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ANNEXES 1 to 5

ANNEXES

to the

COMMUNICATION FROM THE COMMISSION

Guidelines on State aid for broadband networks

ANNEX I - MAPPING

1. SCOPE

- (1) The annex outlines recommended methodologies on how to carry out the mapping exercise to support State aid interventions for the deployment of fixed and mobile networks.
- (2) It aims to increase transparency on the methodology to gather and assess information on the availability and performance of networks.
- (3) The annex lists, for fixed networks and for mobile and fixed wireless networks:
 - i. the criteria to be used to map the performance of the networks; and
 - ii. the information that the competent public authorities may collect to verify the accuracy of the information provided; and
 - iii. the additional information about infrastructure that the competent public authorities may request operators to provide in specific situations, when it is duly justified in order to carry out an in-depth assessment¹.

2. OBJECTIVE AND DEFINITIONS

- (4) The objective of the mapping exercise is to have an objective representation of the 'achievable performance' that can be relied upon under 'peak-time conditions'.
- (5) The 'achievable performance' must be characterized at least in terms of download and upload speeds that can be relied upon under peak-time conditions.
- (6) The public authorities responsible for the public intervention may map also other performance criteria to characterize the performance of networks under peak-time conditions (e.g. latency, packet loss, packet error, jitter, service availability²). Member States may choose to do so in order to better target the public intervention to address market failures and ensure an adequate step change.
- (7) Peak-time is the time of the day with a typical duration of one hour where the network load usually has its maximum³. Peak-time may vary among Member States and regions. As a result, in order to identify the most challenging peak-time, NRAs should be consulted.
- (8) The 'peak-time conditions' are the conditions expected to be experienced by the network at 'peak-time'. Appropriate peak-time conditions are listed in Section 3.1 for fixed access networks and in Section 4.1 for mobile and fixed wireless access networks.

¹ This may be subject to confidential treatment in accordance with national law, as relevant.

² For these quality criteria the technical specifications provided by BEREC should be used: IP packet error ratio (Y.1540); IP packet loss ratio (Y.1540); Round-trip IP packet delay (RFC 2681); IP packet delay variation (RFC 3393); IP service availability (Y.1540).

³ BEREC BoR (20) 165.

- (9) The mapping exercise must be carried out at address level for fixed and fixed wireless access networks on the basis of ‘premises passed’ and at address level or on the basis of maximum⁴ 100x100 meter grids⁵ for mobile networks.
- (10) ‘Premises passed’ means premises which can be connected within a short period of time at the normal activation fee for the end user, regardless of whether those premises are connected to the network. A stakeholder can report premises as passed only if, following a request from an end user, it commits to connect the premises and activate the service within 4 weeks from the date of the request and for normal activation fees, meaning without any additional or exceptional cost and, in any case, not exceeding the average activation fee in the Member State concerned.
- (11) In providing the information on the performance of their networks, stakeholders should adhere to the highest scientific and professional standards. In particular, the methodology and the techniques used to for the purpose of mapping should derive from accepted professional standards.
- (12) In providing performance figures, operators must consider any bottleneck that could prevent them from being able to actually reach the performance declared (e.g. backhaul). Should the operators not confirm of having provided information on this basis, Member States can disregard this information.
- (13) As regards the alternative methods for carrying the mapping exercise, for instance, for packet-switched fixed networks, public authorities may propose as an alternative, where duly justified, to use 20% utilisation factor of the most loaded (bottleneck) links defined as the average traffic rate divided by the nominal rate, at peak-time. In the case of wireless and mobile networks public authorities may propose an alternative method for instance in terms of the calculation on a 95% cell edge probability or in terms of the calculation of the nominal cell load⁶ not lower than 50%⁷. In any case, irrespective of the method pursued, all network performance figures must be provided in terms of ‘peak-time conditions’ in line with paragraph (8).

3. RECOMMENDED METHOD FOR MAPPING SPEEDS OF FIXED ACCESS NETWORKS

3.1. CRITERIA FOR MAPPING SPEEDS OF FIXED ACCESS NETWORKS

- (14) For the purpose of this mapping method, Member States must request stakeholders to provide information on the speed provided by their network under peak-time conditions.
- (15) Peak-time conditions is understood as whenever a minimum 20% of the users are active and transmitting concurrently at the nominal peak rate provided by the

⁴ Smaller grids (i.e. 20x20 meters) are considered preferable.

⁵ The data delivery should be provided in the form of geographical (polygons) areas (raster & vector data).

⁶ The ‘cell load’ (cell loading) means the average percentage of the resources of a base station that are used by end-users with respect to a certain service.

⁷ If the resulting cell load is lower than 50% this should be properly justified by the operators to the competent public authorities.

operator to each of them, both downstream and upstream, which correspond to the usual oversubscription rate definition⁸.

3.2. INFORMATION FOR VERIFICATION PURPOSES – BEST PRACTICES

- (16) To limit risks of opportunistic behaviours by stakeholders and ensure that the information provided is sufficient, consistent, and can reliably be counted upon, with a view to avoid delaying the delivery of services in the target area, the competent public authorities carrying out the mapping exercise may decide to require stakeholders to submit further information regarding their networks for verification purposes.
- (17) The competent public authorities may ask stakeholders to provide the full description of the methodology used to calculate their achievable performance, including, but not limited to:
 - i. the access network technology used (FTTH, FTTB, ADSL, VDSL, VDSL + vectoring DOCSIS.x, etc.), with full specification of the corresponding standard;
 - ii. the topology of the network (e.g. P2P or a P2MP), including a simplified graph that reflects the physical layout of the cables/fibers (for instance, a tree topology in a GPON);
 - iii. the bottleneck links in the topology of the network, defined as the network segments with larger statistical multiplexing gain, including clear information concerning either (i) the oversubscription ratio used for dimensioning such a link (e.g. in the backhaul network) or (ii) the capacity planning exercise performed for such bottleneck links. In any case, the public authority may request a statistical characterization of the achievable speed for an end-user (e.g. the average or typical speed or probability of achieving the nominal speed to be provided to the end-user at any point in time, with indication of the user model assumptions).

3.3. INFORMATION FOR IN-DEPTH VERIFICATION PURPOSES – BEST PRACTICES

- (18) The competent public authorities may decide to require stakeholders to submit further information on network components and their locations for in-depth verification purposes, for instance to review the methodology used to calculate the performance submitted.
- (19) The competent public authorities may thus ask stakeholders to submit further information on the access part of the fixed network, including but not be limited to:

⁸ The very same network infrastructure can provide very different performance levels to the end users depending on how many users are being multiplexed in bottleneck links and what their nominal speeds are. Performance depends on the number of users concurrently active (which increases during peak-time conditions). Such ‘statistical multiplexing gain’ (minimum 20% meaning 1:5 activity level) requires also that accurate- enough user traffic distribution models are employed by operators.

- i. the location of the cabinets and the wiring distance from the cabinet to the household;
- ii. clear information on link-budget calculations (e.g. on how the received signal power level is mapped to bit-rates, link-budget margins used etc.). The competent public authorities may ask operators to provide all applicable link-budgets used to design and dimension the network services, with their key parameters, including the description of the methodology followed by the operator to develop the link-budget and the rationale.

4. RECOMMENDED MAPPING METHOD FOR MOBILE AND FIXED WIRELESS ACCESS NETWORKS

4.1. CRITERIA FOR MAPPING THE PERFORMANCE OF MOBILE AND FIXED WIRELESS ACCESS NETWORKS

- (20) For the purpose of this mapping method, Member State should request stakeholders to calculate their network performance taking into account the following principles:
- i. use the best industry practices⁹ considering all the major effects on the wireless signal propagation¹⁰;
 - ii. base the calculation on a 95% cell edge probability¹¹ of reaching the declared performance and in any case no less than 95% of probability to reach the declared performance in each of the grid points considering possible variations of propagation conditions due to random effects and possible variations among the points within the area considered (i.e. at address level or on the basis of maximum 100x100 meter grids);
 - iii. assume peak-time conditions as follows:
 - a. for mobile networks, a nominal cell load¹² no lower than 50%¹³ or higher in the case of peak-time traffic conditions being significantly higher;
 - b. for fixed wireless access networks, the expected realistic peak-time traffic conditions should be used to derive the appropriate cell load for calculations¹⁴;

⁹ Best industry practices mean modelling parameters, tools, planning, and error boundaries that are common in planning of wireless communications systems and business, and which can be deemed to be faithful and correct enough by experts in the field if they were to verify the methodology.

¹⁰ Such as terrain, building, and clutter when predicting the received signal power.

¹¹ The ‘cell edge probability’ means the likelihood that the minimum performance will be met at the ultimate edge of the coverage area (maximum claimed coverage distance in the area considered). The calculation needs to be based on realistic propagation simulations, link-budget calculations, and sufficient margins.

¹² The ‘cell load’ (cell loading) means the average percentage of the resources of a base station that are used by end-users with respect to a certain service.

¹³ If the resulting cell load is lower than 50% this should be properly justified to the competent public authorities.

¹⁴ If peak-traffic estimation is not used, the nominal 90% cell load for fixed wireless access shall be used. The higher cell load for fixed wireless access (compared to mobile networks) reflects the expected different usage pattern resulting in higher competition for the use of the shared resources of the serving base station.

- iv. provide the performance per end-user and based on outdoor antennas. If a receiving antenna is shared among multiple end-users, the overall performance should be considered equally shared among end-users¹⁵;
 - v. provide the performance per technology and per operating frequency in case of coverage with multiple technologies¹⁶ and multiple frequencies¹⁷, considering the bandwidth actually available per frequency. In case of use of unlicensed frequencies, this should be clearly stated.
- (21) In line with paragraph (12), operators must consider in particular:
- i. the type¹⁸ of backhaul and its capacity for each base station¹⁹;
 - ii. for fixed wireless networks, the number of served and of passed premises present in each calculated grid.

4.2. INFORMATION FOR VERIFICATION PURPOSES – BEST PRACTICES

- (22) To limit risks of opportunistic behaviors by stakeholders and ensure that the information provided is sufficient, consistent, and can reliably be counted upon, with a view to avoid delaying the delivery of services in the target area, the competent public authorities carrying out the mapping exercise may decide to require stakeholders to submit further information for verification purposes.
- (23) The competent public authorities may thus ask stakeholders to provide the full description of the methodology used to calculate their coverage maps, including, but not limited to:
- i. propagation models and key parameters for propagation simulation;
 - ii. general information on network components and in particular on antennas (e.g. transmission power, MIMO, antenna site locations);
 - iii. key information on link-budget calculation (e.g. how received signal power level is mapped to bit-rates, link-budget margins used etc.). Stakeholders should provide all applicable link-budgets used to design and dimension the network services, with their key parameters, including also the description of how the stakeholder developed the link-budget and the rationale;
 - iv. the location of cell sites;
 - v. characteristics of the backhaul.

¹⁵ In fixed wireless access this may be the case for shared rooftop antennas for a multi-dwelling building.

¹⁶ 3G UMTS and HSPA technologies; 4G LTE or LTE-advanced technologies; 5G either the 3GPP Release 15 (New Radio (NR) non -standalone- the core network is 4G) and NR standalone (the core network is 5G) and further developments - 3GPP Release 16 under development and will include new specifications for 5G. The competent authority may, and is recommended, to collect information from 3GPP based technologies so that the used 3GPP Release levels can be known, but the previous granularity is also adequate.

¹⁷ This is to separate sub-6 GHz and mm-wave frequency bands as they are often used for different categories of services.

¹⁸ Fibre optic, carrier grade copper Ethernet, wireless, etc.

¹⁹ In the case of fibre optic connection this can be normally assumed to be sufficient.

4.3. INFORMATION FOR IN-DEPTH VERIFICATION PURPOSES – BEST PRACTICES

- (24) The competent public authorities may decide to require stakeholders to submit further information on network components and their locations for in-depth verification purposes, for instance to review the methodology used to calculate the performance submitted. The competent public authorities may thus ask stakeholders to submit further information on their networks, including but not be limited to:
- i. number of transmitters at each site;
 - ii. the ground elevation of such transmitters;
 - iii. number of sectors at each cell site;
 - iv. used technology at transmitters including MIMO-order, available channel bandwidth;
 - v. the effective isotropic transmission power employed by each transmitter.

ANNEX II – PUBLIC INTERVENTIONS FALLING OUTSIDE THE SCOPE OF ARTICLE 107(1) OF THE TFEU

- (25) The following sections present a comprehensive, but not exhaustive, instances in which these guidelines do not apply. Given the cumulative nature of the criteria of Article 107(1) TFEU, if one of the criteria is not met, the presence of State aid can be excluded and therefore there is no need to notify the measure to the Commission prior to its implementation under these guidelines.

5. NO ECONOMIC ACTIVITY

- (26) Aid for activities that are not of an economic nature²⁰, i.e. are not used for offering goods or services on the market, is not considered State aid. Therefore, the funding of infrastructure that is not meant to be commercially exploited is in principle excluded from the application of State aid rules. This concerns for instance cases where public funding is allocated to build infrastructure or procure broadband services to satisfy the own needs of the public administration, such as to connect only public authorities among themselves through ‘closed networks’ not used for any commercial exploitation²¹. The funding of such activities consequently falls outside the scope of State aid rules, as does, accordingly, the public funding of the related ‘closed networks’²².
- (27) However, if such a network (for instance, its extra capacity) is made available for use by commercial broadband investors or other operators, the public financing of such infrastructure may constitute State aid. Similarly, if an initially ‘closed network’ is subsequently made available for commercial use, State aid rules may apply²³. For instance, when public authorities select a third party as their provider of connectivity services and finance the construction of a network to address the own needs of the public authorities, State aid may be involved if this provider uses the infrastructure for other commercial activities.
- (28) If broadband infrastructure is used for both economic and non-economic activities, public funding thereof will fall under State aid rules only insofar as it covers the costs linked to the economic activities²⁴ in question. To avoid falling under State aid rules as concerns economic activities, Member States have to ensure that the public

²⁰ See Commission Notice on the notion of State aid, as referred to in Article 107(1) of the Treaty on the Functioning of the European Union (‘Notice on the notion of State aid’), paragraph 201 *et seq.* (OJ C 262, 19.7.2016, p. 1).

²¹ See Commission Decision C(2007) 2212 final of 30 May 2007, case N 46/07 – United Kingdom – Welsh Public Sector Network Scheme (OJ C 157, 10.7.2007, p.3).

²² See Judgment of the Court of 19 December 2012, *Mitteldeutsche Flughafen and Flughafen Leipzig-Halle v Commission*, C-288/11 P, EU:C:2012:821, paragraph 42; Commission Decision C(2007) 2212 final of 30 May 2007, case N 46/07 – United Kingdom – Welsh Public Sector Network Scheme (OJ C 157, 10.7.2007, p.3).

²³ See Commission Decision C(2011) 3498 final of 23 May 2011, case SA.31687 (N 436/2010) – Italy – Broadband in Friuli Venezia Giulia (Project Hermes) (OJ C 274, 17.9.2011, p.3) and Commission Decision C(2010) 5696 of 11 August 2010, case N 407/09 – Spain – Optical fibre Catalonia (Xarxa Oberta) (C 259, 25.9.2010, p.1).

²⁴ See Commission decision in case Commission Decision C(2010) 5696 of 11 August 2010, case N 407/09 – Spain – Optical fibre Catalonia (Xarxa Oberta) (C 259, 25.9.2010, p.1). See also paragraph 205 of the Notice on the notion of State aid.

funding provided for the non-economic activities cannot be used to cross-subsidise the entity's economic activities, for instance by ensuring that the operator using the network for commercial purposes pays a market price for this use of the network and by limiting the public funding only to the net cost (including the cost of capital) of the non-economic activities, to be identified based on a clear separation of accounts²⁵.

6. NO STATE RESOURCES / NO SELECTIVITY

6.1. NON-MONETARY DEMAND-SIDE MEASURES

- (29) Member States may choose to foster the demand for broadband services with non-monetary demand-side measures. In principle, non-monetary demand-side measures do not amount to State aid. They can take various forms.
- (30) They may be measures that aim to increase the perceived value of broadband internet access by addressing aspects of broadband demand other than price. Such measures usually aim at either increasing the quality of the available content²⁶ or informing consumers on how to make use of them.
- (31) Non-monetary demand-side measures may also take the form of demand aggregation tools that can be used to reduce uncertainty about the size of a market for potential suppliers, to coordinate demand and to provide more certainty about the likely profits of entering a specific market. This can be done by first measuring potential demand through the use of surveys and then presenting the results of the surveys on a publicly available website of the public authorities. This may include an element of general endorsement of the users before the roll-out, for instance through service platforms, to verify and aggregate a certain level of demand in advance of public or private investment. Users can also have an option of becoming stakeholders of a project through bottom up/self-help models of investment, such as cooperatives. This information should be made available to all operators on non-discriminatory terms. However, if the demand thus aggregated is made available only to one or selected operators, for instance by pooling customers into one contract, or by including an element of commitment of the users to subscribe to a single or few operators, this may result in State aid granted to those operators.

6.2. ADMINISTRATIVE AND REGULATORY MEASURES

- (32) Member States may choose several types of measures in order to accelerate the deployment of broadband networks, including 5G networks, besides providing direct funding to companies²⁷. They may, in line with (or going beyond) legal obligations,

²⁵ See paragraph 206 of the Notice on the notion of State aid. CAPEX (and related depreciations) used both for non-economic and economic activities would have to be allocated between the two activities on the basis of relevant allocation keys.

²⁶ This can include (i) the promotion of e-government programs (e.g. telemedicine, eCare, distance education, ICT in schools); (ii) the promotion of local and sectoral digital content (e.g. cultural heritage, tourism, educational content, local agriculture/food products, etc.); (iii) the increase of Internet security, privacy and setting quality or advertising standards

²⁷ As also explained in the Commission's Connectivity Toolbox Recommendation, Commission Recommendation of 18.9.2020 on a common Union toolbox for reducing the cost of deploying very high capacity networks and ensuring timely and investment-friendly access to 5G radio spectrum, to foster

facilitate for instance the process of granting rights of ways²⁸ and/or require that network operators share part of their infrastructure. Further, in line with regulatory rules, Member States may require that operators be given access to physical infrastructure controlled by public bodies, which is capable of hosting very high speed networks' elements²⁹.

- (33) Operators that want to deploy very high-speed networks can request e-communications, gas, electricity, heating and water network companies performing civil works, fully or partially financed by public means, to meet reasonable request to coordinate civil works, provided that this does not entail any additional costs and does not impede control over the coordination of the works³⁰. Such coordination will not constitute State aid provided that the requesting operator bears its own costs and the opportunity is offered in a transparent and non-discriminatory way to all interested operators (i.e. electricity gas, water utilities, etc.) not just electronic communications operators³¹. However, it cannot be excluded that public funding of such works may entail State aid if they are limited to or clearly geared towards the broadband sector or towards one or several selected broadband operators.
- (34) In order to facilitate access to existing physical infrastructure in a transparent way, public communications network providers have the right to access minimum information, upon request, regarding location and route, type and current use of the infrastructure, and a contact point.
- (35) The Connectivity Toolbox Recommendation sets out guidance for developing best practices for fostering connectivity, building upon the Broadband Cost Reduction Directive and the provisions in the European Electronic Communications Code with the aim to identify measures that are most efficient in allowing and encouraging operators to rollout very high capacity networks. On 25 March 2021, the Commission adopted a Common Union Toolbox for Connectivity³², which consists

connectivity in support of economic recovery from the COVID-19 crisis in the Union (C(2020) 6270 final)

- 28 The Broadband Cost Reduction Directive (Directive 2014/61/EU of the European Parliament and the Council of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks, OJ L 155, 23.5.2014, p. 1) provides for faster, simpler and more transparent permit-granting procedures.
- 29 According to the Broadband Cost Reduction Directive, new buildings shall be equipped with high-speed physical infrastructures (such as mini-ducts) and provide access to in-building infrastructure.
- 30 Civil engineering works, such as the digging-up of roads to lay down high-speed broadband, account for up to 80% of the cost of deploying high-speed networks.
- 31 See Commission Decision K(2010)889 of 8 February 2010, case N 383/09 – Germany – Amendment of the State aid broadband scheme N 150/2008 - Broadband in the rural areas of Saxony (OJ C 93, 13.4.2010, p.13). This case concerned a situation where general civil engineering works, like road maintenances, did not constitute State aid. The measures taken by the German authorities constituted 'general civil engineering works' which would have been carried out by the State for maintenance purposes in any event. The possibility of placing ducts and broadband infrastructure when carrying out road maintenance – and at the costs of the operators – was announced publicly and not limited to or geared towards the broadband sector. However, it cannot be excluded that public funding of such works falls within the notion of aid of Article 107(1) TFEU if they are limited to or clearly geared towards the broadband sector.
- 32 <https://digital-strategy.ec.europa.eu/en/news/connectivity-toolbox-member-states-agree-best-practices-boost-timely-deployment-5g-and-fibre>

of a set of best practices that are considered as the most efficient in allowing and encouraging operators to roll out very high capacity networks.

7. NO ADVANTAGE

7.1. MARKET CONFORM INVESTMENTS

- (36) If a public authority invests into the development of broadband infrastructure in terms comparable to those of a private investor operating under normal market conditions, in line with the Market Economy Operator Principle (MEOP), State aid would not be involved³³.
- (37) According to the case-law of the Court, it follows from the principle of equal treatment that capital placed by the State, directly or indirectly, at the disposal of an undertaking in circumstances which correspond to normal market conditions cannot be regarded as State aid. When equity participation or capital injections by a public investor do not present sufficient prospects of profitability, even in the long term, such intervention shall be regarded as aid within the meaning of Article 107 TFEU, and its compatibility with the common market shall be assessed on the basis solely of the criteria laid down in that provision³⁴.
- (38) Compliance with market conditions would need to be established on an ex-ante basis³⁵, based on information available at the time the intervention was decided upon (e.g. by means of a business plan based on economic evaluations comparable to those which, in similar circumstances, a rational market economy operator would have had carried out to determine the profitability or economic advantages of the transaction). A transaction's compliance with market conditions can be directly established through transaction-specific market information: where the transaction is carried out 'pari passu' by public entities and private operators³⁶; or where it concerns the sale and purchase of assets, goods and services (or other comparable

³³ For more details, see section 4.2 of the Notice on the notion of State aid. To note, only the benefits and obligations linked to the role of the State as an economic operator, to the exclusion of those linked to its role as a public authority, can be taken into account (e.g. if a State intervention is driven by public policy reasons such as bridging the digital divide, the State's behaviour, while being rational from a public policy perspective, may at the same time include considerations which a market economy operator would normally not consider.

³⁴ Judgment of the Court of 21 March 1991, *Italian Republic v Commission*, C-303/88, ECLI:EU:C:1991:136, paragraphs 20-22.

³⁵ *Ex post* economic evaluations entailing a retrospective finding that the investment made by the Member State concerned was actually profitable would not be sufficient.

³⁶ See paragraphs 86 to 88 of the Notice on the notion of State aid. In particular, to consider a transaction 'pari passu', the following criteria should be assessed: (a) whether the intervention of the public bodies and private operators is decided and carried out at the same time or whether there has been a time lapse and a change of economic circumstances between those interventions; (b) whether the terms and conditions of the transaction are the same for the public bodies and all private operators involved, also taking into account the possibility of increasing or decreasing the level of risk over time; (c) whether the intervention of the private operators has real economic significance and is not merely symbolic or marginal; and (d) whether the starting position of the public bodies and the private operators involved is comparable with regard to the transaction, taking into account, for instance, their prior economic exposure vis-à-vis the undertakings concerned, the possible synergies which can be achieved, the extent to which the different investors bear similar transaction costs, or any other circumstance specific to the public body or private operator which could distort the comparison.

transactions) carried out through a competitive, transparent non-discriminatory and unconditional tender procedure³⁷. If the intervention of the public bodies is not *pari passu* with that of private operators or a transaction has not been realised through a tender, it may be possible to demonstrate that the transaction complies with market conditions through benchmarking³⁸ or other assessment methods³⁹. Specific considerations apply to establish whether the terms for loans and guarantees are in line with market terms⁴⁰.

- (39) In the broadband sector⁴¹, the Commission has clarified in its case practice that the conformity of a public investment with market terms may be demonstrated⁴², for instance if it is made at the same time⁴³, at equal terms and conditions (and therefore with the same level of risks and rewards) as an economically significant participation of a private operator (e.g. in capital, total amount, share of the total cost) of a comparable size and situation operating in normal conditions of a market economy ('concomitant participation'). The concomitance analysis constitutes one but not necessarily the only element for establishing the absence of State aid. Other elements are also relevant, such as the existence of an *ex ante* sound business plan (preferably validated by external experts) demonstrating that the investment provides an adequate rate of return for the investor(s), in line with the normal market return that

³⁷ See paragraphs 89 to 96 of the Notice on the notion of State aid.

³⁸ Benchmarking in the light of the terms under which comparable transactions carried out by comparable private operators have taken place in comparable situations. See paragraphs 98 to 100 of the Notice on the notion of State aid.

³⁹ See paragraphs 100 to 105 of the Notice on the notion of State aid.

⁴⁰ See paragraphs 108 to 114 of the Notice on the notion of State aid.

⁴¹ See Commission Decision C(2007) 6072 final of 11 December 2007, in case C-53/2006 (ex N 262/2005, ex CP 127/2004) – The Netherlands – Citynet Amsterdam (OJ L 247, 16.9.2008, p.27) and Commission Decision C(2012)5051 final of 25 July 2012, case SA.33063 – Italy – Trentino NGA (OJ C 323, p.6). In the "Citynet Amsterdam" case, the Commission confirmed that investment by the City of Amsterdam in a fibre-to-the home (FtH) network did not entail State aid. In the "Trentino" case, the Commission expressed significant doubts that the project met the criteria to be considered in line with market conditions. The Trentino NGN project notified to the Commission in 2012 concerned a public-private partnership between the Province of Trento and Telecom Italia (TI) for the rollout of a Next Generation Network (NGN) including FTTH in remote areas of the province. The Province made a cash contribution of 50 million EUR while TI would make contributions in kind, including (1) Indefeasible rights of use (IRUs) on its existing passive infrastructure (ducts and poles) immediately and (2) the ownership of the whole copper network with the perspective of migrating the customers into the new FTTH network to be deployed. Two additional shareholders joined the project with smaller financial participations. After six years from the first contribution or a certain number of lines activated on the new network, TI could decide to exercise a "call" option and acquire the full ownership of Trentino NGN. Additionally, Telecom Italia was to be appointed as service provider for Trentino NGN for the construction and operation of the network and the provision of connectivity services. In particular, the Commission had doubts about whether: (a) The evaluation of the in-kind contributions made by Telecom Italia was done on market terms and did not contain any hidden advantage for TI, and in particular the value of the copper network to be switched off; (b) There were any hidden advantages from the separate contracts appointing TI as supplier of services to Trentino NGN and connectivity services to end users; (c) The project was effectively profitable taking the perspective of a Market Economy Investor; and (d) The call option recognised to Telecom Italia did not limit the return of the PAT to a level which a private investor would not have accepted, given the level of risk taken by the PAT as financial investor to the project.

⁴² See Commission Decision C(2007) 6072 final of 11 December 2007, in case C-53/2006 (ex N 262/2005, ex CP 127/2004) – The Netherlands – Citynet Amsterdam (OJ L 247, 16.9.2008, p.27).

⁴³ The existence of consecutive State interventions concerning the same broadband infrastructure project might invalidate the conclusion that a similar measure would also have been undertaken by a market economy investor. See in this respect paragraph 81 of the Notice on the notion of State aid.

would be reasonably expected by operators on similar projects taking into account the level of risk and future expectations (based on a calculation of the internal rate of return of the investment or Net Present Value calculations)⁴⁴. As underlined in the case practice, where private investors take part in the project, it is a sine qua non condition that they would have to assume the commercial risk linked to the investment under the same terms and conditions as the public investor, so that the public investment does not fall under State aid rules⁴⁵. This would also apply to other forms of State supports such as soft loans or guarantees⁴⁶.

- (40) Public intervention in line with the MEOP may be relevant for various network deployments, especially in urban/peri-urban areas, where there is a sufficient business case to allow for a credible commercial investment from private and public partners under normal market conditions. For instance, in urban areas and major terrestrial transport paths where the deployment of 5G networks may attract private financing, Member States may consider to what extent private operators and public entities could participate in a 5G mobile deployment project or a 5G corridor in conformity with normal market terms, in which case no State aid would be involved. Such projects may take the form of a joint-venture or the set-up of equity programmes or funds⁴⁷ to support operators to deploy new or modernise existing networks, with the overall aim to attract additional private investment. Such measures would not involve State aid if they are designed in line with normal market conditions.

a. Operation of broadband infrastructure entrusted as a service of general economic interest (SGEI) in line with the Altmark criteria

- (41) In some cases, Member States may consider that the provision of an electronic communications network should be regarded as a service of a general economic interest ('SGEI') within the meaning of Article 106(2) TFEU⁴⁸ and the Altmark jurisprudence and provide public funding on this basis. In this case, State aid is excluded.

⁴⁴ For more information see in this respect chapter 4.2 and in particular paragraphs 101 to 105 of the Notice on the notion of State aid. See also Commission decision C(2012) 3025 final of 8 May 2012, case SA.22668 (C 8/2008 (ex NN 4/2008)) – Spain – Ciudad de la Luz film studios (OJ L 85, 23.3.2013, p.1) and Commission Decision C(2012)5051 final of 25 July 2012, case SA.33063 – Italy – Trentino NGA (OJ C 323, p.6).

⁴⁵ See paragraph 17 of the 2013 Broadband Guidelines.

⁴⁶ Commission Notice on the application of Articles 87 and 88 of the EC Treaty to State aid in the form of guarantees, OJ C 155, 20.6.2008, p. 10-22 and the Corrigendum to the Notice, OJ C 244, 25.9.2008, p.32.

⁴⁷ See paragraphs 108 to 114 of the Notice on the notion of State aid.

⁴⁸ According to the case-law, undertakings entrusted with the operation of services of general economic interest shall have been assigned that task by an act of a public authority. In this respect, a service of general economic interest may be entrusted to an operator through the grant of a public service concession; see judgment of the Court of First Instance of 13 June 2000, EPAC - *Empresa para a Agroalimentação e Cereais, SA v Commission*, joined Cases T-204/97 and T-270/97, ECLI:EU:T:2000:148, paragraph 126 and Judgment of the Court of First Instance of 15 June 2005, *Fred Olsen, SA v Commission*, T-17/02, ECLI:EU:T:2005:218, paragraphs 186, 188-189.

- (42) The compensation for the provision of broadband services defined as SGEI does not involve State aid if it complies with the following four cumulative conditions (the so-called *Altmark* conditions)⁴⁹:
- First, the infrastructure project shall be necessary for the provision of genuine services of general economic interest for the provision of which the recipient undertaking has been entrusted with clearly defined public service obligations; in broadband, this includes compliance with the conditions concerning the SGEI definition laid down in Section 3 of the guidelines.
 - Second, the parameters based on which the compensation is calculated shall have been established in advance in an objective and transparent manner; in broadband, compensation should be established on an *ex ante* basis to cover the expected funding gap over a given period⁵⁰.
 - Third, the compensation cannot exceed what is necessary to cover all or part of the costs incurred in discharging the public service obligations, taking into account the relevant revenues and a reasonable profit for discharging those obligations; in broadband, the compensation should be limited to the provision of wholesale access services.
 - Fourth, where the undertaking that is to discharge public service obligations is not chosen following a public procurement procedure to select a tenderer capable of providing these services at the least cost to the community, the level of compensation shall be determined based on an analysis of the costs of a typical well-run undertaking⁵¹.
- (43) When at least one of the above criteria is not met, the public intervention amounts to State aid within the meaning of Article 107 TFEU. In such situations, the aid should be considered in light of the compatibility conditions of the SGEI Decision or the SGEI Framework, taking into account the specific conditions recalled in Section 3 of the guidelines⁵².

7.2. GENERAL ADMINISTRATIVE MEASURES TO CONSUMERS

- (44) Under certain conditions, it may be possible to exclude that an advantage is granted to building companies collecting vouchers, for instance if the measure is designed as a general administrative measure. This may be the case in situations where the

⁴⁹ See judgment of the Court of Justice of 24 July 2003, *Altmark Trans and Regierungspräsidium Magdeburg*, C-280/00, EU:C:2003:415 and Communication from the Commission on the application of the European Union State aid rules to compensation granted for the provision of services of general economic interest (OJ C 8, 11.1.2012, p. 4).

⁵⁰ See Commission Decision C(2016)7005 final of 7 November 2016 in case SA.37183 (2015/NN) – France – Plan France Très Haut Débit (OJ C 68, 3.3.2017, p.1).

⁵¹ In some of its broadband cases, the Commission has acknowledged the non-existence of State aid due to the fulfilment of the *Altmark* criteria, e.g. in Commission Decision C (2004) 4343 final of 16 November 2004, case N381/2004 – France – Projet de réseau de télécommunication haut débit des Pyrénées Atlantiques (OJ C 162, 2.7.2005, p.5), Commission Decision C(2009) 7426 final of 30 September 2009, SA.21630 (N 331/2008) – France – Réseau à très haut débit en Hauts-de-Seine (OJ C 256, 23.9.2010, p.1), and Commission Decision C(2016)7005 final of 7 November 2016 in case SA.37183 (2015/NN) – France – Plan France Très Haut Débit (OJ C 68, 3.3.2017, p.1).

⁵² In such cases, the measures would need to be designed in compliance with the SGEI Decision or SGEI Framework, taking into account the specific conditions of these Guidelines section 3 or could possibly be designed in compliance with the *Altmark* conditions.

Member State offers vouchers to individual consumers not carrying out any economic activity for general civil engineering works, for instance to ensure the smart readiness of new constructions and/or buildings. In this case, to exclude the presence of State aid, vouchers should be offered to end-users to use for general works for all utilities (which may include among others electricity, gas, water, in-house wiring). End-users shall be free to select the construction company for the general works and free to connect to whatever utilities operator (including electronic communications operators) that offers services to the premises. The opportunity to benefit from vouchers should be offered in a transparent and non-discriminatory way to all interested operators (not limited to or geared towards electronic communications operators, but open to all relevant utilities, e.g. electricity, gas, water, etc.).

8. NO EFFECT ON TRADE BETWEEN MEMBER STATES AND NO DISTORTION OF COMPETITION

- (45) For cases covered by the *de minimis* Regulation⁵³ with very low amounts of public support or by the SGEI *de minimis* Regulation⁵⁴, distortion of competition can be excluded a priori. For cases falling under the *de minimis* Regulation, there is no need for prior approval from the Commission. Member States do not even have to inform the Commission of such public support.
- (46) Services provided through Wi-Fi hotspots created in public administration buildings in order to provide access to public sector services and information to the citizens may not distort or threaten to distort competition under some conditions⁵⁵.

⁵³ Commission Regulation (EU) No 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to *de minimis* aid, OJ L 352, 24.12.2013, p. 1.

⁵⁴ Commission Regulation (EU) No 360/2012 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to *de minimis* aid granted to undertakings providing services of general economic interest, OJ L 114, 26.4.2012, p. 8.

⁵⁵ The activity would be deemed non-economic and thus fall outside State aid rules if only public services and public-sector content is made accessible over such Wi-Fi networks (public-sector websites and websites of public services providers), ensuring free accessibility of public services online which would also be available gratuitously offline (such as administrative information, e-Government, or non-commercial tourist information). To preserve the non-economic character, Member States should not allow the commercial exploitation of the new network to provide broadband services to residential or business users, thus limiting risks of substitutability to unlimited broadband access to the internet and reducing risks of distortion of competition vis-à-vis third parties offering similar content and/or services (Commission Decision C(2007)2200 of 30 May 2007, case NN24/2007 – Czech Republic – Prague Municipal Wireless Network (OJ C 141, 26.6.2007, p.2.)).

ANNEX III- TYPICAL INTERVENTIONS FOR BROADBAND SUPPORT

- (47) In its case practice, the Commission has observed certain recurrent funding mechanisms used by Member States to foster broadband deployment, which typically amount to State aid within the meaning of Article 107(1) TFEU unless the funding is carried out on market terms in line with the market economy investor principle (see Annex II). The following list is illustrative and not exhaustive, as public authorities might develop different ways of supporting broadband deployment or deviate from the models described.
- (48) Gap funding model: In the gap funding model, the Member State support the deployment of fixed or mobile networks by funding the gap between what is commercially viable and the objective that the aid granting authority aims to achieve⁵⁶. The Member State⁵⁷ provides direct monetary grants or subsidies to broadband investors⁵⁸ to design, build, manage and commercially exploit a network, taking into account the relevant receipts and a reasonable profit. In the gap funding model, reasonable profit is determined as the rate of return on capital that would be required by an investor, taking into account the level of risk specific to the broadband sector and the type of services provided. The required rate of return on capital is typically determined by the weighted average cost of capital (WACC). In determining what constitutes a reasonable profit, Member States may introduce incentive criteria relating, in particular, to the quality of service provided and gains in productive efficiency. Efficiency gains must not reduce the quality of the service provided. Any rewards linked to productive efficiency gains must be set at a level such as to allow balanced sharing of those gains between the broadband investor and the Member State and/or the end-users. Under the gap funding model, the infrastructure built is fully owned by the aid recipient that bears the risks associated with building new infrastructure and attracting sufficient customers.
- (49) Support in kind: In this case, Member States support fixed or mobile broadband deployment by putting at the disposal of electronic communication operators existing or newly built infrastructures. This support can take many forms, with the most recurring being Member States providing broadband passive infrastructure by carrying out civil engineering work (for instance by digging up a road), by placing ducts or dark fibre or giving access to existing infrastructure (for instance ducts, poles or towers).
- (50) Direct investment model: In the direct investment model, the Member State builds a fixed or mobile network and operates it directly through a branch of the public administration or via an in-house operator⁵⁹. The state funded network is often

⁵⁶ 'Gap funding' refers to the difference between investment costs and expected profits during the life span of the network

⁵⁷ Or any other public authority granting the aid.

⁵⁸ The term 'investors' denotes undertakings or electronic communications network operators that invest in the construction and deployment of broadband infrastructures.

⁵⁹ Commission Decision C(2011) 7285 final of 19 October 2011, case N 330/2010 — France – Programme national «Très Haut Débit » - Volet B (OJ C 364, 14.12.2011, p.2), which covered various intervention modalities, inter alia one in which the collectivités territoriales can operate own broadband networks as a 'regie' operation.

operated as a wholesale-only network with a view of making it available to retail broadband services providers on a non-discriminatory basis.

- (51) Concessionaire model: In the concessionaire model, the Member State finances the rollout of a fixed or mobile broadband electronic communications network, that remains in public ownership, but whose operation will be offered through a competitive selection procedure to an electronic communication provider to manage and commercially exploit it. The network may be run by an electronic communication operator to provide only wholesale services or, alternatively, to provide both wholesale and retails services.

ANNEX IV – INFORMATION TO BE PUBLISHED BY MEMBER STATES PURSUANT TO TRANSPARENCY OBLIGATIONS

The information on individual awards referred to in paragraph (202)(b) of the Guidelines must include the following⁶⁰:

- Identity of the individual aid beneficiary
 - name
 - aid beneficiary’s identifier
- Type of aid beneficiary at the time of application:
 - SME
 - large enterprise
- Region in which the aid beneficiary is located, at NUTS level II or below
- The main sector or activity of the aid beneficiary for the given aid, identified by the, NACE group (three-digit numerical code)⁶¹
- Aid element expressed in full in the national currency. For schemes in the form of tax advantage, the information on individual aid amounts⁶² can be provided in the following ranges (in EUR million):
 - [0,1-0,5]
 - [0,5-1];
 - [1-2];
 - [2-5];
 - [5-10];
 - [10-30];
 - [30-60];
 - [60-100];
 - [100 and over].
- Where different from the aid element, the nominal aid amount, expressed in full in the national currency⁶³

⁶⁰ With the exception of business secrets and other confidential information in duly justified cases and subject to the Commission’s agreement (Commission communication on professional secrecy in State aid decisions, C(2003) 4582 (OJ C 297, 9.12.2003, p. 6)).

⁶¹ Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain regulations governing specific statistical domains (OJ L 393, 30.12.2006, p. 1).

⁶² The amount to be published is the maximum allowed tax benefit and not the amount deducted each year (e.g. in the context of tax credit, the maximum allowed tax credit shall be published rather than the actual amount which might depend on the taxable revenues and vary each year).

⁶³ Gross grant equivalent, or where applicable, the amount of the investment. For operating aid, the annual aid amount per aid beneficiary can be provided. For fiscal schemes, this amount can be provided by the ranges set out in paragraph 139. The amount to be published is the maximum allowed tax benefit and not

- Aid instrument ⁶⁴:
 - grant/interest rate subsidy/debt write-off
 - loan/repayable advances/reimbursable grant
 - guarantee
 - tax advantage or tax exemption
 - risk finance
 - other (please specify)
 - Date of award and date of publication
 - Objective of the aid
- Identity of the granting authority or authorities
- Where applicable, name of the entrusted entity, and the names of the selected financial intermediaries
- Reference of the aid measure, as stated in the decision approved under these Guidelines

the amount deducted each year (e.g. in the context of a tax credit, the maximum allowed tax credit shall be published rather than the actual amount, which might depend on the taxable revenue and vary each year).

⁶⁴ If the aid is granted through multiple aid instruments, the aid amount shall be specified by instrument.

ANNEX V – INFORMATION TO BE PROVIDED BY MEMBER STATES PURSUANT TO REPORTING OBLIGATIONS

The report referred to in paragraph (208) of the guidelines must include information on, for the relevant reporting period, and for each individual project implemented in application of an aid measure approved under these guidelines:

- Name of the aid beneficiary or beneficiaries;
- The total cost (or estimated total cost) of the project and average cost per premises passed (defined as per paragraph (10) of Annex I)
- Aid amount awarded and aid expenditure
- Aid intensity
- Sources of public financing
- The coverage rates prior to and after the State intervention (in absolute and in percentage terms);
- For projects supporting the deployment of electronic communication infrastructure:
 - Date when the infrastructure was put in use;
 - Technology deployed on the publicly funded infrastructure;
 - Minimum and average (up- and download) speeds of services provided;
 - Wholesale access products offered, including conditions for access and prices/pricing methodology. Wholesale access products requested on reasonable demand and treatment of such requests;
 - Number of access seekers and service providers using wholesale access;
 - Number of households and businesses passed by the publicly funded infrastructure.
 - Take-up rates
- For project supporting take-up of electronic communication services, such as vouchers:
 - Duration of the aid measure;
 - Voucher value;
 - Subscriptions/Services supported including support for customer devices or for in-building wiring and/or drop down cable within a private domain;
 - Take-up rates and number of end-users having benefited from the aid measure (by category, e.g. individual end-users, SMEs and by type of subscriptions/service supported);
 - Number of eligible broadband service providers;
 - Number of broadband service providers that have actually benefited from the aid measure;
 - The evolution of the market position of operators by type of subscriptions/services supported, taking into account the relevant infrastructure and technologies (i.e. FTTH, FTTC, DOCSIS, FWA, etc.);

— Wholesale and retail prices before and after implementation of the measure.