having SMP. When imposing the access obligation, NRAs should consider all assets and facilities, underground and aerial, which form part of the civil engineering infrastructure of the SMP operator.
- (31) Except in specific circumstances such as where the civil engineering infrastructure owned or controlled by the SMP operator is non-existent or extremely limited or where the NRA duly establishes that the demand for access to civil engineering infrastructure owned or controlled by the SMP operator is non-existent or very limited, provisions implementing Directive 2014/61/EU [placeholder for Connectivity Infrastructure Act, if adopted before the recommendation] are likely not to be sufficient to address competition problems identified in market analyses carried out under Articles 64 and 67 of the Code.
- (32) NRAs should consider mandating access to civil engineering infrastructure before imposing any network specific access obligations pursuant to Article 73 of the Code. In particular, access to civil engineering infrastructure as the only access remedy is likely to be sufficient to address the competition problems identified where:
- (a) the SMP operator has control over an extensive civil engineering infrastructure enabling alternative operators to deploy their own VHC network up to end user premises, without prejudice to the sharing of in-house wiring pursuant to Article 61(3) of the Code; and
 - (b) a sufficient degree of end-to-end infrastructure-based competition has emerged or there is a viable and realistic prospect that such competition will emerge within the period covered by the review.
- (33) Where the prospect for end-to-end infrastructure-based competition is viable and realistic but such competition has not yet materialised, NRAs should assess whether it is necessary to impose or to maintain, on a transitory basis, network specific access obligations before solely relying on regulated access to civil engineering infrastructure. In such a case, NRAs should establish an appropriate transition period

for the application of network specific access obligations before relying solely on regulated access to civil engineering infrastructure, in order to allow an efficient operator sufficient time to duplicate the access network.

- (34) NRAs should ensure that access to existing civil engineering infrastructure is provided in accordance with the principles set out in [Annex II], and at cost-oriented prices in accordance with the recommended costing methodology set out [in paragraphs 45 to 56].
- (35) Where there is a request for a reference offer for access to civil engineering infrastructure, NRAs should require such an offer to be made available as soon as possible. The reference offer should be in place no later than six months after a request has been made.
- (36) NRAs should, in accordance with market demand, encourage, or, where possible under national law, oblige the SMP operator, when building civil engineering infrastructure, to install sufficient capacity so that other operators can also make use of these facilities.
- (37) NRAs should work with other authorities with a view to establishing a database containing information on the geographical location, available capacity and other physical characteristics of all civil engineering infrastructure which could be used for the deployment of VHC networks in a given market or market segment. Such a database should be accessible to all operators.

NON-IMPOSITION OF REGULATED WHOLESALE ACCESS PRICES ON VHC NETWORKS

- (38) The NRA should decide not to impose or maintain regulated wholesale access prices on VHCN wholesale inputs, pursuant to Article 74 of the Code, in instances where – as part of the same measure – the NRA imposes on the SMP operator non-discrimination obligations concerning VHCN wholesale inputs, pursuant to Article 70 of the Code, that are consistent with:
 - (a) EoI, or, EoO where the NRA has established that EoI obligations would be disproportionate and that EoO obligations would be sufficient to ensure effective non-discrimination ;
 - (b) obligations relating to technical replicability and appropriate monitoring mechanisms, in accordance with paragraphs [18 to 26] when EoI is not fully implemented; and
 - (c) obligations relating to the economic replicability test as recommended in paragraphs [43 and 44];

and under the condition that there is a demonstrable retail price constraint resulting from either:

- (d) infrastructure-based competition, either from the provision of retail services over one or more alternative infrastructures that are not controlled by the SMP operator; or from emerging or prospective infrastructure-based competition, in areas where the deployment of alternative infrastructures has started and is expected to cover a significant part of the area within the market review period, or in areas where the deployment of alternative networks would be realistic and viable, in particular where such infrastructure competition is enabled by effective and non-discriminatory access to civil engineering following the

conditions set out in paragraphs [30 to 37]; or, in the absence of a demonstrable retail price constraint resulting from infrastructure-based competition,

- (e) a regulated anchor, defined by the NRA in accordance with paragraphs 41 and 42, and subject to a cost-oriented price control obligation in accordance with the costing methodology specified in paragraphs [45 to 56].
- (39) In markets where the conditions listed in paragraph 38 are fulfilled only in certain areas, NRAs should differentiate remedies and maintain or impose price control obligations in accordance with Article 74 of the Code only in those areas where such conditions are not fulfilled. NRAs should implement the recommended costing methodology so that the outcome is not affected by the imposition of differentiated remedies within a particular geographic market.
- (40) The conditions set out in paragraph 38 should not be seen as the only circumstances under which NRAs can decide not to impose regulated access prices for VHCN wholesale inputs. Depending on the demonstration of effective non-discrimination and on competitive conditions, there may be other situations where the imposition of regulated wholesale access prices is not warranted under the Code. In particular, and in line with paragraph 70 this may be the case in situations where the business case to deploy a VHC network would be marginally viable even absent regulation, for instance in areas of lower population density.

Definition of the characteristics of the regulated anchor

- (41) The regulated anchor is a cost oriented wholesale access product which constrains VHC prices in such a way that related services will be priced in accordance with consumer willingness to pay a premium for the additional capacity and functionalities which a VHC based retail product can provide in comparison with retail products provided on the basis of the regulated anchor. Similar constraint as exerted by the regulated anchor could be provided, based on national circumstances, by the regulated access to civil engineering infrastructures.
- (42) The NRA should define the characteristics of the regulated anchor based on the findings of the market analysis, taking into account the following principles:
- the anchor product should be subject to cost orientation, based on the costing methodology recommended in paragraphs [45 to 56].
 - where a copper-based product (including VULA products provided over an upgraded copper network) is still able to exert a demonstrable retail price constraint over VHC-based products on a forward looking basis, the NRA should define this product as the regulated anchor.
 - only where the NRA concludes that a copper-based anchor would no longer exercise a demonstrable retail price constraint, and in the absence of a demonstrable price constraint due to the existence of alternative networks or regulated access to civil engineering infrastructures, the NRA should define an entry level regulated product provided over a VHC network in the relevant wholesale market as the regulated anchor. The technical performances of this regulated product should be limited to what is required to exert a demonstrable retail price constraint on a forward looking basis. As such, this VHC-based anchor product could be a virtual, or an active, regulated product. This product should be subject to cost orientation based on the costing methodology recommended in paragraphs [45 to 56], while pricing flexibility should be

provided for all other products provided over VHC networks. Where the SMP operator deploys a VHC network, the NRA should allow the SMP operator to provide an anchor offering similar performances to the most recent copper-based anchor, provided that this anchor is able to exert a demonstrable retail price constraint over higher performance products provided over VHC networks.

Economic replicability test

- (43) An NRA is deemed to impose the economic replicability obligations referred to in [paragraph 38(c)] when it includes the elements listed in points (a), (b) and (c) below, which have been subject to a consultation under Article 32 of the Code, in the same final measure in which it decides not to impose or maintain regulated wholesale access prices on VHCN wholesale inputs:
- (a) The details of the ex-ante economic replicability test that the NRA will apply, which should specify as a minimum the following parameters, where applicable, in accordance with the guidance provided in Annex [III] below:
 - (a) the relevant downstream costs which are taken into account;
 - (b) the relevant cost standard;
 - (c) the relevant regulated wholesale inputs and reference prices;
 - (d) the retail products concerned;
 - (e) the relevant time period for running the test;
 - (f) the methodology used for the determination of the flagship products;
 - (g) whether flagship products are intended to be analyzed on an individual basis or as a portfolio; and
 - (h) the approach that will be used in respect of any unregulated products that are part of the flagship bundle.
 - (b) The procedure that the NRA will follow to conduct an ex-ante economic replicability test, specifying that the NRA can start the procedure on its own initiative or at the request of third parties, at any time but no later than three months after the launch of the relevant retail product, and will conclude it as soon as possible and in any case within four months from starting the procedure. However, in cases where the NRA has to follow up on the evolution of flagship products or revise the result of the replicability analysis according to updated information, the period of four months mentioned above by an additional month, provided that the NRA duly justifies the necessity of this extension. Furthermore, if a technical replicability test is also required, the timing of the two tests (i.e. technical replicability test and economic replicability test) should be aligned as much as possible. The procedure should make clear that the ex-ante economic replicability test to be performed by NRAs under paragraph [38(c)] is different from and without prejudice to any margin squeeze test that may be conducted ex post pursuant to competition law.
 - (c) The remedy it will adopt when the offer of the SMP operator fails the test, making use of the enforcement tools provided under the Code to ensure compliance, including where appropriate a request for the SMP operator to

address the economic replicability issue in accordance with the NRA's guidance and on the basis of the results of the ex-ante economic replicability test performed. Where the NRA considers that a retail offer which is not economically replicable would significantly harm competition, it should make use of its powers under Article 30 paragraph 3 (b) of the Code to request the SMP operator to withdraw or delay the provision of the relevant retail offer pending compliance with the requirement for economic replicability.

- (44) Once the measure has been adopted, the NRA should make public on its website the roadmap and the details of the *ex ante* economic replicability test as part of the final measure. The NRA should consider using all of the enforcement tools provided under the Code to ensure compliance with all aspects of the imposed measures. In particular, NRAs should use their powers under Article 20 of the Code to obtain, from the SMP operator and where necessary from other undertakings, the information necessary to design and apply the economic replicability test, including the information needed to allocate the price of a flagship retail bundle across the different components of the bundled offer for the purpose of the economic replicability test.

CONSISTENT APPROACHES TO PRICE CONTROL OBLIGATIONS

Costing methodology

The recommended costing methodology

- (45) For the purposes of setting the prices for wholesale access products provided over copper and VHC networks, as well as the prices for access to civil engineering infrastructure, where cost orientation is imposed as a remedy, where appropriate, proportionate and justified pursuant to Articles 67(4) and 68(4) of the Code, NRAs should adopt a bottom-up long-run incremental costs-plus (BU LRIC +) costing methodology which includes a bottom up modelling approach using LRIC as the cost model and with the addition of a mark-up for the recovery of common costs.
- (46) NRAs should adopt a BU LRIC + costing methodology that estimates the current cost that a hypothetical efficient operator would incur to build a modern efficient network, which is a VHC network. This is without prejudice to whether a VHC network in the relevant geographic market is subject to an obligation of regulated wholesale access pricing, which is addressed in [paragraph 37].
- (47) When modelling a VHC network, NRAs should define a hypothetical efficient VHC network, capable of delivering the targets set out in the Digital Decade Policy Program [*placeholder for the DPP decision*], in terms of bandwidth and coverage. When modelling a VHC network, NRAs should include any existing civil engineering assets that are generally also capable of hosting a VHC network as well as civil engineering assets that will have to be newly constructed to host a VHC network. Therefore, when building the BU LRIC + model, NRAs should not assume the construction of an entirely new civil infrastructure network for deploying a VHC network.
- (48) NRAs should value all assets constituting the RAB of the modelled network on the basis of replacement costs, except, in principle, for reusable legacy civil engineering assets.
- (49) In principle, NRAs should value reusable legacy civil engineering assets and their corresponding RAB on the basis of the indexation method. Specifically, NRAs

should set the RAB for this type of assets at the regulatory accounting value net of accumulated depreciation at the time of calculation, indexed by an appropriate price index, such as the retail price index. NRAs should examine the accounts of the SMP operator where available in order to determine whether they are sufficiently reliable as a basis to reconstruct the regulatory accounting value. They should otherwise conduct a valuation on the basis of a benchmark of best practices in comparable Member States. NRAs should not include reusable legacy civil engineering assets that are fully depreciated but still in use.

- (50) When applying the method for asset valuation set out in paragraph [49], NRAs should lock-in the RAB corresponding to the reusable legacy civil engineering assets and then roll it forward from one regulatory period to the next.
- (51) Where NRAs can establish that the indexation method would not be appropriate, they may decide to value reusable legacy civil engineering assets and their corresponding RAB on the basis of current costs adjusted for depreciation over the lifetime of the assets. NRAs should not take into account the value of reusable legacy civil engineering assets that are fully depreciated but still in use and should ensure that the asset valuation method that is used reflects the fact that civil infrastructure assets would in general not be replicated in the competitive process.
- (52) NRAs should set the lifetime of the civil engineering assets at a duration corresponding to the expected period of time during which the asset is useful and to the demand profile. This is normally not less than 40 years in the case of ducts.
- (53) In light of the principle of technological neutrality, NRAs should consider various approaches to modelling the hypothetical efficient VHC network depending on the access technology and network topology that best fit national circumstances. When determining the access prices of services that are not based on a VHC network, NRAs should adjust the cost calculated for the modelled VHC network to reflect the different features of wholesale access services that are not based on a VHC network. For this purpose, the NRAs should estimate the cost difference between an access product based on, for example, FTTH and an access product based on copper by replacing the optical elements with efficiently priced copper elements, where appropriate, in the VHC network engineering model. Where appropriate, NRAs could otherwise obtain the copper cost by modelling a VHC overlay network, where two networks (copper and FTTH) share to an extent the same civil infrastructure.
- (54) NRAs should allocate the incremental costs on a proportionate basis between all undertakings enjoying access, including the downstream arm of the SMP operator itself.
- (55) Where the civil engineering infrastructure owned or controlled by the SMP operator is non-existent or limited, and significant investments are required to deploy new civil engineering infrastructure for the purpose of deploying VHC networks, NRAs should ensure that the approach to price control obligations with respect to access to civil engineering infrastructure preserves incentives to invest, both in the VHC networks themselves and in the civil engineering infrastructure that would host them. In particular, where the SMP operator would have to incur significant costs for civil engineering infrastructure — beyond normal maintenance costs — the NRA should assess, in accordance with paragraphs [62 to 74], whether the risk profile of this investment justifies applying a higher risk premium to reflect the corresponding additional and quantifiable risk incurred by the SMP operator.

- (56) NRAs should set individual prices for access to newly built civil engineering infrastructure of the SMP operator whenever cost orientation has been imposed for both the legacy and the newly built civil engineering infrastructure and where the latter has become extended. NRAs should ensure that prices for access to newly built civil engineering reflect current market conditions and are based on the full costs incurred by the SMP operator, as long as strict non-discrimination is ensured for access to these infrastructures.

Implementation of the costing methodology

- (57) NRAs should take into account the principle of regulatory transparency and predictability and the need to ensure stability without significant fluctuations when setting cost-oriented access prices, when developing the costing methodology recommended in paragraphs [45 to 56] (the ‘recommended costing methodology’) and when implementing it once it is finalised.
- (58) When implementing the recommended costing methodology, NRAs should ensure that inflation is adequately taken into account, either as part of the costing methodology or as part of the cost of capital employed. NRAs should make sure that inflation is not double counted.
- (59) Once NRAs have finalised the recommended costing methodology, they should consider keeping it in place, in application of Article 3(4)(a) of the Code in order to promote regulatory predictability by seeking to ensure stable access prices over at least two appropriate review periods, provided they maintain a price control obligation throughout this period, except in case of significant and unexpected technological or market developments.
- (60) When, in the course of implementing the recommended costing methodology, the NRA keeps the methodology in place in line with paragraphs [45 to 56], NRAs should only update the data input into the costing methodology not more than twice during every market review period. When updating the model, NRAs should in principle, and provided that market conditions have remained stable, only adjust such data in line with the real evolution of individual input prices (e.g. for taking into account inflation where applicable) and should in any case ensure full recovery over time of the costs incurred to provide the regulated wholesale access services. NRAs should publish the updated outcome of the costing methodology and resulting access prices over the relevant two-and-a-half-year period.

Long-term access pricing and volume discounts

- (61) Where the SMP operator is subject to price control obligations with respect to VHC wholesale access products, it may apply price discounts to long-term access contracts or which are tied to volume commitments, subject to the conditions set out in [Annex IV].

Adequately rewarding the investment risk

- (62) Where NRAs consider price control obligations to be appropriate, they shall allow the undertaking a reasonable rate of return on capital employed, taking into account investment-specific risks.
- (63) When establishing the applicable weighted average cost of capital (WACC), NRAs should ensure that the applicable WACC reflects current macroeconomic parameters. In case the applicable WACC does not sufficiently take into account prevailing

current economic conditions (for instance a high inflation rate not reflected in the applicable WACC at the time), NRA should consider updating the applicable WACC, hereby ensuring the correct macroeconomic parameters in the foundation of the project specific WACC for new investments. In particular, NRAs should carefully evaluate how to account for inflation in the applicable WACC, to ensure that the real WACC remains positive.

- (64) The deployment of VHC networks, in particular in rural and sparsely populated areas, involves committing to significant capital investments, with expected payoffs extending far into the future, thereby increasing exposure to demand-side risks. Demand for advanced services such as those enabled by VHC networks is also likely to be more sensitive to changes affecting household income. As a result, investments in VHC networks are likely to expose operators to higher risks compared to their investments in legacy infrastructures.
- (65) Therefore, when setting access prices to VHC networks, NRAs should consider applying, on top of the applicable WACC, a risk premium to reflect any additional and quantifiable investment risk incurred by the SMP operator. NRAs should be transparent about the application of the risk premium on the top of the applicable WACC.
- (66) NRAs should assess investment risk, inter alia, by taking into account the following factors of uncertainty: (i) uncertainty relating to retail and wholesale demand; (ii) uncertainty relating to the costs of deployment, civil engineering works and managerial execution; (iii) uncertainty relating to technological progress; (iv) uncertainty relating to market dynamics and the evolving competitive situation, such as the degree of infrastructure-based competition; and (v) macroeconomic uncertainty.
- (67) The risks are likely to vary considerably between different technologies and geographic areas coverage of VHC networks. NRAs should therefore assess investment risk with a sufficient level of granularity, considering as much as possible the specific characteristics and the foreseen area(s) of the investments. Where minor or no clear differences of investment risk between separate geographic areas can be observed, the NRAs should consider all areas to bear the same investment risk.
- (68) Once a risk premium has been established, the NRA should conduct a sensitivity analysis, by which it analyses if the total derived WACC for VHC networks (applicable WACC + premium) aligns with the expectations of a reasonable investor. In case the value is too high or too low, the NRA could revisit the derived risk premium and adjust it accordingly to ensure that the project specific WACC adequately rewards investors.
- (69) As the level of risk may diminish over time, investors might find it optimal to delay investments if such a delay is expected to increase profitability further by allowing more informed investment decisions in the future. Where the NRA considers it necessary to stimulate and accelerate investments, in particular in areas with limited prospect for infrastructure-based competition such as for instance in sparsely populated areas, they may include in the WACC calculation the option value of waiting.
- (70) Investment uncertainty denotes a range of possible outcomes, including favourable as well as adverse outcomes. When using the estimated cost of capital to set price controls, NRAs should have regard to the effects of such controls on investor

expectations as to the rate of return over the lifetime of the investment. In order not to undermine investment, NRAs should avoid setting price controls at levels that would suppress the expected rate of return below the estimated cost of capital, taking into account the risk that adverse scenarios may materialize, such as lower than expected demand or higher than expected costs. In cases where expected profitability in the absence of price controls is already marginal, NRAs should consider not imposing price control obligations, at least until a significant part of the associated uncertainty is resolved, as foreseen in paragraph 40.

- (71) In order to promote regulatory predictability, the risk premium applicable to a given investment project should be stable over a sufficient period of time, which should be at least [5] years.
- (72) Setting the risk premium for at least 5 years means that the risk premium set for the specific project should not be changed within that period. In the event that an additional project is brought to the attention of the NRA, it may consider either extending the previously established risk premium also to the new project if that is appropriate or, without prejudice to paragraph 70, introducing a new, separate risk premium specifically for the new project. Such separate premium should reflect the risk(s) applicable at the specific time that it is brought to the NRA's attention as well as the specificities of the new project. If the NRA decides that the already applicable risk premium also adequately rewards for the new project, it should present in detail its reasoning. Similarly, in the event of proposing a different premium, the NRA should follow the general principles laid out in this recommendation.
- (73) To estimate the cost of capital that corresponds to the systematic risk of investment in VHC networks, for the purpose of setting the risk premium, NRAs may, inter alia, rely on detailed financial models allowing for the comparison of volatility of returns of VHC networks and legacy networks, or, where sufficient information is available, for instance from financial markets, on quantitative estimation techniques allowing for a decomposition of the systematic risks of the different assets.
- (74) In exceptional circumstances where NRAs are not able to appropriately quantify the additional investment risk, in particular due to lack of resources or unforeseen time constraints making it impossible to collect reliable data, NRAs may determine the risk premium on the basis of a benchmark of best practices in comparable Member States and/or regions. NRAs using a benchmark for setting the risk premium should ensure that the data inputs considered in the calculation of such a benchmark represent similar circumstances and were made for similar purposes as apply to the investment project to which it is intended.

MIGRATION TO VHC NETWORKS AND DECOMMISSIONING OF THE COPPER NETWORK

- (75) This chapter aims at providing guidance to NRAs on the application of Article 81 of the Code in situations where the entire legacy copper loop is decommissioned and end-users are migrated to a VHC network. Incremental upgrades of copper networks are not included in its scope.

Conditions for the decommissioning plan to fulfil the first subparagraph of Article 81(2) of the Code

- (76) When the SMP operator announces its intention to decommission its copper network, NRAs should ensure, in accordance with the first subparagraph of Article 81(2) of

the Code, that an appropriate notice period for transition is in place so that alternative operators are informed well in advance of the decommissioning. This notice period should not be longer than 2 to 3 years. It is necessary to establish, already when the notice period starts, or sufficiently in advance of access obligations on the legacy network being lifted to allow for the decommissioning, that an appropriate alternative product of at least comparable quality providing access to the upgraded network infrastructure is made available to access seekers. Within this 2 to 3 year-range, the exact notice period should be determined by taking into account the actual use by access seekers of the network to be decommissioned or the type of access product provided on the legacy and the new networks. In particular, more time might be required for access seekers to migrate from/to passive products than from/to active products as the point of handover is more likely to change between the copper and the VHC network in the case of passive products.

- (77) In order to assess, in accordance with the first subparagraph of Article 81(2) of the Code, whether the plan ensures the effective availability of alternative access products of at least comparable quality as were available using the legacy infrastructure, NRAs should establish a substitution matrix detailing which access products on the new or upgraded network infrastructure correspond to which access products provided on the legacy network under Article 73 of the Code. The KPIs and SLAs used in this regard should reflect not only the intrinsic technical performances of both networks, but also all relevant access conditions. Depending on the circumstances in the area concerned, the alternative access offer may be provided by the SMP operator of the copper network, or by another operator that has deployed the VHC network in that area; the alternative offer may be provided as the result of regulatory obligations where such obligations have been imposed, or on a commercial basis. In any case, the NRA should assess whether the SMP operator of the copper network establishes the availability of an alternative access product meeting the conditions set out in Article 81(2) of the Code.
- (78) To ensure that the alternative access products enable access seekers to reach the same end-users as the legacy infrastructure in accordance with the first subparagraph of Article 81(2) of the Code, NRAs should determine a coverage threshold to be reached in an area by VHC networks offering products considered as relevant alternatives to the regulated products provided on the legacy network before access obligations on the legacy network are fully lifted in this area, thereby allowing for decommissioning.
- (79) NRAs should ensure full transparency towards, and involvement of, all stakeholders during the design and implementation of the decommissioning process and timetable. NRAs should also ensure that the decommissioning process does not lead to discriminatory behaviour. This includes potential discrimination between the retail branch of the SMP operator (if it is vertically integrated) and access seekers on access conditions to the copper network during the migration and decommissioning phase. In particular, the SMP operator should not continue to provide access to its own retail arm after it has ceased providing services to access seekers as a result of the lifting of access obligations by NRAs with a view to allowing for decommissioning in accordance with the second subparagraph of Article 81(2) of the Code. This also includes differences that are not justified on the basis of objective criteria concerning the switch-off timeline between areas where the VHCN has been rolled out by the operator with SMP in the legacy network and areas where the VHCN has been rolled-out by another operator.

Gradual relaxation and withdrawal of remedies, including copper price control

- (80) As part of the decommissioning process foreseen in Article 81(2) of the Code, NRA should consider allowing the SMP operator to implement a commercial closure, subject to an appropriate notice period. Such commercial closure should be subject to an appropriate notice period and should only take place once an alternative access product is available pursuant to Article 81(2)(a) of the Code as established by the NRA. Accesses already existing at this point should, however, be maintained until the complete withdrawal of remedies on the legacy network.
- (81) Where the wholesale prices for access to copper networks are subject to cost-orientation, in line with the recommended costing methodology, and once a decommissioning or replacement plan notified by the SMP has been assessed by the NRA as being in line with the first subparagraph of Article 81(2) of the Code, NRAs may consider a progressive relaxation of the price control obligation, by allowing the SMP operator to progressively increase wholesale prices for access to copper networks. Such a price increase should only be applicable in areas where the notice period for the copper switch-off has started. The NRA should ensure that the period of applicability of the price increase is not prolonged by any undue delay in the implementation of the switch-off plan. Where such a measure is implemented, it should be accompanied by adequate safeguards in order to preserve competition, including (i) the NRA should set the modalities of this price increase in advance; (ii) the conditions mentioned in the second subparagraph of Article 81(2) of the Code should be met, in particular the availability of products delivered over the VHC networks for all end users in the areas concerned by the price increase in order to ensure that end users and access seekers can effectively migrate to the VHC network; and (iii) the price increase should not lead to excessive retail prices; furthermore, it should be non-discriminatory and should not allow for margin squeeze.

Done at Brussels,

*For the Commission
Thierry Breton
Member of the Commission*

