Bundesnetzagentur

Basic principles of the type, scope and terms and conditions of open network access pursuant to section 155(4) of the Telecommunications Act (TKG)

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List of abbreviations

BNG	broadband network gateway
EU	European Union
GBER	General Block Exemption Regulation
MSAN	multi-service access node
NGA	next generation access
ODF	optical distribution frame
OLT	optical line termination
TFEU	Treaty on the Functioning of the European Union
TKG	Telecommunications Act
VULA	virtual unbundled local access

As of 22 July 2025

1 Basic concepts and objectives

The aim of open network access is to promote competition on networks built with State aid. **End-users** should have a **choice of products** from different providers, at different levels of quality and price, **comparable** to that available in areas that enjoy private sector investment.

1 Through the public funding of telecommunications networks and telecommunications lines in areas that are economically more difficult to develop, the State is helping to **close the digital divide** and is promoting the **creation of equivalent standards of living** across all areas, whether with or without the need for State aid. **Comparable service provision** in publicly-funded networks is also part of this and gives **end-users** a **comparable choice of products from different providers, at different levels of quality and price**. This requires the **development of effective competition**, for which open network access is of key importance. Potential access seekers in assisted areas must therefore be able to purchase **wholesale services at a price and quality** that is **comparable to that available in areas that can be developed by the private sector**.

Section 155(1) of the German Telecommunications Act (TKG) provides the **legal basis** for the requirements for non-discriminatory open network access to public telecommunications lines or telecommunications networks built with public funding.

2 The **parties subject to the requirement** under section 155(1) TKG are the **owners or operators of telecommunications networks and telecommunications lines built with public funding**. The ownership position or operator position may differ depending on the funding model selected in each case (viability gap funding, operator model or other funding models). The legal provision applies both to owners or operators that offer their own retail products and to owners or operators that are active solely at the wholesale level.

3 The principles on the type, scope and conditions of open network access under section 155(4) TKG take account of European Union State aid rules in relation to the rapid deployment of broadband networks, as amended. The principles set out here take account of the **Guidelines of the European Commission** on State aid for broadband networks as amended on 12 December 2022[1] ("2023 Guidelines"). All the requirements for public network access set out therein apply directly to State intervention measures that are approved by the European Commission on the basis of the 2023 Guidelines.

4 With respect to the type and scope of the right to access under section 155(1) TKG, the **national or federal State-specific guidelines or framework arrangements on funding and the funding provider's conditions** must be taken into account. These are to be assessed on

[1] Communication from the Commission, Guidelines on State aid for broadband networks, OJ C 36 of 31 January 2023

the basis of the relevant guidelines on aid that are in force at the time the intervention measures underpinning the aid are notified to the European Commission.[2] In this respect, the relevant EU regulations provide the benchmark for the interpretation of the individual funding programmes' conditions of access. For measures that fall under the GBER, the version of the GBER is relevant that is in force at the time a funding award notice is issued.

5 For the interpretation of aid guidelines and framework arrangements that were notified under the State aid rules of 26 January 2013[3] ("2013 Guidelines"), the 2013 Guidelines are decisive. In accordance with paragraph 220 of the 2023 Guidelines, any changes resulting from the new guidelines are not to be applied to measures that have already been notified. Where the requirements under the 2013 Guidelines have merely been clarified by the new version of the 2023 Guidelines, the revised guidelines will be used for the interpretation of the principles set out here.

6 For the interpretation of funding guidelines and framework schemes that are notified under the 2023 Guidelines, the 2023 Guidelines will be used exclusively.

7 The legal formalisation of the right to access in section 155(1) TKG ultimately takes precedence over **any possible contractual agreements** insofar as they do not or do not fully provide for open network access as laid down by law.

2 Object of the access

Access must be granted to the **telecommunications lines and telecommunications networks within the meaning of section 3 paras 64 and 65 TKG** that have been built with public funding.

An access obligation applies irrespective of whether in technical terms it is a **fixed access network,** a **mobile access network,** a **backhaul network** or a **backbone network**.

Publicly-funded infrastructure within the meaning of section 155 TKG (telecommunications lines or telecommunications networks) is considered to be any infrastructure where **State funding** has been granted to build, deploy or operate the infrastructure on the basis of the GBER, the gigabit framework arrangements (or comparable framework arrangements or guidelines) or another measure assessed by the European Commission under Article 107 et seq TFEU.

8 The terms "**telecommunications lines**" and "**telecommunications networks**" are technology-neutral and thus generally apply not only to fixed network funding but also to mobile communications funding.

9 Accordingly, to distinguish between those telecommunications lines and telecommunications networks for which open network access must be granted and those for which it need not, a

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[2] For example, the gigabit framework arrangement as revised in 2024 follows the EU 2023 Guidelines. This framework arrangement is accessible (in German) at https://www.bmdv.bund.de/SharedDocs/DE/Anlage/DG/Digitales/gigabit-rahmenregelung.

[3] Communication from the Commission, EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks, OJ C 25 of 26 January 2013

distinction must be made between State interventions that are to be subsumed under the term "publicly funded" and those for which this is not the case.

10 Annex IV to the 2023 Guidelines lists the typical interventions to foster broadband deployment (eg gap funding model, support in kind model, direct investment model and concessionaire model), which can be used to classify further possible types of public funding.

> Access must be granted to the **entire publicly-funded network** – including to those parts of the network where existing infrastructure is used – **on the same conditions of access**.

11 In the case of funding, **the same access conditions** must apply to **the entire publicly-funded network**. In addition to the newly-built infrastructure, the right to access includes those parts of the existing network that already form part of the infrastructure of the publicly-funded network operator or are used by the publicly-funded network operator for the purpose of supplying the assisted area (eg lease, rent).[4] This also includes existing infrastructure, such as backhaul networks[5], that is used for publicly-funded subscriber lines or mobile transmitter facilities. Correspondingly, the open network access must be granted not only to newly-built infrastructure but to **all infrastructure that exists at the start of the funding process and that is to be used for developing the assisted area**.

12 Moreover, the right to effective open network access also includes **access to network components** that have **not received public funding but are necessary** to ensure effective network access allowing access seekers to offer their services in assisted areas. Depending on the wholesale product requested, **technical components outside the assisted area** may also be included; **this only applies insofar as they are necessary to provide for subscribers in the assisted area**.

> *For example, this may be the case where the access seeker requests a layer 3 bitstream wholesale product to provide service to end-customers in the assisted area but the bitstream **transfer point** is located **outside the assisted area** and has not been upgraded through State resources. Other examples may include access points to wholesale products at ODFs or BNGs, sleeves or manholes located outside the assisted area but that are necessary for effective network access.*

13 Insofar as the use of transfer points outside the assisted area within the meaning of paragraph 12 is necessary, open network access under section 155 TKG extends at these

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[4] In this connection it is pointed out that the use of existing infrastructure by the undertakings must be checked alongside the bids received during the tendering proceedings and must be provided for in the development planning as far as possible (see section 5(3) sentence 3 NGA framework arrangement; section 3(4) and section 5(3) gigabit regulatory framework; paragraph 78(f) of the 2013 Guidelines; paragraph 128 of the 2023 Guidelines and paragraph 1(7) Material concept of the Federation Version 5.0). The re-use of existing infrastructure – as stated in paragraph 126 of the 2023 Guidelines – is one of the main factors that can contribute to reducing the cost of deployment of a new broadband network and limiting the impact on the environment.

[5] Backhaul network is defined in paragraph 19(f) of the 2023 Guidelines as referring to the part of a broadband network for electronic communications that connects the access network to the backbone network, thus it is not part of the network that connects to the end-user. In contrast, paragraph 19(g) of the 2023 Guidelines classifies the backbone network as the core network that interconnects backhaul networks from different geographic areas or regions.

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transfer points solely to the provision of service to subscribers that have been connected owing to public funding.

14 **Open network access does not apply to infrastructure** that has been built by means of **(self-)shared installation** (section 155(2) sentence 2 TKG). Self-shared installation occurs if civil works built with public funding are used by the publicly-funded undertaking to lay additional tubes, including dark fibre, for the undertaking's own economic expansion in neighbouring, non-assisted deployment areas. The infrastructure deployed under the self-shared installation must be **clearly separate** from the publicly-funded infrastructure **in terms of both space and costs**. In addition to undertakings that carry out deployment in a publicly-funded arrangement, third-party telecommunications companies are also authorised to use publicly-funded civil works for laying their own telecommunications infrastructure for deployment in non-assisted areas.[6]

The obligation to grant open network access pursuant to section 155(1) TKG remains in place regardless of any changes in the ownership, management or operation of the publicly-funded infrastructure – it is inherent in the publicly-funded infrastructure similar to an "**obligation in rem**".

15 This means that the obligation to provide open access to infrastructure built with public funding cannot be terminated directly by selling or leasing the infrastructure. In this respect, the recipient of the public funding must draw attention to this obligation in the event of the sale or lease of the publicly-funded infrastructure and, where necessary, include it in contracts (although the obligation stands regardless of this).

3 Type and scope of the access

Access must be granted **in full at all levels of the value chain**.

As a **minimum** the **scope** of the access must comply with that imposed on the undertaking with significant market power within the framework of **sector-specific regulation**. With regard to the use of public funds for the construction of infrastructure, in case of doubt the European Commission is demanding **an even greater choice of products**.

Regardless of whether a fixed access network, a mobile access network, a backhaul network or a backbone network, the obligation to grant access extends to access to **publicly-funded passive infrastructure within the meaning of the European Commission Guidelines**, in particular access to conduits, civil engineering assets and dark fibre[7].

For access to fixed access networks the following **standard products** have also to be offered:

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[6] For the federation's State funding programme with respect to self-shared installation see the developer's information letter of 20 November 2018 (in German), accessible at: https://gigabit-projekttraeger.de/wp-content/uploads/2022/01/Hinweise-zur-Eigen-Mitverlegung_November-2018.pdf (last accessed 18 March 2025).

[7] This refers to dark fibre that does not directly serve customer access.

- access to the **physically unbundled local loop**, namely access to the **fibre local loop at the ODF**;[8]
- access to **active products** such as **bitstream access** at **layer 2** at **one** suitable regional access point in the concentrator network hierarchy[9] and at **layer 3** at **one** suitable access point in the core network.

With respect to access to the mobile access network, where the measure has been notified on the basis of the 2023 Guidelines, in addition to access to the passive infrastructure, roaming must be offered as a minimum. For the rest, active access products need only be offered to the extent that the funding provider has notified this in the specific design of the measure. Where a measure falls under the GBER, the provisions of the GBER, as last amended, must be applied.

Access must be granted on fair and reasonable conditions and is to be designed in such a way that it is possible both **technically and economically** for access seekers to offer retail services that are comparable in flexibility and service quality to those in other areas. Effective access must guarantee that an access seeker is able to replicate the publicly-funded network operator's retail offer technically and economically.[10]

16 **Access to the ODF** is to ensure the connectivity of a **reasonable number of subscribers** in the catchment area. A reasonable number of connectable subscribers is where an access seeker can technically and economically replicate the retail services offered by the publicly-funded network operator. An access seeker must be in a position to connect to all the required connections in the catchment area by access to the lowest possible number of ODFs.

17 Where access to the physically unbundled fibre local loop cannot be offered at the ODF due to the network structure, other access points must be offered as a substitute at the cost of the party obliged to provide access. For this reason, it is necessary to have **other access points** in reserve that are **nearer to the customer** (eg an intermediate distribution frame at the first concentration or distribution point on the end-customer's side, unbundled fibre sub-loop at the concentration point) and to combine these – in line with demand – with an appropriate backhaul product so that economic replicability is ensured at a higher point. The publicly-funded network operator is to provide sufficient free duct capacity between the concentration point and the ODF for use by competitors so that the fibres requested can be made available as necessary.

18 An appropriate backhaul offer means that a requesting party may not be disadvantaged if they connect to the local loop at the concentration point instead of at the ODF. This means that it must always be possible for a requesting party to order equivalent access at the ODF even if technically this comprises a combination of leasing a sub-loop at the concentration point as well as leasing dark fibre from the concentration point to the ODF. The following must apply (per connection): the leasing of dark fibre to bridge the connection from the concentration point to the ODF may not be more expensive than the difference between the price for an unbundled

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[8] Fibre local loop refers to those optical fibres that directly serve as customer access.

[9] This refers to an access point comparable to the Broadband Network Gateway (BNG) of Deutsche Telekom.

[10] See Communication of the Commission C(2024) 5097 final of 23 July 2024 on the amendment to and prolongation of the national gigabit scheme Germany (State Aid SA.109748 (2024/N) – Germany) point 110 et seq.

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fibre local loop (at the ODF) and an unbundled fibre sub-loop (at the concentration point). The space at the concentration point must also be large enough that sufficient splitters and cassettes can be accommodated for competitors.

19 For access by way of **bitstream products**, access for both **layer 2 BSA**[11] and **layer 3 BSA** is to be made available.

20 **Standard products** (or "**substitute products**" for physical unbundling at the ODF as described in paragraphs 17 and 18 above) are to be made available pursuant to the arrangements in the section on access negotiations.

21 Access by way of **bitstream** to a point that is **closer to the end-customer** (eg MSAN or OLT) compared with the access points referred to above need **not be offered** until an access seeker approaches the access provider with a **sufficiently concrete access request**, for example by specifying access points.

22 The requirements of public funding do **not** give rise to a general **right** to the installation of **access points other** than those described above. Additional or new access points may be installed at the request of the access seeker with the agreement of the access provider. If access products are provided at **new access points** at the request of the access seeker, the **access seeker bears the additional costs** that ensue to the access provider.

To meet the access obligation, **infrastructure** that is to be newly deployed **in accordance with the relevant conditions governing public funding must be large enough** to enable access for a sufficient number of competitors.[12]

23 A sufficient number of competitors generally means that **access to the ducts** must be made possible **for at least three alternative network operators** that are not associated with the undertaking receiving the funding.[13] Adequate dimensioning also covers the possibility of including **different network topologies**. Therefore the **upgrading** and **refurbishment** of existing infrastructure capacity and the deployment of sufficiently dimensioned new infrastructure may be necessary (eg ducts that are large enough to hold a sufficient number of networks and different network topologies).[14] Adequate dimensioning of passive infrastructure must be observed in the planning and deployment of the publicly-funded network. Access may be implemented in the final drop through the number of fibres without any corresponding additional duct capacity. For this purpose, a minimum of four fibres per household or end-user

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[11] This includes all layer 2-based wholesale products including VULA. At present the Bundesnetzagentur is only aware of finalised wholesale contracts that comply with the quality requirement of VULA.

[12] The material concepts ("Uniform material concept and requirements for the size of passive infrastructure in relation to State aid for broadband deployment"), as amended, must be observed. The current version (Version 5.0.2 as at 22 July 2025) is accessible (in German) at https://gigabit-projekttraeger.de/downloads/. Previous versions of the material concepts for older funding projects are accessible (in German) at https://aconium.eu/kompetenzen/foerdermittelberatung/projekttraeger-breitband/infrastrukturprojekte/materialkonzept/.

[13] See paragraph 135 and footnote 94 of the 2023 Guidelines. The 2013 Guidelines (paragraph 78(g) and footnote 107) already require that the ducts be large enough to cater for *several cable networks.* The 2023 Guidelines define this to the extent that "several cable networks" means at least three independent fibre cables.

[14] See paragraph 130 of the 2023 Guidelines.

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and two fibres per building are to be provided as point-to-point connections to the collocation point.[15]

24 In respect of passive access to the **existing infrastructure** used, the following applies: where existing infrastructure has capacity constraints and cannot accommodate at least three independent fibre cables, the operator of the publicly-funded network should make available at least 50% of the capacity (in particular dark fibres) to access seekers based on the first-come-first-served principle.[16]

4 Charges for non-discriminatory open access

The **wholesale charges** must be **non-discriminatory, fair and reasonable** (section 155(1) TKG); they should enable **competitors to compete** with the publicly-funded network operator at the retail level.[17]

The EU regulations provide for **three methods for setting and assessing such prices**:

1. **the published wholesale prices** in other comparable, more competitive areas,
2. the **prices already set or approved** by the national regulatory authority for the markets and services concerned,
3. prices in accordance with the **principles of cost orientation** or a **methodology** mandated **in accordance with the sectoral regulatory framework**.

Where the 2013 Guidelines are to be applied, these methods are to be applied in the order above. In the event that a measure falls under the GBER, the provisions of the GBER, as amended, must be applied.

The Federal Ministry for Digital and Transport has set a price ceiling for wholesale products for funded projects that are approved under the revised "Gigabitförderung 2.0" (as at 2024) or later.[18]

25 By **creating comparable charges as in more competitive areas**, the aim is for State aid to benefit wholesale and retail customers in equal measure.

26 Published **wholesale prices in other comparable, more competitive areas**, are those that **have been contractually agreed**. The Bundesnetzagentur may carry out **market surveys** to determine these prices. A benchmarking study may, for example, include information from concluded contracts that must be notified under section 138(4) TKG or section 155(3) TKG.[19]

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[15] See for example paragraph 4 of the federal material concept (version 5.0.2) of 2 August 2024; accessible (in German) at https://gigabit-projekttraeger.de/wp-content/uploads/2024/08/240802_Materialkonzept_5.0.2.pdf.

[16] See footnote 94 of the 2023 Guidelines.

[17] Bundesrat printed paper 19/26108, page 347 (on section 154(1) Ref-E, corresponding to section 155(1) TKG). See also the Authorisation for the amendment to and prolongation of the National gigabit scheme by the European Commission (Ref. State Aid SA. 109748) published as Communication C(2024) 5097 (final), points 110, 181, 185.

[18] Further details can be found (in German) at https://bmdv.bund.de/SharedDocs/DE/Anlage/DG/vorleistungspreise.pdf?__blob=publicationFile.

[19] See for determining the market price level on the basis of contracts already concluded in connection with the examination of the viability of alternatives offered in accordance with section 141(2) para 6 TKG (section 77g(2) para 6 TKG old version) in detail eg BK11-20/003, margin nos 138-148.

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List prices that allow room for negotiation between the parties do not necessarily provide information on the prices actually agreed in the market.[20]

27 Where the **undertaking granting access** has **significant market power** based on a determination of the Bundesnetzagentur, the following applies in derogation of the above ranking: the undertaking may not demand any charges other than those approved by the Bundesnetzagentur under section 40 TKG or those ordered by the Bundesnetzagentur under section 46(5) TKG for access services at wholesale level.[21]

28 Where prices cannot be determined by means of a benchmarking study or by transfer of the prices set or approved by the national regulatory authority, a **further method remaining is cost-orientated price setting** or **other methods under the sectoral regulatory framework** for determining charges.

29 When selecting pricing criteria the Bundesnetzagentur takes account of the **specific circumstances of the individual case** and **consistency** with other sector-specific pricing practices.

30 With respect to prices for wholesale products in publicly-funded projects that have been authorised under the revised "Gigabitförderung 2.0" (as at 2024) or later, the latest price caps set by the Federal Ministry for Digital and Transport are decisive.[22]

5 Duration of access

The right to access applies with respect to all **passive** access products – as well as to VULA as a substitute for physically unbundled access – **during the entire lifespan** of the passive network infrastructure.

The right of access to **active** access products applies in other respects for a **minimum of seven or ten years**. For publicly-funded measures that are still based on the **2013 Guidelines** access must be granted for a **minimum of seven years**, for publicly-funded measures based on the **2023 Guidelines** access must be granted for a **minimum of ten years**.

31 The right to access to all **passive access products** applies to the lifespan of the infrastructure (irrespective of a change in operator or owner). The requirement of time applies to all publicly-funded, newly built infrastructure as well as to the necessary use of existing infrastructure for the publicly-funded deployment (see above for the scope). Where the publicly-funded network operator intends to upgrade or replace the infrastructure before the end of the lifespan of the funded infrastructure, the network operator must grant access to the new infrastructure for the entire expected lifespan of the original infrastructure.

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[20] See also the ruling chamber decisions BK11-20/003, margin no 173 et seq and BK11-20/005, margin no 135 et seq.

[21] See section 44 and section 46(6) TKG.

[22] Details can be found (in German) at https://bmdv.bund.de/SharedDocs/DE/Anlage/DG/vorleistungspreise.pdf?__blob=publicationFile.

32 Where the **exclusion of physical unbundled access** is justified in the individual case and **VULA access** is to be offered as a **substitute**, the substitutability requires that this access is likewise to be granted **during the entire lifespan** of the passive infrastructure. Where access to a VULA product is not offered in substitution for physical unbundled access, analogous to access for active products the access here is limited to the fixed time frame in each case.

33 The provisions in the Guidelines set the right of access to all active access products for a minimum time period (seven or ten years). Where the **specific funding conditions** of the provider of the public funding specify a **longer minimum offer period**, the longer time period applies.

6 Bilateral negotiations on access

In a bilateral access process the publicly-funded undertaking is obliged to put forward an **initial offer** to the access seeker that must contain the **key regulatory issues** according to the evaluations of section 28 or section 138(1) para 2 TKG. These issues include, in particular, the essential technical characteristics together with the transfer points and the prices for the associated services. The particulars must relate to the specific request for access.

It must be ensured that a **competitor** is able to **become active on the market and offer retail services** in a **timely manner and at the same time** as the publicly-funded undertaking.[23] This assumes that access seekers will be in a position to conclude a (framework) agreement on the key regulatory issues relating to wholesale procurement with the publicly-funded undertaking before the funded undertaking introduces retail services. For this reason, publicly-funded undertakings must prepare an offer **as soon as possible** but at least six months before introducing retail services and be able to hand over this offer immediately where there is relevant demand.

The publicly-funded undertaking is obliged **to prepare** the **essential contractual terms and conditions** for the above-mentioned standard products that are to be offered in principle in such a way that **they can be forwarded immediately upon request**. Additional details and changes to this offer will be the subject of negotiations. This does not preclude adaptations and further specifications possibly becoming necessary as a result of a change in implementation planning.

If access to the physical unbundled fibre local loop at the ODF is not offered due to the network structure, this **obligation likewise** extends to the necessary **substitute products**.

34 The State aid rules provide for access at the wholesale level to be granted as soon as possible before the network is put into operation.[24] If the publicly-funded network operator also offers retail services, this means that access to wholesale products must be granted at least six months before the introduction of retail services. The aim is to grant access in such good time that **access seekers** can **market** their retail products **at the same time** as the publicly-funded

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[23] See the explanatory notes on section 155 TKG (BT printed paper 19/26108, page 347).

[24] See paragraph 78(g) of the 2013 Guidelines (esp. footnote 108), paragraph 129 of the 2023 Guidelines, section 7(3) of the NGA framework arrangement, section 8(2) gigabit framework arrangement.

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operator. In the case of wholesale-only undertakings, access for all access seekers should be made available at the same time on a non-discriminatory basis.

35 The granting of the actual access is dependent on a wholesale agreement having been concluded.[25] To enable the State aid rules on the simultaneous offer of retail services by the access seeker to be implemented in practice, it is necessary for the parties to have held **negotiations on access** beforehand. To enable swift negotiations and an access agreement as soon as possible, it is necessary for the essential contract terms and conditions for the above-mentioned **standard products**, which are to be offered in principle, **to be prepared as early as possible and at least six months before the introduction of retail services** so that they can be forwarded immediately upon request for access.

36 The parties must make it clear by requesting access and by submitting an offer that they are interested in concluding an agreement. No excessive demands should be made in the **access negotiations** prior to dispute resolution proceedings, especially if it is already clear from the ideas presented that the positions are significantly divergent. An **analogy** can be drawn with the requirements of **section 28(1) TKG**.

37 For **products and access points other** than those referred to above, an offer must be made if an access seeker approaches an access provider with a **sufficiently specific access request.** This applies in particular for access products that need to be newly specified and where access is at newly-installed access points.

38 The party obliged to provide access may **not demand any fees** for **drawing up the offer**.

7 Other terms and conditions of access

39 Other contractual arrangements for open network access – for example fault clearance rules or service level agreements, terms of payment, arrangements for maintenance and repair, liability regulations or terms of notice – are to be determined under the aspects of **fairness and reasonableness** by both parties to the agreement.

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[25] Cologne Administrative Court, Decision of 14 March 2023 – 1 L 58/23 –, juris-margin nos 7 and 55