Autoriteit
Consument & Markt

Public

Guidelines

Mobile network sharing

Our reference : ACM/UIT/547710
Case number : ACM/17/019978
Date : 28 januari 2021

Although every effort has been made to ensure accuracy and consistency, please note that this translation is for informational purposes only. In case of discrepancies or inconsistencies the authentic Dutch language version shall prevail.

1. Summary

1) Improving the coverage and capacity of mobile networks for 4G and 5G requires massive investments by the national mobile network operators (MNOs, Mobile Network Operators). In addition, 2G and 3G will be gradually phased out, and the Dutch Telecommunications Act will be amended, as a result of which the rules for leasing and renting out spectrum will be expanded, among other amendments. These developments raise questions among operators about how they are allowed to collaborate when sharing infrastructure. With these guidelines, the Netherlands Authority for Consumers and Markets (ACM) wishes to provide MNOs clarity about those questions. ACM is aware that the market is constantly evolving, and seeks to take that dynamic into account as much as possible.

Coordination of antenna site acquisition

2) MNOs may want to collaborate when acquiring new antenna sites, as it is getting harder and harder to acquire suitable sites. By providing information to municipalities, which is done on the basis of the Antenna Covenant, MNOs know of each other's installation plans in a specific area. On the basis of that information and a statutory regulation on the co-use of telecom infrastructure, market participants are able to file requests with each other for co-use of antenna sites. Coordination of this co-use of sites can be organized more efficiently if market participants are able to exchange information about planned antenna site locations in an early stage. ACM acknowledges that such coordination does offer benefits because it contributes to the efficient roll-out of high-quality mobile networks, which may outweigh the drawbacks in connection with the restriction of competition resulting from coordination when acquiring antenna sites. By using their own equipment at co-share sites, operators are able to differentiate from competitors. That is why ACM has no objections if market participants collaborate when acquiring antenna sites in this stage of the roll-out. One condition in that context is that any exchange of information or discussions can only take place insofar they are necessary for the objective of the collaboration. In addition, in order to maintain a level playing field among the relevant market participants, the collaboration must be open, under reasonable conditions, to all current and future nationally active license holders of spectrum for public mobile telecommunications services that wish to participate.

Leasing and renting out spectrum

3) Market participants have expressed their desire for the ability to lease or rent out licensed spectrum. The current Dutch Telecommunications Act does not provide for this ability, but that will change with the implementation of the European Electronic Communications Code. ACM is of the opinion that, in many situations, the spectrum caps (meaning the maximum volume of frequency bands that an operator can use with its own and leased spectrum) prevent competition from being distorted. However, this does not rule out that lease agreements where the cap is not exceeded can still be harmful to competition, for example with long term lease agreements between MNOs where the competitive positions between the MNOs change, or if operators exchange business sensitive information about their networks. With regard to renting out spectrum by MNOs to non-MNOs such as local-network operators or private-network operators, ACM does not see any reason in advance for considering such arrangements as anticompetitive.

National roaming on 2G or 3G networks

4) The amount of traffic over 2G and 3G networks is decreasing, because more and more traffic is handled over 4G and 5G networks. That is why MNOs have announced that they will switch off 2G and/or 3G, or have already started doing so. This has consequences for older devices and

for all kinds of Machine-to-machine (M2M) applications that rely on these technologies, such as automated emergency calling systems in cars, and smart meters that keep track of energy consumption. It may thus be attractive for operators to use each other's 2G or 3G networks through national roaming, in order to guarantee the continuity of their services. ACM sees there are opportunities for national-roaming collaborations on each other's 2G and 3G networks, after the announced shutdowns of 3G and 2G, without such collaborations restricting competition to a considerable degree.

2. Contents

1 Introduction

1.1 Background

5) The Netherlands has three national mobile networks, which are operated by the MNOs[1] KPN, VodafoneZiggo, and T-Mobile. In addition, a large number of MVNOs[2] are active on the Dutch market that also use those networks. The existing 4G networks are continuously upgraded in order to be able to accommodate the growth in mobile data traffic. Furthermore, since 2020, 5G has also been rolled out, thereby expanding the capacity of the networks. In addition, 5G allows new applications such as self-driving cars, remote health care, or virtual-reality entertainment. Such new applications can be offered by MNOs, but also by other market participants such as a local network provider or a private network provider. The continued evolution of 4G and the rise of 5G, among other reasons, will lead to the gradual phasing-out of the 2G and 3G networks. For example, VodafoneZiggo in February 2020 switched off its 3G network.

6) In order to be able to accommodate the growth in mobile data traffic, new frequencies are needed as well. In 2020, a spectrum auction was held, where spectrum in the 700 MHz, 1400 MHz and 2100 MHz bands were auctioned off. In addition, a spectrum auction for the 3.5 GHz band is planned in the next few years. The large volume of bandwidth that is available in this band is needed for being able to offer 5G without any restrictions. The auction of the 3.5 GHz band is planned for early 2022.[3]

7) The 700 MHz spectrum that was auctioned off in 2020 can be used for 5G and is suitable for improving coverage due to its low frequency. For this reason a coverage requirement has been attached to the 700 MHz licenses.[4] This coverage requirement means that MNOs that acquire at least 2×10 MHz of 700 MHz spectrum in the upcoming spectrum auction must provide 98% of the area of each Dutch municipality with coverage with an outdoor download speed of at least 8 Mb/s after two years. Six years after the auction a similar requirement is in effect with a 10 Mb/s bandwidth. The coverage requirement only applies to the MNOs with spectrum in the 700 MHz band and can also be met using other frequencies. Nature reserves and bodies of water have been exempted from the coverage requirement. In order to be able to meet the coverage requirement more antenna sites are needed. This could concern the limited number of remote areas where there has been no coverage at all as of yet. However, it also concerns urban (and suburban) areas where coverage or capacity needs to be improved in order to be able to meet the minimum required bandwidth.

8) Improving the coverage and capacity of the 4G and 5G mobile networks calls for considerable investments on the part of the MNOs. That is why providers are looking into ways to lower costs by sharing mobile infrastructure. In this context a distinction is made between the sharing of passive and active infrastructure. In the Netherlands sharing passive infrastructure is already done in various situations such as through the shared use of masts and rooftop sites. Sharing active infrastructure goes one step further: active equipment (equipment responsible for the distribution of telecommunication signal) is shared among MNOs. Examples include the shared use of

[1] MNO is short for Mobile Network Operator, a national mobile network operator that offers public mobile communication services through its own mobile network.
[2] MVNO is short for Mobile Virtual Network Operator, an operator of public mobile communication services that fully or partially uses an MNO's network.
[3] https://www.rijksoverheid.nl/documenten/kamerstukken/2020/12/17/kamerbrief-over-verdeling-35-ghz-band
[4] Regulations for the 700, 1400 and 2100 MHz auction, Dutch Government Gazette 2020 no. 13729, page 29.

antennas, base stations, routers or switches in the network. Sharing frequencies is another form of sharing active infrastructure. At this point, active infrastructure is not or hardly shared in the Netherlands. ACM will look into the anticompetitive effects of and any potential benefits of the sharing of active equipment, and may also take a position thereon.

9) ACM wishes to make clear its views of several aspects of the sharing of infrastructure. To that end, it sat down with various market participants in the telecom sector over a period of 12 months in order to get a better idea of the questions that are out there. Not only did we speak with the MNOs, but also with other market participants such as a supplier of equipment, a provider of "fixed wireless access"[5] and several specialized end-users.

1.2 Scope of the guidelines

10) From these discussions with market participants in the telecom sector, three topics emerged for which these guidelines have been drawn up:

- The conditions under which MNOs are allowed to collaborate when acquiring cell sites. As it is becoming increasingly difficult to find suitable sites, it may be appealing to providers to join forces in an early stage of that search process.
- The opportunities for spectrum leasing. With the transposition of the European Electronic Communications Code (ECCC) in the Dutch Telecommunications Act, the opportunities for spectrum leasing have been expanded. This may result in more efficient usage of spectrum. ACM is given a role in the assessment of competition aspects of agreements for spectrum leasing.
- The opportunities for MNOs that wish to use other's 2G or 3G networks after these providers have switched off their own 2G or 3G networks in the migration to 5G. The continuation of 2G or 3G services may be important to end-users that do not own any 4G or 5G phones or devices.

11) Besides having drawn up these guidelines, ACM is currently conducting an exploratory study into the market dynamics on the market for cell sites. Considering the increasing importance of suitable cell sites for 5G, ACM finds it important that this market functions well.

12) In several European countries, including the Czech Republic, Belgium, and Italy, MNOs have announced agreements for sharing network equipment that go beyond the types of agreements that are described in these guidelines. Those agreements involved the joint use of radio network equipment, which is a type of active sharing. These guidelines do not offer an assessment of such a far-reaching form of network-sharing. At the time of writing active sharing is not yet being considered in the Dutch market. Active sharing is not ruled out in advance with these guidelines; however it does call for a dedicated assessment taking into account the potential impact on the competitive landscape.

13) In addition, these guidelines do not concern the sharing of "small cells", which are small antennas with a limited range designed to improve capacity on busy locations such as shopping areas and stations. The roll-out strategies with regard to small cells are as of yet still uncertain and regulations are still under development. ACM additionally expects that the evolution regarding small cells will remain limited before the 3.5 GHz band auction takes place. This topic is therefore

[5] With Fixed Wireless Access, the 'fixed' telecom connection is delivered to a home or businesses using a mobile network.

not yet suited for these guidelines. In its study into the sharing of active equipment, ACM will also consider these ‘small cells’.

1.3 Reader’s guide

14) First, the legal framework is described for these guidelines in the next section. Next, the three main topics of these guidelines are discussed, which are coordination when acquiring antenna sites, spectrum leasing, and national roaming after switching off the 2G or 3G networks.

2 Legal framework

Introduction

15) MNOs compete with one another by each offering the best possible network, but recognize a need to collaborate when rolling out mobile networks in some cases. The legislature has also recognized that need and, has included opportunities for sharing infrastructure under specifically defined conditions in the regulatory framework.

16) In the near future, the Dutch Telecommunications Act (DTA) will be revised on the basis of the European Telecom Code[6], which is the new European regulatory framework in which, among other things, a lighter competition regime is prescribed for certain cases of joint roll-outs of infrastructure. With regard to the other cases of cooperation (the situations that will not be or have not been covered by telecom sector regulations or any other sector-specific regulations), the regular competition rules still apply, specifically the cartel prohibition in Section 6 of the Dutch Competition Act (DCA) and the comparable Article 101 of the Treaty (TFEU).

17) In these guidelines, it will be explained in detail how certain types of agreements between competitors must be regarded in light of the relevant telecommunication legislation and competition rules. On the basis of the guidelines, providers can assess for themselves whether or not their agreements are permitted under Section 6 Mw and Article 101 TFEU. For the explanations in these guidelines, the ACM refers to the provisions from the new Telecommunications Act as set out in a draft version of the bill proposing the amendment of the law[7]. Since the provisions are still part of the legislative process, this provisional status also applies to the legal framework as described here.

The current Telecommunications Act

18) The provisions in chapter 5a of the DTA offer a basis for shared use of antenna sites if a reasonable request has been made to the owner. The provisions are mainly inspired by the European Broadband Cost Reduction Directive[8]. In general, MNOs must agree to a reasonable request for the shared use of a cell site by another provider. This requirement is meant for stimulating the efficient deployment of networks, and preventing unnecessary duplicate activities and structures.

Antenna covenant

19) If antennas are shorter than five meters, then no environment and planning license is required, barring some exceptions.[9] In addition to this exception, more detailed arrangements have been made between MNOs, municipalities, and the Ministry, and these have been laid down in the Antenna Covenant (in Dutch: Antenneconvenant)[10]. The purpose of these arrangements is the

[6] Directive (EU) 2018/1972 (EECC).
[7] Bill proposing the amendment of the Dutch Telecommunications Act, Consultation version, 15 July 2019 (Tw 2020).
[8] Directive (EU) 2014/61 (BCRD).
[9] Article 2.3 in conjunction with Article 2, preamble, and paragraph 15 of Annex II of the Bill for the Environment and Planning Act (in Dutch: Besluit Omgevingswet); for the implementation of the Environment and Planning (General Provisions) Act (Wabo). Permit-free antennas also include antennas shorter than five meters on roofs of buildings. For more information, see: https://www.infomil.nl/onderwerpen/ruimte/functies/fnc-telecommunicatie/
[10] https://www.overalsnelinternet.nl/binaries/overalsnelinternet/documenten/rapporten/2021/01/19/antenneconvenant-2021/Antenneconvenant+2021.pdf

construction of permit-exempt antenna sites, as well as ensuring that the shared use of infrastructure takes place in a smooth and coordinated manner, more specifically the promotion of collaborations between MNOs, the careful placement of antennas, transparency and information vis-à-vis the general public, and the exchange of information between MNOs and municipalities. The covenant ensures that the exchange of information is limited to what is necessary for the coordination of overlapping roll-out plans. MNOs can also use the information from the installation plans to make sharing requests to other MNOs regarding infrastructure that already exists. As of January 1, 2021, the parties involved have signed a new Antenna covenant that is more in line with the current regulations.

Cap rules for frequency bands

20) For the auction of the 700, 1400, 2100 MHz bands, a spectrum cap[11] has been imposed on the basis of Section 3.11 Tw. It stipulates that the total frequency bands that a license holder is allowed to use have been capped at 40% of the frequency bands that are designated for mobile communication services. These are caps of 40% on respectively the use of the total spectrum and on all spectrums below 1 GHz. In addition, the caps of 40% will also apply to the allocation of the 3.5 GHz band.

The new Telecommunications Act

21) When transposing the EECC into national laws, the Dutch Telecommunications Act (TCA) will be revised. Several proposed amendments that are important for the roll-out (joint or otherwise) of mobile networks are explained below on the basis of the most recent version of the bill[12]. First, the scope of Section 5a.3 Tw will be expanded. In addition to MNOs, providers of related facilities such as antenna sites and other passive infrastructure, too, can be asked to share such facilities under similar conditions. Related facilities include buildings (including access thereto, as well as the cables thereof), antennas, masts, towers, and other supporting constructions.[13]

22) Furthermore, new provisions regarding the sharing of infrastructure (mobile or otherwise) are introduced, including a basis for authorities to impose the mandatory use of a co-location or to impose the sharing of network elements and their related facilities, in situations where such is deemed needed for the protection of the environment, public health, public order, or the public space.[14] In addition, new provisions stipulate that government agencies must accept reasonable requests for shared use of public infrastructure for the installation of small cells, possibly for a fee, and under reasonable conditions.[15]

23) With regard to mobile access, a new power regarding access obligations has been laid down in the new Section 6.3a of the new TCA. Under certain conditions, the minister will have the ability to impose access obligations on an MNO, more specifically about (a) shared use of physical infrastructure, (b) access to passive infrastructure, (c) access to active infrastructure, and (d) arrangements about mandatory roaming. However, there need to be local circumstances that necessitate access obligations for the purpose of competition and end-users.

24) What is also new in the Dutch regulatory regime for telecommunication is the ability to lease out a spectrum license.[16] The current spectrum regime, which only regulates the transfer of a license but

[11] 2020 Cap rules regarding mobile-communication frequencies, Dutch Government Gazette 2020 no. 13724.
[12] Bill proposing the amendment of the Dutch Telecommunications Act, Consultation version, 15 July 2019.
[13] Article 2, paragraph 10, Directive (EU) 2018/1972 (EECC).
[14] Section 5b.1 Tw 2020.
[15] Section 5c.2 Tw and 5c.3 Tw 2020.
[16] Section 3.20a DTA 2020 and Article 51 Directive 2018/1972/EU (EECC). The concept of leasing out spectrum by license holders, which has been laid down in the European regulatory framework through

not the leasing or leasing out of one, thus becomes more flexible. When leasing out a license, the lessor remains responsible for compliance with the license conditions. In practice, this makes leasing out spectrum blocks to other MNOs or local network providers possible. Leasing out freely-obtained licenses, commercial broadcasting licenses, and subleasing of frequencies are excluded. The Minister may, with an eye to competition, refuse and/or repeal the approval. In that process, ACM may be consulted for competition-law advice.

Dutch Competition Act

25) Agreements and coordination between undertakings fall under the regime of Article 101 TFEU and Section 6 of the Dutch Competition Act (DCA), in which the cartel prohibition has been laid down. According to Section 6 DCA, agreements and concerted practices among undertakings are prohibited if these restrict competition or have the object of restricting competition.

26) Paragraph 3 of Section 6 DCA describes the cumulative criteria that need to be met for an exemption from the main rule of the cartel prohibition. These are (1) improvement of production or distribution, or the promotion of technical or economic progress, where (2) end-users are allowed a fair share of the efficiency gains in the form of improved services (and products). In that context, additional criteria are that (3) the agreements are indispensable in realizing the efficiency improvement, and (4) sufficient residual competition must remain in the market. It is up to the undertakings involved to assess for themselves whether or not they meet these criteria.

Article 9b of the Framework Directive 2002/21/EC, has, so far, been left unregulated in the current Dutch Telecommunications Act.

3 Coordination of site acquisition

3.1 Background

27) MNOs may incur high costs for deploying networks with sufficient coverage and sufficient capacity for meeting end-users' demand for connectivity. To that end, providers use antennas, which are installed, for example, on roofs and masts. However, it has become increasingly difficult to find suitable sites for antennas due to various developments. Societal acceptance of antennas is under pressure and lot of attention is currently focused on the antennas' possible effects on health. As a result, building owners are sometimes reluctant to renew the contracts with providers. For example, think of housing corporations that no longer wish to have antennas on the roofs of their homes. In addition, some of those roofs that are currently used by multiple providers may in the future no longer be suitable because, for example, there is insufficient suitable space for accommodating the increasingly larger or heavier antenna installations. Some of the providers will then have to go different locations. In this situation, in which it is becoming more difficult to find suitable antenna sites, it is expected that more of these sites are needed in order to continue to be able to accommodate the growth of mobile-data traffic. After all, each antenna site is able to serve an increasingly smaller area. The coverage requirement for the 700 MHz band that was imposed in the most recent spectrum auction, too, leads to an increased need for antenna sites in those areas where the use of additional frequency bands and advanced technologies are insufficient. The combination of growing demand and shrinking supply results in MNOs spending more time and funds on finding suitable sites, meaning that, in more and more cases, a suboptimal solution is found. In that context it could be beneficial to providers looking for new sites share location data at an earlier stage than currently is the case on the basis of the information requirements in the Antenna Covenant.

28) When MNOs provide this location data to the municipalities, operators become aware of each other's installation plans in a certain area. On the basis of this information in connection with the statutory regulations for shared use of telecom infrastructure, market participants are able to request the shared use of antenna sites from each other. This shared use of sites can be coordinated more efficiently if market participants are able to exchange information on the planned antenna locations in an earlier stage.

29) As the competition authority in the Netherlands, ACM assesses whether collaborations between market competitors are beneficial to consumers. For example, ACM sees that collaborations between MNOs can have positive effects if through improved coordination of cell site acquisition, the mobile network's coverage and capacity can be improved faster and the growth of the number of sites can be curbed.

30) In the following sections, ACM will discuss the current practice of site sharing, the meaning of collaborating when acquiring new antenna sites, and its considerations when assessing such collaborations.

3.2 Current practice and planned coordination

31) At the moment, MNOs already collaborate when sharing antenna sites. This is the practical implementation of chapter 5a Tw, which stipulates that a network provider must accept (conditionally or otherwise) with reasonable requests submitted by another network provider for

the shared use of its physical infrastructure. In practice, a distinction can be made between masts and building rooftops. For masts a permit is usually needed and the mast construction is in many cases shared by multiple providers. For antennas on building rooftops, a license is usually not needed. Rooftop sites too are often shared by multiple providers whereby in many cases each MNO requires a mast construction in order to be able to install their own equipment (active or otherwise). Reasons for this are for instance the maximum mast height of 5 meter, the roof load-bearing capacity, and possible interference of radio signals or technical limitations. Another factor is the dependence of the contractual conditions negotiated by the building owner.

32) As described in section 2, further arrangements have been made in the Antenna Covenant between MNOs, municipalities, and the ministry in order to optimize the shared use of permit-exempt antenna sites in practice. The deployment plans drawn up by the Monet association play a key role in this process.

33) The process of drawing up deployment plans is presented in the diagram in Figure 1. Each year, independently from each other MNOs provide plans for each municipality to the Monet association regarding planned new antenna sites, including 'search areas', the areas where sites are still sought. This way municipalities are informed about future antenna site locations, whether a permit is required or not. Monet subsequently makes sure that a joint deployment plan is drawn up on the basis of the aggregated location data submitted by the MNOs. In this installation plan, the existing antenna locations are indicated on a map for informational purposes for municipalities, together with the planned new locations and the search areas. This installation plan is subsequently provided to the municipality in question and from that moment the aggregate geographical planning is also available to the providers.

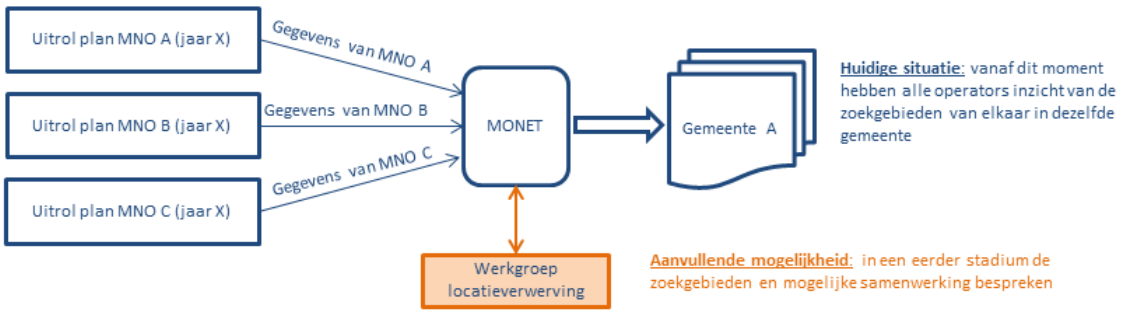

Figure 1: Current practice of selecting antenna locations. Coordination of locations in an earlier stage could be done through a working group in Monet.

34) Currently, MNOs largely operate independently when acquiring new antenna sites. Each provider calls in brokers that negotiate with the owners of buildings and antenna sites. Once permission for the use of a site has been obtained from the owner, other providers join in, for example, to go through the approval process together. Currently, the collaboration is limited to the joint use of *existing* antenna sites.

35) MNOs indicate they would like to collaborate more and earlier when acquiring *new* antenna sites. As illustrated in section 3.1, it is becoming increasingly difficult for providers to acquire suitable antenna sites. It could help if providers were able work together in that effort. It could be easier to win a building owner over if they knew that they could sign contracts with multiple providers. In joint site acquisitions, operators could for instance go through approval process among residents with multiple operators simultaneously. ACM expects that collaborations can make the acquisition process easier, thereby enabling upgrades to the mobile network to be rolled out sooner. In

addition, shared passive infrastructure such as power supplies, cabinets for equipment and physical infrastructure for backhaul, could be built faster and more efficiently if providers already coordinated with each other in the acquisition stage. Market participants additionally point out the benefit of a single contact person for municipalities and property developers, as well as the reduction of administrative costs.

36) What is distinct in this type for coordination is that it is about cooperation in the operational phase of the roll-out, where MNOs have independently drawn up roll-out plans, and, on the basis of overlapping roll-out areas, wish to share location data with regard to potential antenna sites. Explicitly it is not about the earlier strategic phase of the roll-out, where, for example, plans are made for when a certain municipality will be provided with 5G. Information about the roll-out strategy, just like other strategic plans, is considered competition-sensitive information, and can therefore not be shared. ACM recommends drawing up an Antitrust Protocol for, at the very least, this coordination, and declaring it applicable to all consultations and correspondence between the participating organizations.

37) The planned coordination requires that MNOs are able to share already in an early stage with each other planned new sites and search areas. Information about search areas can be shared with other operators as soon as a provider is looking for a set location. In that situation, they are no longer bound to the process of submitting an installation plan for finding new antenna sites. Next, the market participants that have set their sights on the same location are able to sit down about acquiring that site. The exact implementation of the coordination is the responsibility of all providers participating in the coordination. One of the options is to set up a working group within Monet. Within this working group, arrangements can be made about joint acquisition on the basis of submitted information about planned new sites and search areas. See the orange square in Figure 1. The Antenna Covenant remains the guiding document with regard to the way in which municipalities are informed about the installation of antennas.

3.3 ACM's considerations when assessing coordination

38) It is in the Dutch end-users' interest if the market participants that are currently active on the market for mobile-communication services keep each other on their toes. That is why ACM ensures there is effective competition between market participants. In its recommendations regarding the upcoming spectrum auction, ACM has concluded that that the current situation on the Dutch mobile market suggests there is effective competition.[17] For maintaining this situation, it is important that the three MNOs continue to operate independently from one another as much as possible, and continue to compete on the level of infrastructure.

39) ACM considers that the provision of a high-quality mobile infrastructure by the government is deemed important, which is revealed by, among other factors, the coverage requirement that has been attached to the award of the 700 MHz band. In addition, ACM recognizes that, because of a number of developments as described in section 3.1, it is becoming more and more difficult for MNOs to acquire suitable antenna sites, and, in that way, realize said high-quality mobile infrastructure. Collaborations can help make the acquisition of new sites easier more efficient. In addition, they can result in sites being shared more often, thereby reducing the total number that is needed. Collaborations thus contribute towards effective urban and environmental planning.[18]

[17] https://www.acm.nl/nl/publicaties/acm-advies-over-mogelijke-maatregelen-frequentieveiling (in Dutch).
[18] According to consideration 105 of Directive (EU) 2018/1972 (EECC) about the possible need for imposing facility sharing: *"[…] Improving facility sharing can lower the environmental cost of deploying electronic*

40) Furthermore, ACM expects the negative effects on competition to be small as a result of early coordination when acquiring sites as described in section 3.2. At the jointly acquired antenna sites, MNOs each use their own network equipment. This network equipment determines what technologies and frequencies are used, and, by extension, also determines the coverage and capacity that can be provided from the site. Therefore the MNO will remain able to differentiate itself from its competitors in terms of network quality, including in those areas where shared sites are used. Competition on infrastructure level can thus be maintained. In that context, ACM follows the position of the European network of telecom regulators, BEREC, with regard to the sharing of passive infrastructure.[19]

41) On the basis of these considerations, ACM has no objection against market participants collaborating when acquiring antenna sites in the operational phase of the roll-out as described in section 3.2. With regard to the coordination of site acquisition and the shared use of passive infrastructure, the following conditions do apply to the participating companies:

    - Exchanges of information, mutual consultations, arrangements, and concerted practices among market participants that work together when acquiring a site for masts can only take place insofar these are necessary for the joint acquisition and design of that site. What is not considered to be necessary are the following: the exchange of information concerning commercial arrangements or negotiations with the market participants offering the site, and non-public information about prices and rates that are not related to the joint leasing and subleasing of the site or the passive infrastructure thereon.
    - In order to maintain a level playing field between the relevant market participants, the collaboration must be open, under reasonable conditions, to all license holders of spectrum for public mobile telecommunication services that have joined or have committed to the Antenna Covenant and the thereto-related entities. These may also involve market participants other than MNOs, for example local network providers. These other market participants cannot be excluded in advance from the collaboration.

42) Market participants are, in principle, responsible themselves for assessing whether or not their planned collaborations are compliant with competition law. Market participants have the opportunity to submit their collaboration plans to ACM for assessments.

43) As described in section 3.2, the Monet association plays a key role in the current practice of making installation plans and the coordination with municipalities. It can be considered to give this association a role in the collaboration process described in this section, for example through the creation of a working group for the acquisition of antenna sites. In order to be able to meet the abovementioned criteria, this working group should be open, under reasonable conditions, to all license holders of spectrum for public mobile telecommunication services that have joined the Antenna Covenant[20] that wish to take part in this collaboration.

communications infrastructure and serve public health, public security and meet town and country planning objectives.[…]"
[19] BEREC Common Position on Mobile Infrastructure Sharing, BoR (19) 110, section 4.1, June 2019.
[20] On 1 January 2021, a new Antenna Covenant was signed.

4 Spectrum leasing

4.1 Frequency policy and general factors in assessments

44) The availability of spectrum is a precondition for a high-quality digital infrastructure.[21] In the Radio Spectrum Policy Memorandum 2016 (in Dutch: Nota Frequentiebeleid 2016), a distinction has been made for spectrum use, between different functions, such as spectrum for the government, license-exempt use of spectrum, and licensed use of spectrum.[22] The licensed domain is further divided into scarce and non-scarce licenses.[23] Scarce licenses are licenses for which there are more applicants than there are licenses. These are often allocated on the basis of an auction. With non-scarce licenses, demand, in principle, does not exceed supply. Non-scarce licenses are often awarded on the basis of the sequence of received applications.

45) Under the Dutch Telecommunications Act, licensed use of spectrum is only permitted if the spectrum user actually has the relevant license.[24] The license holder can transfer its license (if permitted by the minister). With the transposition of the EECC into the Dutch Telecommunications Act, this provision is expanded: a spectrum user will then be able to lease the use of certain spectrum from the market participants that owns the license.[25] This makes it possible to use spectrum in a flexible manner, for example temporarily and locally such as business-specific applications.

46) With the proposed amendment to the Dutch Telecommunications Act[26], it becomes possible to lease and rent out spectrum. The basic principle of spectrum leasing is that advance permission from the minister is required. The minister gives ACM the opportunity to give recommendations should there be any effects on competition. Ministerial permission is not required in each and every case. One example of when permission is not required is renting out for the purpose of local spectrum use.[27] Hypothetical examples of renting out local spectrum are business-specific applications on private property. Such cases will be worked out in an order-in-council.

47) The mechanism of leasing and renting out spectrum may contribute to the growing demand for flexible spectrum use. At the same time, renting out spectrum may distort competition on the market in question[28], for example because the competitive positions of MNOs among themselves change or because providers exchange business-sensitive information regarding their networks. The challenge here is, on the one hand, to maximize the economic value of spectrum as well as the efficient and flexible use thereof and, on the other hand, to minimize the risks of anticompetitive problems that may result from leasing or renting out spectrum.

48) When ACM is asked to issue recommendations with regard to leasing or renting out spectrum, ACM will take into account in its assessment of the effects on competition the following aspects:

- The nature of the spectrum in question (for example, what frequency bands, how much bandwidth, and for what application the lessee wishes to use the spectrum).

[21] Radio Spectrum Policy Memorandum 2016 (in Dutch: Nota Frequentiebeleid 2016), page 7.
[22] Radio Spectrum Policy Memorandum 2016 (in Dutch: Nota Frequentiebeleid 2016), page 21.
[23] Radio Spectrum Policy Memorandum 2016 (in Dutch: Nota Frequentiebeleid 2016), page 19.
[24] Section 3.13 paragraph 1 Tw.
[25] Section 3.20a Bill proposing the amendment of the Dutch Telecommunications Act (consultation version).
[26] https://www.internetconsultatie.nl/telecomcode
[27] Chapter 3.3 of Explanatory Memorandum to the Amendment to the Dutch Telecommunication Act (consultation version).
[28] When the term 'market' is used in this chapter, it does not always refer to the competition-law concept of 'market'.

- To what extent can the leased spectrum be replaced by other frequency bands (for example the exchangeability of high versus low frequency spectrum). If the spectrum is difficult to replace with other bands, the effects of the lease agreement can be larger;
- The conditions of the spectrum license (for example the license period and the location where the license can be used);
- The duration of the planned lease agreement, and the option of extending it after expiry thereof;
- The locations to which the lease agreement relates (for example, a single antenna location, city, province or nationwide);
- Direct or short-term effects on competition (for example the effects on price and quality of existing and new services of both the parties to the agreement as well as those of the market participants that rely on the participating networks such as MVNOs);
- Possible effects on competition in the medium and long term (for example, the roll-out of the mobile network, capacity expansion, spectrum acquisition, and barriers for entrants);
- Possible effects of the planned exchange of information between the parties involved. Exchanging information for the purpose of enabling the lessor to verify whether the lessee complies with the license conditions is, in principle, allowed. In that case, only information that is necessary for verifying whether the license conditions have been complied with can be exchanged.

49) In addition to these general aspects, ACM, in its assessments, also makes a distinction between lease agreements among MNOs and lease agreements between MNOs and non-MNOs. Within the context of this guideline, a non-MNO is a provider (specialized or not) that meets demand for sector-specific and business-specific telecommunications, on the basis of spectrum for business-specific applications. This distinction is needed because the way of making the relevant frequency bandwidth available varies in most cases.[29] One scenario where non-MNOs rent out spectrum to each other is currently not under discussion, because the non-MNOs predominantly have spectrum that they obtained for free (which they consequently cannot rent out). If a non-MNO, at any point, has acquired spectrum through payment, for example by submitting the winning bid or by paying the reserve price at an auction, then it is allowed to rent out that spectrum.

50) The following sections describe the additional factors that are important in assessments of lease agreements between MNOs and in those of lease agreements between MNOs and non-MNOs.

4.2 Lease agreements between MNOs

51) Two MNOs can sign an agreement for leasing or renting out spectrum. With the introduction of the cap rules for the spectrum auction in 2020, the total frequency bands that an MNO can use at any point at any location has been capped at 40% of the available mobile frequencies.[30] The term ‘use’ refers to the spectrum that has been licensed to the MNO and the spectrum leased by the MNO. The purpose of the cap is to ensure that the spectrum use among MNOs does not turn asymmetric. This is an important criterion for safeguarding actual competition between the MNOs, as noted in ACM’s recommendations for the 2019 multiband auction.[31]

52) ACM expects that MNOs will only have an incentive to rent out spectrum if that does not jeopardize their own services and competitive positions. One possible example is a short lease

[29] 2019 Mobile Communications Memorandum, pages 14 -18.
[30] 2020 Cap rules regarding mobile-communication frequencies, Dutch Government Gazette 2020 no. 13724
[31] ACM recommendations for the 2019 multiband auction, chapter 5.3.4.

agreement where an MNO rents out its unused spectrum to its competitor for interference tests in a remote area. Another example is a live event or temporary local use. In these kinds of situations, there is a small chance that a restriction of competition will occur.

53) For long term lease agreements, this may be different, because a longer lease period of spectrum enables the MNO (lessee) to increase spectrum use to, for example, the maximum that the cap rules allow, if the MNO failed to do so previously (for example at the spectrum auction).[32] Extra available spectrum in itself benefits the competitiveness of the spectrum lessee but may in the long term have negative effects on competition in the market. In that context, the following situation may come to mind.

54) Spectrum leasing enables the MNOs to sign spectrum sharing[33] agreements. Market participants that wish to engage in spectrum sharing often need the same network elements of the radio network. That is why, in practice, spectrum sharing is often used if the participants already have an agreement for the sharing of active equipment or if they make preparations for such an agreement. This option means that a new type of collaboration between MNOs on the Dutch market may emerge, where an extensive exchange of information is probably necessary. This may result in increased transparency in the market, and in a reduced ability to differentiate oneself on the part of the MNOs. At this point, this type of collaboration is not yet under discussion in the Netherlands.

55) Another aspect of renting out spectrum long-term is the fact that it can lead to less available capacity of the lessor's network, and, consequently, to possible negative effects on the end-users. In this case, the end-user can be a consumer or a business customer, but also a customer of the MVNO that, for the supply of services, fully depends on the lessor's network. It is important that the lessor does not differentiate between its own customers and the MNVO's customers, and that the end-users are informed in a clear and transparent manner.

56) When assessing the possible effects of long-term lease agreements on competition, ACM takes into consideration the following aspects, among other aspects:

- What part of the spectrum has been licensed to the MNO? In any case, the applicable caps for spectrum use cannot be exceeded as a result of the scheme of leasing and renting out.
- What are the possible effects on costs for the lessee and lessor?
- What are the possible effects on the MVNOs that rely on the participating MNOs?
- What are the effects on the MNOs that do not take part in the scheme of leasing and renting out?
- What is the possible increase in capacity for the MNOs that lease?
- What is the possible reduction in capacity for the MNO that rents out?
- What type of information is exchanged by the parties involved?
- In what way does the agreement influence transparency among MNOs?
- In what way does the agreement influence the ability of MNOs to differentiate themselves from each other?

57) Based on the outcome of the assessment of the above aspects, the question is what the possible changes in the competitive positions of all MNOs would be on both the retail market as well as the wholesale market. If more than one lease agreement is concluded, it is also relevant to assess the possible mutual effects between these different schemes.

[32] Assuming that all three MNOs would seek to acquire the maximum allowed spectrum during a spectrum auction, one or more MNOs will end up with less than 40% of the total spectrum.
[33] Spectrum sharing means that the MNOs combine their frequency bands (or a part thereof) and use them jointly.

4.3 Lease agreements between an MNO and a non-MNO

58) Leasing and renting out spectrum can also take place between an MNO and a non-MNO. In practice, this means one of the following two options:

1) An MNO rents out spectrum to a non-MNO.
2) An MNO leases spectrum from a non-MNO. For example, think of the spectrum that is primarily intended for business-critical communications.

Option 1: an MNO rents out its mobile frequency bands to a non-MNO

59) The cap rules apply to the mobile frequency bands[34], and these apply to all users that use these frequency bands. That means that both the MNO and the non-MNO that are involved in the lease agreement are bound to the maximum number of mobile frequencies that it can have at any time at any location. ACM expects that MNOs will keep the majority of the mobile frequencies for which they are granted a license to use themselves, and that only the part that is not needed in the short term will be rented out to another market participant. Any lease agreements are likely to be local in nature.

60) These types of agreements will, in practice, only relate to a small share of the mobile frequencies, and are expected to have a limited impact on competition on the mobile market and on the market for business-specific applications. One beneficial effect could be that non-MNOs that lease spectrum can create additional competition in local applications. One possible example is offering broadband services in remote areas using a 4G connection. This type of application is often realized on the basis of the local needs of businesses and residents in places where insufficient fixed or mobile services of the national providers are available. Another example is the business-specific application on a business park. This type of application has other technical modalities than what is offered over a public mobile network: in effect, it is a different market segment. That is why ACM does not expect these types of services to have any direct impact in the short term on competition on the mobile market. ACM does not see in advance any reason for regarding such renting-out of spectrum by MNOs to non-MNOs as anticompetitive.

Option 2: an MNO leases spectrum from a non-MNO

61) In principle, a MNO can lease spectrum from a non-MNO. This is only possible if the non-MNO has acquired the spectrum through payment. If the spectrum of a non-MNO has been acquired for free, then it is not allowed to rent it out.[35] When assessing this type of rentals, ACM examines, among other aspects, the same questions that are under discussion when assessing a lease agreement between MNOs. The one possible difference with the situation with rental among MNOs is that such assessments predominantly target the potential effects on competition surrounding the MNO that leases. A strong effect on the other MNOs seems less likely in this situation.

Other factors that can be important for the assessment

62) Given that the lease market for frequency bands has yet to get off the ground, and the impact thereof on the mobile market has yet to be discovered, ACM also bears in mind the following options that will mostly play a role in leasing and renting out between an MNO and a non-MNO, because such a situation is expected to have more dynamism.

[34] 2020 Cap rules regarding mobile-communication frequencies, Dutch Government Gazette 2020 no. 13724, article 1.
[35] See marginal 49.

63) The first option concerns the renewal of spectrum that has been leased for a short period of time. A short lease period or rental period will only have a limited effect on the competitive landscape on the market. However, it is also conceivable that the spectrum is leased for a short period of time, and then renewed. If the same short lease or short rental is renewed multiple times, this lease or rental arrangement is expected to have the same effect as lease or rental for a longer period of time. That is why the possible renewal is one of the factors that must be examined in the assessment of a lease agreement between MNOs and non-MNOs.

64) Another option is that the lessee of spectrum can lease and use different blocks of spectrum (including multiple at the same time). Figure 2 is a schematic diagram as an example of a lessee that leases different volumes of spectrum in periods a, b, c, d, e and f. In this case, it is important to assess the lease agreements as a whole as well as for the entire period.

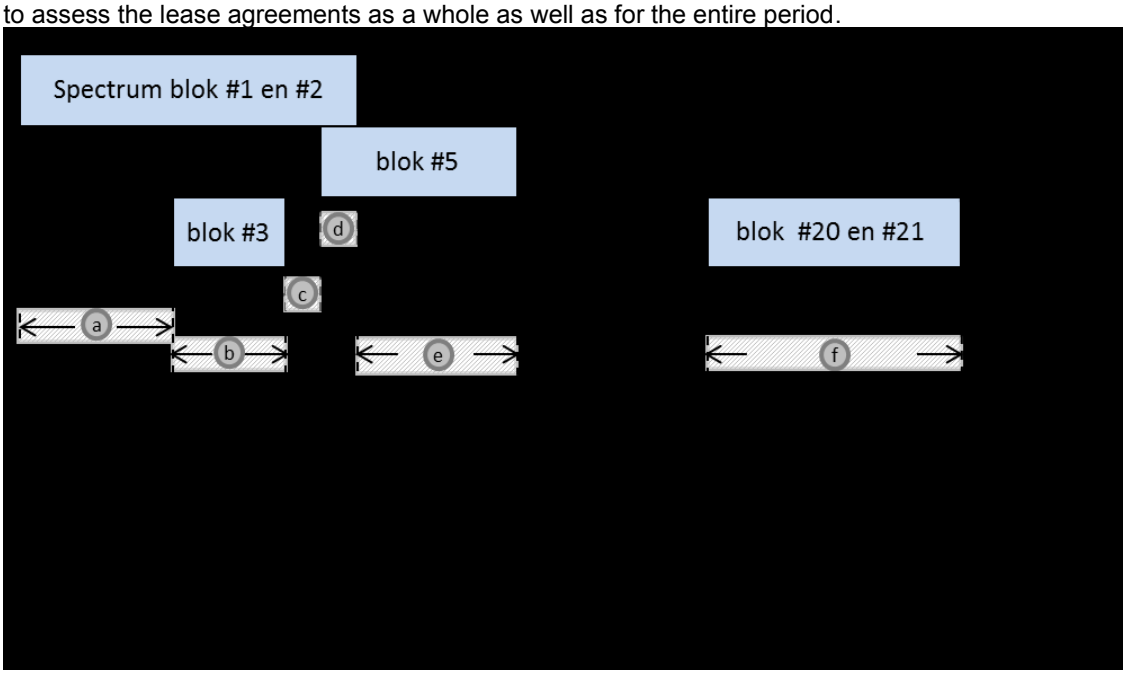

Figure 2: One scenario in which a single market participant leases frequency blocks during different periods (from multiple market participants that rent out).

5 Roaming on 2G or 3G networks

5.1 Switching off 2G and 3G networks

65) With the advent of 5G, the use of existing networks slowly but surely shifts towards the more modern technologies (4G and 5G). This is a natural consequence of innovation, which is desirable because newer networks allow applications to become faster and more stable. As a result, the older networks (2G and 3G) slowly become obsolete. Switching off the legacy technologies 2G and 3G has consequences for users that depend on them. For example, most modern mobile phones have 4G capabilities, but there are still end-users with mobile phones that rely on the 2G and/or 3G networks. In addition, there are Internet-of-Things (IoT) applications in use, such as smart meters of energy system operators, that use 2G, as well as eCall alarm systems that are installed by car manufacturers, and that only rely on 2G or 3G. In most cases, the devices of these applications cannot be replaced with an alternative that is compatible with 4G or 5G without incurring considerable costs or efforts.

66) The MNOs have reasons to switch off 2G or 3G. Older technologies are no longer profitable, and the frequencies that are used by 2G, for example, are also needed for 4G and 5G. Providers thus consider the pros and cons of keeping networks. Since February 2020, VodafoneZiggo has gradually switched off its 3G network.[36] KPN has announced that it will start switching off its 3G network in January 2022, and that it will keep its 2G network operational until at least April 2025.[37] T-Mobile has announced that it will start switching off its 2G network for mobile phones in late-May 2021[38] and for M2M-applications on June 1, 2023.[39]

67) With KPN and VodafoneZiggo switching off their 3G networks, it means that end-users on these networks are only able to use 2G or 4G. Devices that are not 4G-compatible will thus only be able to use 2G. The number of devices that fall into that category is decreasing because newer devices virtually always support 4G**.** The 2G network offers voice services and mobile-data services, but the download speed of the data services is so low that it will be considered as not usable by most users. In most cases, these users will have to replace their devices, or use Wi-Fi for data. Devices that are only compatible with 3G (and not with 2G and/or 4G) may no longer be used when 3G is switched off. However, such devices do not or hardly exist.

68) Switching off 2G means that mobile devices that are only compatible with 2G can no longer be used. At this point, millions of such devices are still in use, especially for IoT-applications such as smart meters. Replacing those will involve considerable replacement costs. Most of these devices are connected to the Internet using a KPN or VodafoneZiggo plan. That is one key reason as to why these providers do not switch off their 2G networks for now. When 2G has been switched off, the 2G-only devices in T-Mobile's network will be dependent on the solutions that T-Mobile will make available. Those options will then involve roaming (national and/or international) on still available 2G networks, possibly switching contracts to providers that continue to offer a 2G network, or replacing devices.

[36] https://groeimeenaar4g.vodafone.nl/
[37] https://www.kpn.com/beleef/mobiel/de-toekomst-van-4g.htm
[38] https://www.t-mobile.nl/2g-uitzetten
[39] https://www.t-mobile.nl/zakelijk/diensten/2g-stopt

5.2 Roaming agreements after switching off 2G and 3G

69) The effects of switching off the 2G and 3G networks for end-users can be mitigated if roaming on the remaining networks continues to be available. For example, KPN or VodafoneZiggo could sign a 3G roaming agreement with T-Mobile, which has not yet announced any plans about switching off its 3G network. The 3G-only customers of KPN or VodafoneZiggo could then connect with T-Mobile's 3G network, which will continue to be operational over the next few years. Consumers that do not yet have any 4G phones will then be able to use 3G for a longer period of time, and will have more time to replace their phones with newer phones. Conversely, T-Mobile could sign a 2G roaming agreement with KPN and/or VodafoneZiggo. With such a deal, T-Mobile will have more time to replace the existing 2G devices. Replacing 2G-only devices for M2M applications is not so simple in most cases. Therefore, usage of these types of devices will decline gradually. This concerns devices such as smart meters, eCall systems[40] or sensors in road infrastructure that cannot be easily replaced, and for which the mobile provider has signed long-term contracts with buyers.

70) Such roaming agreements are not something new. In the recent past, Tele2 had a roaming agreement with T-Mobile, allowing Tele2's customers to use T-Mobile's 2G and 3G networks, for example in locations where Tele2's 4G network's coverage was still insufficient. The flip side of such agreements is that a greater interdependence among the MNOs may emerge. When the 3G networks of KPN and VodafoneZiggo have been switched off, T-Mobile will be the only provider that can offer a 3G roaming service. At the same time, T-Mobile is dependent on KPN and VodafoneZiggo for 2G roaming agreements.

71) Under certain conditions, MNOs can decide for themselves to switch off certain parts of a network, and, to a certain degree, they are free to conclude roaming agreements. The Dutch Telecommunications Act does not contain any provisions that set boundaries to the possibility of 2G/3G roaming. The mobile-frequency licenses, too, do not contain any prohibition of 2G/3G roaming. However, the degree to which competitors are able to make arrangements with competitors about replacement roaming services is restricted by Section 6 of the Dutch Competition Act. In practice, that means, among other consequences, that the arrangements cannot result in a situation where strategic or commercially-sensitive information about switching-off strategies can be coordinated.

72) In the case of roaming (national or international) on 2G/3G, too, market participants should assess by themselves 3G whether or not they act in violation of the Dutch Competition Act. When assessing a roaming agreement, ACM will first examine whether it has the object or effect of hindering, impeding or distorting competition on the Dutch market or on a part thereof. When assessing whether an agreement regarding national roaming for 2G/3G results in a restriction of competition, ACM will take into account the following aspects in its assessment:

- The number of remaining providers of 2G/3G.
- The size of the user group for which the roaming agreement is signed.
- The degree to which the roaming agreement leads to changes in price and quality of the services provided.

[40] Regulation (EU) 2015/758 of 29 April 2015 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC. A legal blockade is currently in effect against the implementation of eCall over 4G; the 3GPP standards for eCall over 4G/ 3G/ 2G (NG eCall) are ready, as are the chipsets. However, the standards that should be use according to the regulation concern eCall over 2G/3G. As long as this has not been altered, the automotive industry continues to install mostly 2G/3G eCall systems.

- The degree to which the roaming agreement provides national roaming to any MVNOs with which the roaming MNO in question has a wholesale agreement.
- The degree to which information is exchanged between MNOs.

73) ACM sees there are opportunities for national-roaming collaborations on 2G and 3G networks after the announced phase-out (3G by VodafoneZiggo and KPN, 2G by T-Mobile) without such collaborations restricting competition to a considerable degree. It is expected to concern a limited group of users but with significant numbers of M2M-devices as used in the energy market (smart meters) and the automotive industry (eCall), which, for the typically lower traffic volumes, only generate a limited share of the participating MNOs' turnovers. In that case, mutual interdependence will only be limited to the MNOs that have entered into the agreement, which means no significant concentration effect will occur. Buyers of services over the 2G or 3G networks have expressed concerns about a situation where only a single provider with a 2G or 3G network is active, on which the devices they use depend, as a result of which, that provider obtains, in theory, a 100% market share for these types of connections. Providers that may enjoy such a monopoly position with regard to legacy mobile connections therefore ought to behave responsibly, for example, by using reasonable conditions and tariffs vis-à-vis buyers that are not able (or only able at significantly high costs) to migrate their devices to 4G or 5G. Furthermore, buyers of services over 2G or 3G networks, too, have their own responsibility for preventing such interdependence. At this point, as it is clear how much migration time is available, that time can be utilized by users of legacy networks.

6 Consultation report

6.1 Introduction

74) A draft version of these guidelines was made available for public consultation between June 22 and September 30, 2020, in order to give interested parties the opportunity to submit opinions about the guidelines. A total of 10 responses were received, coming from market organizations (or representatives thereof): Enexis, GSMA, RAI, BTG/TGG, Ericsson, Netbeheer Nederland, T-Mobile, KPN, VodafoneZiggo, and Monet. The responses are mostly positive about the added value of the guidelines, and some make recommendations for corrections and additions to the guidelines as a whole or to one of the topics. Several responses were about the scope of the guidelines, which could be seen as too limited because of the lack of guidance regarding the sharing of active network equipment. At this point, active infrastructure is hardly shared (or not even at all) in the Netherlands. Cooperation in the form of active sharing, as opposed to passive sharing, requires an independent analysis of the technological and economic context as well as the possible consequences for competition. That is why active sharing has not been included in the guidance on early coordination when acquiring antenna sites. ACM will examine the topic of active sharing in greater detail and form an opinion on the basis of its findings.. The feedback received will be discussed per topic below.

6.2 Legal framework

75) With regard to the legal framework, it has been noted that this section discusses legislation that is still part of the legislative process, which is the revision of the Dutch Telecommunications Act (DTA) on the basis of the currently effective European Directive EECC. When drawing up the guidelines, ACM took into account the consultation version of the new DTA, and has added a proviso regarding the non-definitive status of the provisions in the new DTA. Any significant changes to the final version of the new DTA compared with the discussed provisions may result in a revision of the guidelines.

6.3 Early coordination

76) MNOs and the Monet association welcome ACM's initiative to offer guidelines regarding the topic of early coordination. Market participants have underscored why it is important in the roll-out and upgrading of mobile networks that they are able to collaborate in the acquisition of antenna sites, predominantly in connection with technical circumstances and increasing scarcity. In addition, following several comments, corrections have been made in the description of the search and acquisition process, both in the current situation as well as in the planned situation. With regard to the significance of the Antenna Covenant and the installation plans, several nuances have been added in the description following comments. Several opinions discuss the market conditions on the market for antenna sites, on which intermediaries and real estate developers are active. In these guidelines, ACM leaves this contribution largely aside, and refers to a study into this market that is conducted in parallel with the consultation.

6.4 Spectrum leasing

77) MNOs, a network supplier, and the BTG association welcome the opportunity to lease and rent out spectrum. One market participant believes that the government could take intervention measures if market participants are unable to conclude commercial agreements among themselves. It is expected that ACM, possibly in cooperation with Radio communications Agency Netherlands (AT), will set conditions for spectrum leasing. ACM understands that the market is hoping for a swift implementation of the new opportunities to lease and rent out, and that the market is expecting that ACM can help guide the market. However, ACM is of the opinion that the market and market participants must have sufficient freedom to find the right balance. That is why ACM will not draw up any rules (for example through lease conditions) in advance.

78) The final version of the guidelines will be clarified following questions from the MNOs. First, the need for the distinction between MNO and non-MNO will be explained. Second, the possible applications as a result of leasing and renting out spectrum will be adjusted following the comments made by the MNOs. Furthermore, more details are added to the potential negative impact of protracted leasing or renting out spectrum among MNOs themselves.

6.5 National roaming

79) One MNO has given an update regarding the switching-off date of 2G on its mobile network. System operators of power grids have installed smart meters in the Netherlands on a massive scale, and these smart meters depend on 2G technology. In the automotive industry, so-called eCall systems are installed into cars, and these systems are mostly able to communicate with 2G/3G technology only. Replacing this equipment may be very costly, and requires a lot of time. Furthermore, representatives of car manufacturers fear that risks in terms of network availability may arise when operators phase out 2G or 3G. They have therefore asked to facilitate national roaming agreements between 2G/3G providers that will phase out 2G/3G, and remaining 2G/3G operator(s). These guidelines offer guidance for that process. It is also noted that any risks of market abuse are mitigated by competition oversight.

80) Large-business buyers have indicated that national roaming should also be possible for 4G and 5G services to improve the availability of these services, and not just for 2G/3G services.