Note: This is a translation into English. For all legal purposes, only the French version is valid.

Electronic Communications and Postal Regulatory Authority
Decision No. 2009-1106
of 22 December 2009

specifying the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines and the instances in which the concentration point can be located on private property, in application of Articles L. 34-8 and L. 34-8-3 of the French Postal and electronic communications code

The Electronic Communications and Postal Regulatory Authority, ARCEP, hereinafter referred to as "the Authority",

Pursuant to Directive No. 2002/21/EC of the European Parliament and Council, dated 7 March 2002, concerning the common regulatory framework for electronic communications networks and services (Framework Directive), and notably its Articles 6, 7 and 12;

Pursuant to Directive No. 2002/19/EC of the European Parliament and Council, dated 7 March 2002, concerning access to electronic communications networks and associated resources (Access Directive), and notably its Article 5;

Pursuant to the French Postal and electronic communications code, hereinafter referred to as "CPCE", notably its Articles L. 33-6, L. 34-8, L. 34-8-3, L. 36-6, L. 36-10 and R. 9-2 to R. 9-4;

Pursuant to the Building and occupancy code, notably its Articles L. 111-5-1, R. 111-1 and R. 111-14;

Pursuant to Law No. 65-557, dated 10 July 1965, setting the co-ownership status for existing buildings, notably its Article 24-2;

Pursuant to Decision No. 2009-0527, dated 11 June 2009, bringing changes to the Authority's rules of procedure;

Pursuant to the Competition Authority Opinion No. 08-A-06, dated 6 May 2008, concerning a draft legislative provision for the development of ultra-fast broadband optical fibre networks;

Pursuant to the public consultation on sharing the last drop of optical fibre networks, which ran from 27 July to 28 September 2007;

Pursuant to the responses to this public consultation;

Pursuant to a public consultation on the deployment and sharing of the last drop of optical fibre local loop networks, which ran from 22 May to 27 June 2008;

Pursuant to the responses to this public consultation;

Pursuant to the Authority's recommendations on the implementation of sharing schemes for the last drop of optical fibre local loop networks, published on 10 October 2008;

Pursuant to the Authority's guidelines on schemes for sharing optical fibre local loop networks, produced following the first round of trials and assessments, submitted to public consultation from 7 April to 7 May 2009;

Pursuant to the responses to this public consultation;

Pursuant to the ARCEP public consultation on the draft decision specifying the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines, pursuant to CPCE Article L. 34-8, which ran from 22 June 2009 au 22 July 2009;

Pursuant to the responses to this public consultation;

Pursuant to the ARCEP public consultation on the draft decision specifying the instances in which the concentration point could be located on private property, in application of CPCE Article L. 34-8-3, which ran from 22 June 2009 au 22 July 2009;

Pursuant to the responses to this public consultation;

Pursuant to the Competition Authority Opinion No. 09-A-47, dated 22 September 2009, submitted to ARCEP in application of CPCE Article L. 34-8;

Pursuant to the ARCEP public consultation on the draft decision specifying the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines and the instances in which the concentration point could be located on private property, in application of Articles L. 34-8 and L. 34-8-3 of the CPCE, which ran from 5 October 2009 to 5 November 2009;

Pursuant to the responses to this public consultation;

Pursuant to the notification to the European Commission and to the competent regulatory authorities in the other European Community Member States of the Authority's draft decision specifying the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines and the instances in which the concentration point could be located on private property, in application of CPCE Articles L. 34-8 and L. 34-8-3, on 5 October 2009;

Pursuant to the European Commission commentary, dated 5 November 2009;

Pursuant to the consultation with the Electronic communications advisory committee (*Commission consultative des communications électroniques*), hereinafter referred to as "CCCE", on 4 December 2009;

After the discussions held on 22 December 2009;

Introduction

The increasing development of the uses being made of the Internet and the ongoing enhancement of audiovisual content are spurring the deployment of new, ultra-fast broadband optical fibre-to-the-home (FttH) networks, which will take place over the next ten years. Already well underway in Japan and South Korea, new generation access networks are starting to be rolled out across Europe. In France, the leading ADSL and cable providers have demonstrated their willingness to invest in fibre, which is an asset. Our country also has a head start in the definition of its regulatory framework, thanks to the adoption of the Law on modernising the economy (LME) and of the regulation implemented by ARCEP in summer 2008.

The first rollouts have begun in Paris and in the city centres of the country's largest metropolitan areas. Difficulties have nevertheless arisen when installing fibre inside buildings. The law provides for having this portion of the network "shared" – i.e. shared between operators to limit the amount of installation work that needs to be done on private property, while allowing consumers to benefit from a competitive market by having the freedom to choose their service provider. Operators nevertheless have different views on how to put this principle into application.

As part of the optical fibre rollout steering committee, which was formed by the government in late 2008 and which operates under the aegis of the Electronic Communications and Postal Regulatory Authority (ARCEP), the country's major operators began testing and assessing different methods for providing access to optical fibre infrastructure. The goal was to obtain a sufficient amount of experience and feedback to gradually define the rules that would govern operators, to enable efficient access to optical fibre from both a technical and economic standpoint.

The initial findings of these trials were made public on 7 April 2009. Based on these findings, and on other work performed on the terms governing access to optical fibre, that same month ARCEP submitted its guidelines on the terms and conditions for sharing optical fibre infrastructure to public consultation. The Authority published a summary of the responses to this consultation on 22 June 2009.

ARCEP then submitted two draft decisions to public consultation from 22 June to 22 July 2009:

The first specifies the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines. The purpose of this draft decision is to clarify applicable regulation concerning:

- rollout methods in the last drop of the optical fibre network in very high-density areas, notably with respect to the number of fibres installed per customer unit and the equipment needed to ensure compatibility with the players' different technological choices (PON or point-to-point) to comply with the principle of technological neutrality;
- general principles with respect to the terms governing access, particularly the supply of information, pricing and transparency.

The second draft decision specifies the instances in which the concentration point can be located on private property. This concentration point is the location at which the "building operator," in other words the operator designated by the property owner or manager to equip the building with optical fibre, provides other operators with access to its FttH network.

After having taken the Competition Authority's opinion on these two draft decisions into account, ARCEP combined the two initial draft documents to produce a draft decision, and submitted it to the Competition Authority for opinion.

In light of the Competition Authority Opinion No. 09-A-47, dated 22 September 2009, ARCEP notified an amended draft decision to the European Commission and to the competent national regulatory authorities (NRAs) in the other Member States on 5 October 2009, while also submitting it to public consultation from 5 October to 5 November 2009.

After having taken account of the input it received, particularly the comments from the European Commission dated 5 November 2009, ARCEP amended its draft decision with a view to submitting it to the Electronic communications advisory committee for consultation on 4 December 2009. The Authority adopted its decision following this consultation, and submitted it to the Minister responsible for electronic communications for approval.

In addition, ARCEP submitted a draft recommendation on the terms and conditions for implementing access to ultra-fast broadband optical fibre electronic communication lines to public consultation from 22 June to 22 July 2009, then to the Competition Authority for its opinion. This draft recommendation, which was amended after taking account of stakeholders' contributions to the public consultation and of the Competition Authority's opinion, was also notified to the European Commission and NRAs in EU Member States, and once again submitted to a public consultation which ran from 5 October to 5 November 2009, then to the Electronic communications advisory committee.

A second stage of work has begun to bring more detail to and extend this regulation to a larger scale. The purpose of the additional work that concerns very high-density areas is to define optical fibre access solutions for smaller buildings and individual houses. In more sparsely populated areas, providing access to optical fibre will require greater coordination between the players on the terms and conditions governing network rollouts, particularly in the "horizontal" portion, in other words the part of the network located on public property. Operators, local authorities and the *Caisse des dépôts et consignations* are all involved in this second stage.

Section I Goal of Decision

(1) Applicable legal framework

ARCEP's competence

Article L. 36-6 of the CPCE stipulates that:

> "*In accordance with the provisions of the present code and its implementing regulation […], the Electronic Communications and Postal Regulatory Authority will specify regulation concerning:*

[…]

(2) The prescriptions that apply to the technical and financial terms governing interconnection and access, in accordance with Article L. 34-8 […] and to the technical and financial terms governing access, in accordance with Article L. 34-8-3;

[…]

The decisions made in application of the present article will be published in the Official Gazette, after having been approved by order of the Minister responsible for electronic communications."

a) The Authority's power to specify the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines

Paragraph I of Article L. 34-8 of the CPCE stipulates that

" […] *To achieve the objectives defined in Article L. 32-1, the Authority may impose, in an objective, transparent, non-discriminatory and proportionate manner, the terms governing access and interconnection:*

a) Either on its own initiative, after having solicited the opinion of the Competition Authority, public consultation and notification to the European Commission and the competent national regulatory authorities in European Community Member States; the decision will be adopted in accordance with procedural conditions published previously by the Authority; […]".

When referring to *"the terms governing access and interconnection*", this article gives the Authority the power to impose, on its own initiative, the terms governing access to optical fibre when these terms are indispensable for achieving several of the objectives mentioned in Article L. 32-1.

Paragraph II of CPCE Article L. 32-1 specifies that:

"*When exercising their respective powers, the Minister responsible for electronic communications and the Electronic Communications and Postal Regulatory Authority will take reasonable measures that are proportionate to the objectives being pursued, under objective and transparent conditions, and will work to ensure:*

(2) […] fair and effective competition between electronic communications network operators and service providers which is beneficial to users;

(3) job creation, efficient investment in infrastructure, innovation and competitiveness in the electronic communications sector;

(4) […] the definition of terms governing access to networks that are open to the public and the interconnection of these networks which guarantee that all users have the ability to communicate freely, and equal competition conditions;

(7) […] that the interests of all regions and users, notably users with a disability, will be taken into account in the supply of services and equipment;

(10) […] the deployment and development of networks and services and the interoperability of services at the European level;

(13) the most technology-neutral measures possible;

(14) […] the integrity and security of the electronic communications networks that are open to the public."

Furthermore, the Law on modernising the economy introduces a system of rights and obligations for operators deploying ultra-fast broadband solutions. First, the process of installing fibre in buildings is facilitated for operators and imposed on property developers in greenfield housing. Second, the party that installs the fibre in the building (i.e. the building operator) is responsible to the property owner for all operations performed on the network on the private property, and must satisfy an obligation to share its infrastructure, allowing other operators to provide ultra-fast broadband services to the residents of the building under non-discriminatory conditions.

On this second point, CPCE Article L. 34-8-3 stipulates more specifically that:

"Any entity that has established or is operating an optical fibre ultra-fast broadband electronic communications line in an existing building which makes it possible to serve an end user must satisfy all reasonable requests from operators for access to that line, in view of providing this end user with electronic communications services.

Access will be provided under transparent and non-discriminatory conditions from a point located outside the limits of the private property, except in cases defined by the Electronic Communications and Postal Regulatory Authority, and which allows third-party operators to connect to it under reasonable economic, technical and accessibility conditions. In the instances defined by the Electronic Communications and Postal Regulatory Authority, access can consist of supplying network installations and specific elements that are requested by a third-party operator prior to the installation of ultra-fast broadband optical fibre electronic communications lines in the building, in exchange for which the requesting operator will assume a fair share of the costs. Any refusal to grant access must be justified […]

To achieve the objectives defined in Article L. 32-1, and particularly with a view to ensuring a consistency in the deployments and homogeneous coverage in the areas being served, the Authority can specify the terms and conditions governing access, as provided for in this article, in an objective, transparent, non-discriminatory and proportionate manner".

This article gives ARCEP the authority to specify the terms governing access to optical fibre, in an objective, transparent, non-discriminatory and proportionate manner.

Although the bulk of the legal framework for optical fibre rollouts was introduced in summer 2008, the country's main telecom operators, who had all announced significant investment plans, put off making these investments because of persistent disagreements with one another over the terms for implementing access to optical fibre and particularly those governing in-house deployments.

Operators want clarification on these terms, in other words on both the conditions under which they must provide access to their network when they install optical fibre in a building, and those that will be extended to them in the reverse situation. It has emerged in the public statements made by all of the operators that this clarification is a prerequisite to securing and freeing up investments in ultra-fast broadband.

Fibre-to-the-home rollouts are of critical importance to the national economy, and especially for the electronic communications sector, as much in terms of providing nationwide coverage for these new networks as the intensity of competition between the technologies and market

players. Optical fibre opens up a new investment cycle of several billion and even tens of billions of euros, which could stretch out over more than ten years.

Beyond the electronic communications sector, optical fibre rollouts are expected to enable the dissemination of enhanced audiovisual media content which has the potential to create value for copyright holders and the creative industries. Ultra-fast broadband also opens up prospects for the development of applications in the areas of healthcare and education.

Clarifying the applicable legal rules is crucial to optical fibre deployment in France, and ARCEP has the power to make a decision on the matter.

b) The Authority's power to determine the location of the concentration point

Article L. 34-8-3, created by the Law on modernising the economy No. 2008-776, of 4 August 2008, stipulates that the concentration point must be located outside of private property, "*except in instances defined by the Electronic Communications and Postal Regulatory Authority*".

In accordance with the aforementioned provisions contained in Articles L. 34-8-3 and L. 36-6, the Authority specifies, through the present decision, the instances in which access to optical fibre can be provided within private property.

Consistency with the European legal framework

Article L. 34-8-3 is drawn from the Law on modernising the economy No. 2008-776 of 4 August 2008, which was adopted in accordance with Article 12 of the Framework Directive 2002/21/EC. Article L.34-8 transposes Article 5 of the Access Directive 2002/19/EC. In its observations, which were issued on 5 November 2009, the European Commission says that it *"agrees to the appropriateness of applying Article 5 of the Access Directive in conjunction with Article 12(2) of the Framework Directive to regulate access to in-house fibre wiring in France"*.

Moreover, in these remarks published on 5 November 2009, the European Commission "*invites ARCEP inter alia to carefully monitor the development of NGA investment and competition in France, in particular in the very high-density areas of the French territory, so as to evaluate whether the proposed symmetrical regulation scheme would be sufficient, justified and proportionate to attain the objectives set out in Article 8 of the Framework Directive, and not to unnecessarily prolong the imposition of the proposed symmetrical ex ante regulatory measure*".

In particular, the European Commission invites the Authority to examine the opportunity to impose asymmetrical forms of access to optical fibre infrastructure should symmetrical regulatory measures prove insufficient.

The Authority will indeed continue to closely monitor how investments and competition develops around ultra-fast broadband optical fibre network rollouts. ARCEP Decision No. 2008-0835 of 24 July 2008, concerning its analysis of the relevant wholesale market for access to physical infrastructure that constitutes the fixed local loop, led the Authority to designate France Telecom as the SMP operator in this market. Although the remedies provided for in the present decision concern only access to civil engineering infrastructure at this stage, if the Authority were to observe that symmetrical regulatory measures applied to

ultra-fast broadband rollouts have proven insufficient, it could amend the remedies provided for in the present decision, after having notified them to the European Commission.

Finally, as the European Commission calls on it to do in its remarks, ARCEP will take the utmost account of the principles laid out in the NGA recommendation once it has been adopted, and could review its market analysis decision early than originally planned as a result.

Procedure applicable the present decision

The present decision is made in application of Article L. 36-6, Paragraph I of Article L. 34-8 and Article L. 34-8-3 of the CPCE.

It complies with the procedural rules stipulated in subparagraph (a) of Paragraph I of Article L. 34-8 and published in ARCEP Decision No. 2009-0527 amending its rules of procedure.

As a result, and in accordance with Paragraph III of Article L. 32-1 of the CPCE and subparagraph (a) of Paragraph I of Article L. 34-8, the Authority submitted the two aforementioned draft decisions to public consultation. For the sake of transparency, the Authority published all of the contributions to this public consultation on 28 July 2009, except those protected by business secrecy.

After having taken the responses to this public consultation into account, ARCEP requested opinion from the Competition Authority, in accordance with Paragraph I of Article L. 34-8.

After having received and taken into account the opinion of the Competition Authority, ARCEP notified the document to the European Commission and to the competent NRAs in the other European Union Member States, in accordance with subparagraph (a) of Paragraph I of Article L. 34-8. It was submitted to public consultation from 5 October to 5 November 2009.

The Authority also consulted with the CCCE.

Finally, the decision was adopted by ARCEP on 22 December 2009 and submitted to the Minister responsible for electronic communications for approval.

(2) Work performed by the Authority

Preparatory work

In July 2007, the Authority launched a first public consultation with regards to operators sharing the last drop of optical fibre networks. Different modalities for accessing optical fibre were being examined at the time: an active or passive solution, with a concentration point located at the curb or foot of the building, or at the ODF (optical distribution frame) which can house several thousand or even tens of thousands of lines, along with leasing and co-investment schemes. A summary of this first consultation was published. At the same time, operators submitted their first access offers for the last drop of their optical fibre network.

In May 2008, a second public consultation on the deployment and sharing of the last drop of FttH networks was launched. The consultation document allowed stakeholders an opportunity to address the role of the building operator, contractual relations between operators and property owners and the issue of the location of the concentration point, notably when it is

located on public property. An initial optical fibre local loop network rollout cost model was also submitted to consultation at that time, along with a draft sample agreement whose purpose was to govern contractual relations between operators and property owners.

Over the course of summer 2008, a study on the topology of optical fibre access confirmed that, outside of very high-density areas, it becomes inefficient to deploy several parallel networks up to a concentration points located too close to buildings. A summary of this report is available (in French) on the ARCEP website.

When publishing the summary of the public consultation, and following the adoption of the Law on modernising the economy, in October 2008 ARCEP drafted its initial recommendations on fibre deployment and sharing. The Authority wanted trials to be performed on different hypotheses, particularly the one whereby the building operator installs additional fibres on behalf of other operators between the concentration point and the customer premises. These recommendations also specified that, in very high-density areas, the concentration point could be located near buildings and even at the foot of large buildings whereas, in other areas, it should be located higher up the network to be able to group optical fibre lines at the neighbourhood level. This document also described how roles would be shared between the building operator – who would be the property owner's interlocutor and responsible for the network deployed between the concentration point and customer premises – and the access-sharing operator, who is the customer's interlocutor. Included as well was an initial description of the prior information that building operators were to supply to enable access to optical fibre.

Trials and assessments

Following the adoption of the Law on modernising the economy, the Authority invited operators to establish sharing agreements with one another. The first agreements were established but did not include all of the players, due to ongoing disagreements.

Work began in late 2008, in tandem with the government, and operators committed to assessing and testing different rollout architectures in the buildings (single fibre and multi-fibre).

The first stage of these efforts ran from 18 December 2008 to 26 March 2009, during which time trials were conducted on different optical fibre access configurations. A steering committee was formed and met every two weeks to assess the work being performed by three sub-groups:

- the "costs" sub-group, in which operators established the list of cost items and estimate figures for each architecture;
- the "architecture/operational" sub-group which compared the technical and operational feasibility and viability of the different architectures, notably in terms of an associative approach;
- the "technical specifications" sub-group, which drafted the list of the equipment to be specified and made it possible to pinpoint those areas where additional work was needed to guarantee network interoperability over the long term.

Because of the timeframe set for this first stage of the work, trials were concentrated in the most densely populated parts of the country, where several operators had already deployed horizontal fibre networks in common areas, with the concentration point located in most cases at the foot of the building (i.e. on private property), or in the immediate vicinity.

ARCEP published an account of this first round of trials and assessments. This work helped to pinpoint the various technical-economic constraints that operators had to contend with depending on their technological choices (PON or point-to-point), and this for both the operator equipping the building with optical fibre (building operator) and the ones benefitting from access to these installations (access-sharing operator).

As a result of this work, a series of guidelines was then submitted to public consultation in April 2009. The responses to this consultation, and an executive summary of them, were published on 22 June 2009.

(3) Scope and application of the decision

Section V of the present decision specifies the technical and financial terms governing access to ultra-fast broadband optical fibre electronic communications lines, with respect to the following:

- access requests made before the lines are installed in a building;
- access to the lines and the associated resources;
- terms and conditions governing access tariffs;
- transparency of the terms of access.

The provisions contained in the current decision concerning requests for access that are made before lines are installed in buildings apply only to very high-density areas where most of operators' rollouts are currently concentrated, and where the majority of the first trials were conducted. These areas are listed in Annex I of the present decision.

The other provision in Section V apply to the whole of Metropolitan France and to the overseas *départements* and territories which are governed by the CPCE.

Section VI of the present decision specifies the instances in which the concentration point can be located on private property, notably at the foot of the building, marking an exception to the principle stated in CPCE Article L. 34-3.

It defines the characteristics of the buildings inside which the concentration point can be located.

Section II Optical fibre local loop network topologies

The legislative provisions concerning access to optical fibre, which are the subject of the present decision, apply only to fibre-to-the-home, or FttH, deployments.

The Law on modernising the economy indeed refers to "ultra-fast broadband optical fibre lines" and Article R. 9-4 of the CPCE stipulates that the operator who signs an agreement with a property owner or a condominium association, "*will supply the homes and offices in the building to which the agreement applies with a continuous optical fibre path starting from the concentration point and ending at an optical network unit installed inside each housing or office unit*".

At this stage, these provisions do not apply to the technical solution used by cable companies in those parts of the country where they have overhauled their network, and which consists of bringing the optical fibre closer to subscribers while maintaining a coaxial cable network on the last drop inside the private property, or potentially at the street or neighbourhood level. This solution is referred to as fibre-to-the-last-amplifier ("FttLA"), or hybrid fibre-coax ("HFC").

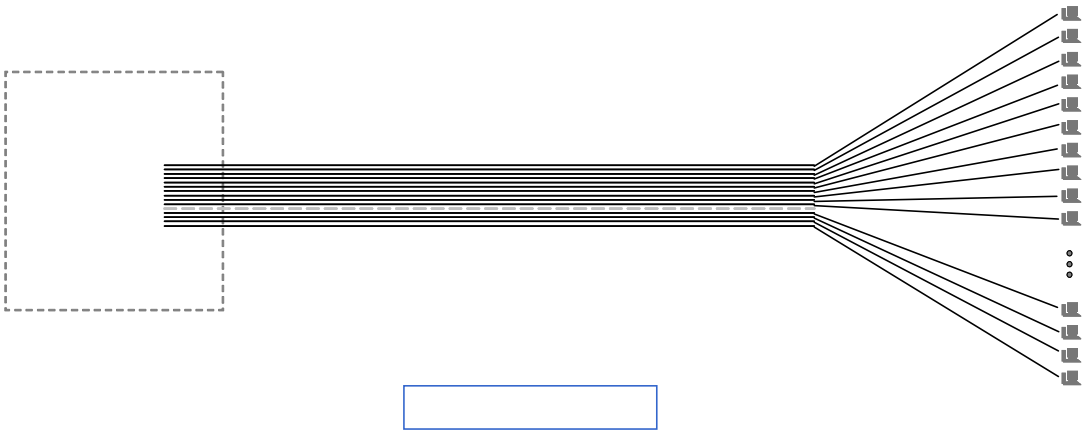
There are two main optical local loop topologies that can be used for FttH: point-to-point and PON (Passive Optical Network) point-to-multipoint. The purpose of this section is to provide a quick reminder of the principles and the technical constraints they imply for the portion of the network located between the concentration point and the customer premises, and especially the in-house portion.

These developments provide a useful component of the technical-economic context of the present decision. It is indeed important to take stock of the various technical-economic constraints that operators will have to contend with depending on their technological choices (PON or point-to-point), and this for both the operator equipping the building with optical fibre (building operator) and the ones benefitting from access to these installations to be able, ultimately, to define the terms for complying with the principle of technological neutrality.

(1) Point-to-point

Operators deploying an optical fibre access network using point-to-point technology generally choose to make a large initial investment.

This technology consists of deploying at least one optical fibre per household, running from the optical distribution frame (ODF) to the customer premises. This means that the size and number of cables deployed are such that civil engineering infrastructure generally needs to be rebuilt near the ODF, in a radius of around a hundred metres.



In addition, the installation of optical distributors can require a substantial investment as there are, in principle, as many optical fibres arriving at this concentration point as there are households located in the ODF's service area (several thousand). Although the optical fibre takes much less space that copper telephone lines, the ODFs can nevertheless occupy a sizeable area.

This relatively high additional initial investment can nevertheless be largely offset by the operational savings throughout the network's lifespan.

Once the network is installed from the ODF to the customer premises, there can be far fewer service calls to make, aside from individual after-sales calls which may require a visit to the customer premises.

Furthermore, the occupancy rate for the active equipment is fully optimised at the ODF level, which makes it possible to activate only the quantity of equipment that corresponds to the number of customers in the corresponding service area.

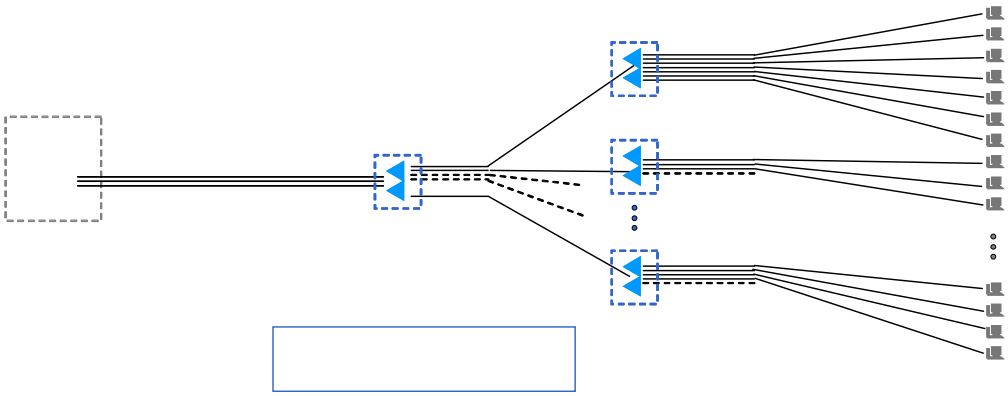
Lastly, point-to-point technology makes it possible to keep up with technological developments as only the ODF cards need to be changed to switch to another active equipment technology, without having to alter the structure of the network which is agnostic with respect to these alterations. The higher initial investment can therefore be offset by operational savings over the long term.

This economical choice can be improved if the point-to-point operator can limit the amount of work performed on the network to only what is needed for its maintenance. This means having the highest possible degree of technical control over its infrastructure and favouring technical configurations that will not involve an increased number of service calls in future.

(2) Point-to-multipoint (PON)

PON operators have opted for a more flexible investment scheme that will allow them to keep pace with the network's expansion. The network's "tree" topology makes it possible to optimise provisioning as the rate of penetration in the ODF's service area increases.

This involves having points of flexibility in the network to be able to optimise the occupancy rate of both active equipment (ports on PON cards) and passive equipment (splitters) apace with this steady increase in load.



PON operators need to achieve a balance between optimising investment costs (optimising occupancy on the branches, but with a need for regular work to be performed at the points of flexibility where the splitters are located) and optimising operating costs (limiting the amount of work done at the flexibility points, which implies a lower rate of occupancy on the branches).

The number of service calls made at the points of flexibility and their location will therefore depend on the technical-economic choices made by each PON operator.

Section III Definition of the terms used in the present decision

(1) Ultra-fast broadband optical fibre electronic communications lines

CPCE Article L. 34-8-3, derived from the Law on modernising the economy stipulates that, *"any entity that has established or is operating an optical fibre ultra-fast broadband electronic communications line in an existing building which makes it possible to serve an end user must satisfy all reasonable requests from operators for access to that line, in view of providing this end user with electronic communications services"*.

The line refers to the portion of the network that makes it possible to provide an end user with ultra-fast broadband services over optical fibre. It is therefore the portion of the network nearest the customer, and to which all operators need to have access to be able to deliver services to residents. The obligation to provide access imposed by the present decision concerns the portion of the line between the optical network unit located inside the customer premises and the concentration point (see definition below).

It can be composed of several continuous optical paths per household, for instance in the case of a multi-fibre deployment. Lastly, the lines are not located solely on private property, notably when the concentration point is situated outside the building.

(2) Building operator

In principle, the building operator is the operator who has established the lines, or plans on doing so, notably under the terms of an agreement signed in accordance with CPCE Article L. 33-6, after having been appointed by the owner of the property to equip their building with optical fibre.

In cases where the party who is establishing or has established the lines will not be responsible for managing the network – for instance in the case of a property developer or social housing manager – it must nevertheless be possible for this party to designate a building operator to manage the lines, and to satisfy other operators' requests for access. Requiring operators to negotiate access agreements with every property developer or owner who has taken upon themselves to install an optical fibre network in their building would not appear to be a viable solution.

By the same token, if a building operator is not itself a access-sharing operator and does not use the optical fibre for its own ends, it could appoint another operator to be in charge of satisfying access requests from third-party operators.

It should be noted that a building operator is not necessarily an operator as defined in CPCE Article L. 33-1. In particular, it could be a neutral manager providing passive access offers to operators' lines, and not activating the network itself.

(3) Concentration point

The concentration point refers to the location where the party establishing or having established in an existing building or operating ultra-fast broadband optical fibre electronic communications lines provides other operators with access to the lines. The location of the concentration point is governed by CPCE Article L. 34-8-3 which stipulates that:

> *"Access will be provided under transparent and non-discriminatory conditions from a point located outside the limits of the private property, except in cases defined by the Electronic Communications and Postal Regulatory Authority, and which allows third-party operators to connect to it under reasonable economic, technical and access conditions. […] Any refusal to grant this access must be justified."*

The party having established in an existing building or operating an ultra-fast broadband optical fibre electronic communications line can provide access to its network from several locations. Among these locations, the concentration point is the main point of delivery for passive access, in accordance with CPCE Article L. 34-8-3.

The concentration point is therefore the "logical" point of separation between the building operator's network and a third-party's network.

In practice, third party operators may access the lines at the concentration point in various ways, notably by having access to a dedicated fibre or by employing a shared optical fibre line.

Access can also be provided at locations other than the concentration point, as stipulated in the commercial agreements that operators establish with one another.

(4) Dedicated optical fibre

A dedicated optical fibre refers to the continuous optical path of a line which is made permanently available to an operator, regardless of whether or not the latter provides a service to the end user to which this line is connected.

In a multi-fibre deployment, access to the network can be provided through the supply of a dedicated optical fibre.

(5) Shared optical fibre

A shared optical fibre refers to the continuous optical path of a line which is made available to an operator in a temporary fashion, allowing that operator to provide a service to the end user to which this line is connected.

(6) Cross-connection box

The cross-connection box is a piece of passive equipment that enables connection between the fibres located downstream from the box (running to the end user) and fibres located upstream (running to one or several operators' network) via optical connectors.

(7) Very high-density areas

Very high-density areas are the "communes" [1] listed in the annex to the present decision.

They are defined as those communes, or municipalities, with a highly concentrated population in which, in a significant portion of that municipality, it is economically viable for several operators to deploy their own infrastructure, namely their optical fibre network, in proximity to customer premises. The market's leading players are preparing or have begun deployments in most of these areas.

The list of very high-density areas was established in the following way:

- a first set was established that included urban units[2] in Metropolitan France with a population of more than 250,000 inhabitants;
- a second set was defined that includes only those urban units from the first set in which at least 20% of the housing units are located in large blocks of flats, in other words those with more than 12 units,
- a third set was defined from among the urban units in the second set that includes:
    - central urban core city;
    - surrounding "communes" in which at least 50% of the housing units are located in large blocks of flats, i.e. with more than 12 units;
    - and surrounding "communes" where a private operator has announced plans to perform a large-scale optical fibre rollout.

The list of municipalities that make up very high-density areas corresponds to this third set.

Based on the most complete and homogeneous elements, in terms of census dates, in the form of databases of the population and housing topology drawn from the census polls conducted in 1999 and 2006, available from the INSEE[3], thus-designated very high-density areas include 148 municipalities and 5.54 million households, of which roughly 3.5 million households (or around 60%) are located in large apartment blocks or can be accessed via visitable sewers.

Section IV Definition of very high-density areas

The responses to the public consultation of May 2009 revealed a consensus between the different players on the definition of very high-density areas: these are municipalities in which infrastructure-based competition can emerge, in other words where it is economically viable in a significant portion of that municipality for several operators to deploy their own infrastructure in proximity to customer premises.

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[1] Name given to an administrative sub-division in France, 90% of which have fewer than 2,000 inhabitants. A commune can be either a single town, a city district or a cluster of small villages. Also referred to here as "municipality".

[2] According to the INSEE (National Institute of Statistics and Economic Studies) definition, the notion of "urban unit" is based on the continuity of the housing: an area is considered to be an urban unit when made up of one or several "communes" or administrative sub-divisions, that form a contiguous spread of urban development (no gaps of more than 200 metres between two structures) and have at least 2,000 residents. The condition is that each "commune" in the urban unit have at least half of its population located in this built-up area.

[3] INSEE stands for *Institut national de la statistique et des études économiques*: French National Institute of Statistics and Economic Studies

Ultimately, the approach that has been chosen, and which is presented below, aims to determine very high-density areas in the form of a list of "communes" in the administrative sense of the word. The commune's geographical definition induces no ambiguity, which provides stakeholders (operators, local authorities, property managers) with more clarity. Of course, these areas can encompass potentially heterogeneous geographical realities (multiple dwelling units/single family homes), but the majority of private operators' rollouts are being announced on a municipality-wide scale, particularly for reasons of critical mass and commercial clarity.

As an aside, it should be said that an economic analysis, which can only be established based on the results of a theoretical modelling of FttH network rollout costs, cannot singlehandedly provide a solid enough basis for determining the list of very high-density municipalities. There are still to this day a great many uncertainties over the cost elements on which such a modelling will be based, particularly as concerns deployment costs for the horizontal portion of the network. At this stage, the Authority has only partial feedback from operators that have begun their optical fibre network rollouts. These models nevertheless provide some initial relevant information on future economically viable deployment schemes.

An examination of the municipalities in which private operators have begun or are preparing for optical fibre network rollouts makes it possible to obtain an array of relevant population density and housing typology characteristics to determine those areas that are favourable to having rollouts performed by several operators.

Several factors can explain why network rollouts are performed in a given municipality. The first is the features of that municipality, particularly in terms of population density. The density of the population can be measured by the proportion of housing that is in large multiple dwelling units. A second factor is the potential demand for ultra-fast broadband which, for an operator, is generally correlated with its current broadband penetration. Third are local factors such as the availability of civil engineering ducts for deploying optical fibre cables.

In light of the above, ARCEP has retained the following method for determining which municipalities constitute very high-density areas:

1 – The point of departure for the analysis is not an administrative one (the "commune") but rather a socio-economic one (conurbation). The main conurbations in France are therefore included. These large conurbations comprise a set of peripheral communes around a central urban core. For the purposes of analysis, we have used the urban unit[4], as defined by the INSEE.

A threshold is set to include only the most populated conurbations. These metropolitan areas are now the target locations for operators' optical fibre network rollouts, or are likely to be in the near future because of their size. No conurbation in the overseas territories has yet been included, first because of the size criterion and, second, because no operator has planned a rollout in those areas.

- ⇨ A first set of urban units with a population of over 250,000 inhabitants is therefore established for Metropolitan France

[4] According to the INSEE definition, the notion of "urban unit" is based on the continuity of the housing: an area is considered to be an urban unit when made up of one or several "communes" or administrative sub-divisions, that form a contiguous spread of urban development (no gaps of more than 200 metres between two structures) and have at least 2,000 residents. The condition is that each "commune" in the urban unit have at least half of its population located in this built-up area.

Based on the most complete and homogeneous elements, in terms of census dates, in the form of databases of the population and housing topology drawn from the census polls conducted in 1999 and 2006, available from the INSEE, this first set of 24 urban units encompasses 1,294 communes and 9.86 million households. These data will be corrected, if necessary, during the public consultation.

2 – Only those urban units in the first set that have the relevant density and housing typology characteristics are selected.

The proportion of households in large multiple dwelling units is therefore a key criterion for optical fibre network rollouts, to the extent that it determines the size of the market that can be addressed immediately, given economic constraints and the modalities set in the present decision.

⇨ A second set is therefore defined that includes only those urban units from the first set in which at least 20% of the housing units are located in large blocks of flats, i.e. with more than 12 units

Based on the aforementioned data, this second set of 20 urban units includes 1,083 communes and 9.3 million households.

3 – Within this second set, a distinction is made between communes where operators are expected to concentrate their initial deployments, starting with the central urban core area, followed by certain surrounding communes.

Some of the surrounding communes have characteristics that are comparable to the central urban core, in terms of density and housing typology, and in some cases may be even more favourable terrain for optical fibre network rollouts. A majority of high-rise housing is one criterion here. Moreover, operators' currently known optical fibre network rollout plans include several surrounding communes.

⇨ A third set is therefore established from among the urban units that make up the second set which includes, on the one hand, the surrounding "communes" in which at least 50% of the housing units are located in large blocks of flats, i.e. with more than 12 units, or in which a private operator has announced plans to perform a large-scale optical fibre rollout.

The list of communes that constitute the country's very high-density areas is therefore determined by selecting the communes that make up this third set. It can be found in the annex to the present decision.

Based on the aforementioned data, the thus-designated very high-density areas include 148 communes and 5.54 million households, of which roughly 3.5 million households (or around 60%) are located in large apartment blocks or can be accessed via visitable sewers.

If needed, the list of communes could be expanded following the adoption of a future ARCEP decision, chiefly as a result of changes in population data or the housing structure of certain communes, which are brought to the Authority's attention.

Section V Regulation concerning the terms governing access to ultra-fast broadband optical fibre electronic communications lines

(1) Requests for access made prior to the installation of lines in a building

This section applies only to very high-density areas. In the other areas, the building operators chooses the terms governing the deployment of fibre in buildings, while complying with the general principles defined by existing texts, notably the applicable provisions of the present decision.

Scheme proposed by ARCEP

ARCEP proposes the following terms and conditions to apply to the installation of fibre in buildings in very high-density areas, which consist of an obligation for a building operator, when receiving a request from a third-party operator:

- first, to guarantee the requesting operator the ability to install an cross-connection box near the concentration point or an intermediary point (which may be necessary for an operator opting for PON configuration and wanting to optimize its network occupancy rate);
- and, second, to install a dedicated fibre running to the customer premises on behalf of this operator (which may be necessary for an operator opting for a point-to-point configuration and wanting to minimize the work that needs to be performed on its network), provided the requesting operator is willing to share the total installation costs at the outset.

Technological neutrality of this scheme

As indicated in Section II, operators' technological choices involve different technical and economic constraints. A PON operator will therefore generally want to have a cross-connection box installed at the concentration point, to be able to perform the cross-connection operations needed for its active equipment. A point-to-point operator, on the other hand, will generally favour a connection to the concentration point that allows it to reduce the frequency of future service calls (by splicing or a point of flexibility).

Sharing a fibre through a cross-connection box does help reduce the number of future service calls that will be needed. This means that installing several fibres is the most suitable solution for allowing each operator to choose freely between these two options. If each operator has a dedicated fibre between the concentration point and the customer premises, it can decide whether or not to install a cross-connection box on the its dedicated fibre, in accordance with its technical and strategic choices, without affecting other operators' choices.

This system allows each player to choose the way in which they are connected to the concentration point (with or without cross-connection). An operator that wants to minimize the number of future service calls will ask the building operator to install a dedicated fibre on its behalf. An operator wanting connection through cross-connection will request both the installation of an additional fibre and the ability to install a cross-connection box at the concentration point. The operators that so desire can also elect to share the same fibre.

The goal is not to decide between the players' chosen technological configurations (PON or point-to-point), but rather to make each one possible and to allow for optimised rollouts and

connection at the building level. Allowing each operator to choose freely between PON and point-to-point is indeed a guarantor of the future health of the still nascent ultra-fast broadband market's inventiveness and competitiveness.

In its Opinion No. 09-A-47 of 22 September 2009, the Competition Authority expresses the view that, "*the installation of several fibres and the fact of making dedicated fibres available to any operator that so desires ensures the greatest possible degree of technological neutrality"* and adds that installing several fibres "*provides the best guarantees in terms of* […] *technological neutrality.*"

How this system benefits competition and consumers

Several operators appear ready to invest in fibre-to-the-home networks in very high-density areas. Because of the likely competition in deploying "horizontal" networks, which is an exceptional situation from a global perspective, it would be regrettable for a lasting monopoly to be created over the last drop, i.e. the in-house section of the networks.

The system that ARCEP is proposing allows each operator that so desires to have a dedicated fibre in this last drop, in addition to its own network in the horizontal portions. This guarantees them independence end-to-end, whereas the fact of sharing the same fibre re-introduces complex interactions between the operators at the building level (ordering system, access delivery and after-sales process, etc.) comparable to the one that already exists for unbundling, and which could require strong and lasting regulation. This new system, on the other hand, allows each player to implement their technology independently, and to differentiate itself.

It should also be pointed out that this system in no way undermines the principle laid out by the Law on modernising the economy of having a single interlocutor for the building who is appointed by the property owner. It is in fact a single operator that carries out the installation of an optical fibre network in a building, and this regardless of the number of fibres contained in the cables deployed in that building.

From the consumer perspective, the fact of installing additional dedicated fibres would appear to enable greater flexibility in the way the retail market operates, as well as the development of new applications.

Although currently rare with DSL, requests to subscribe to several accounts with different ISPs coming from consumers living in the same household could occur. If the number of requests for multiple subscriptions were to increase significantly, only the installation of additional dedicated fibres could make it possible to satisfy them, without having to perform extra work in the building.

This type of offer could be of interest to:

- business customers located in mixed use buildings, i.e. business and residential, who want to have two accounts to limit the risks of a service outage;
- residential customers, for instance those who are sharing a household and who each have their own account with an ISP (flat mates, separate subscriptions for parents and children, etc.). A multi-fibre deployment would allow an operator supplying a standalone TV service to market it to all of the households eligible for its FttH services, regardless of the ISP they use, without having to establish an agreement with another operator for transporting the TV service.

When each operator has a dedicated fibre, signing up with a given operator is an independent process for a customer and therefore not necessarily consecutive to the possible cancellation of a subscription with another operator for the same address. Like with DSL, with a shared fibre, switching ultra-fast broadband providers for the same address will require users to cancel their initial account first, which means having their service shut off for a length of time that will vary depending on the circumstances.

In addition, operators with a dedicated fibre have the possibility of not having to perform any work at the concentration point when customers sign up for access if their home is already connected to the operator's network from the concentration point, and provided there are no unusual problems. Among other things, this would allow operators who opt for this solution to be able to activate an ultra-fast broadband line very quickly for any new customer living on a floor that is already connected to the network. This could lead to new quick activation and cancellation offers for consumers, notably for rental housing. It could also help reduce operator switching costs, which would benefit market competition.

Finally, in its Opinion No. 09-A-47 of 22 September 2009, the Competition Authority expresses the view that the system benefits consumers as, "*they can switch operators quickly and without any interruption of service since no adjustment needs to be made on the network and because, unlike with unbundling, prior cancellation is not necessary"*.

Reasonable nature of the proposed scheme

The trials and assessments that operators carried out in the first quarter of 2008 under the aegis of ARCEP made it possible to determine the reasonable nature of the constraints incumbent on the building operator as a result of the system proposed by the Authority, at least in areas where the concentration point is located near or inside the buildings, which will be the most usual case in very high-density areas. Several elements help determine this reasonable nature.

Installation and operating costs

An assessment needs to be made of the costs and savings incurred by the installation of several fibres per household in a building, for instances when third parties exercise the option of having a dedicated fibre.

We can compare two deployment methods:

- single fibre, where the building operator installs a single fibre per household, which is shared via the cross-connection box required for this sharing scheme;
- and multi-fibre, e.g. four fibres per household, where each operator has the option of a dedicated fibre and can decide whether or not to install a cross-connection box.

In practice, it has not emerged either from the trials and assessment carried out in Q1 2009, or from other information that has been collected since the Authority launched a public consultation on 22 June 2009, that there is a significant difference between the cost of the in-house portion of a multi-fibre deployment and a single fibre one. In fact, although the installation of additional fibre means additional costs – which will be concentrated in the installation of a connection to the customer premises, between the floor terminal and the optical network unit – the fact of not installing a cross-connection box systematically at the concentration point will likely lead to savings:

- as concerns installation of the connection to customers, more splicing needs to be performed at the floor connector and terminal box level, when the optical fibre cable has several fibres instead of just one. This operation only takes place when a resident subscribes to an access service, however. The added cost therefore needs to be multiplied by the ultra-fast broadband penetration rate inside the building, which smoothes the impact on operators' savings;
- as concerns installation of a cross-connection box, the deployment scheme that involves installing dedicated fibre does not require a cross-connection box for sharing fibres to be installed at the concentration point;
- and, finally, the cost of connecting other operators to the concentration point will ultimately depend on local circumstances tied to the accessibility of this point (available access path when located at the foot of the building, for instance) and on each operator's strategic choices, and to some degree on the type of deployment performed in the building (i.e. single or multi-fibre).

Even if they are limited, any possible additional initial costs should be put into perspective, for three reasons: precise cost figures are difficult to obtain at this stage as rollout processes have not yet been automated, which could help bring down rollout costs, potentially to varying degrees; second, because ultra-fast broadband FttH rollouts represent very long-term investments in infrastructure that will be used for several decades and, third, because they need to be assessed with respect to expect savings on operating costs thanks to multi-fibre deployments.

On this last point, multi-fibre rollouts help reduce the number of service calls needed at the concentration point, and so the costs incurred by these calls, at least for operators that choose not to split their fibre at the concentration point. In addition, when a customer switches operators, it will not necessarily involve a technician having to do work at the concentration point when this type of deployment is chosen, which also means lower operating costs compared to a shared fibre configuration.

Operational constraints

The equipment that needs to be installed for additional dedicated fibre, notably for four-fibre installations, is already available in the marketplace and was used in the trials that were conducted in 2009.

On the matter of the future-proof nature of this equipment, making dedicated fibres available helps secure the future and the future development of these technologies as it leaves open the possibility for each operator to upgrade their network independently. Moreover, it helps reduce the number of problems caused by operators performing work on networks deployed by another party. If each operator has a dedicated fibre it will mean that, aside from bringing connection to each floor in the MDU, every operator will perform work only on their own network.

Installing a cross-connection box, on the contrary, which is an intrinsic component of a single-fibre configuration, will mean constant repeated service calls on the box – which could be located indoors in some cases – by the different operators' technicians over the life of the network. These multiple service calls could cause harm to all of the operators' networks and make the cross-connection box a fragile point in the network, as well as being sources of contention for the building's owners and managers.

The ability to install a cross-connection box does not appear to create any significant restrictions when the concentration point is located at the foot of the building, however. Solutions could be found for when the concentration point is not located at the curb, notably by installing the distribution mechanism "on the line," e.g. at the foot of the building. Moreover, if an operator who has opted for a PON configuration is also deploying equipment in buildings near the one it wants to have access to, it will likely have installed an outdoor cross-connection device for its own purposes, which it can connect to upstream from the concentration point.

Conclusion

The proposed scheme is crucial to guaranteeing true technological neutrality. The purpose is not to choose between the different options being backed by the players, whether technological (PON or point-to-point) or operational (connection with or without a cross-connection box) but rather to make all of them possible. Allowing each operator the freedom to choose between PON and point-to-point is in fact a guarantor of the future health of the still nascent ultra-fast broadband market's inventiveness and competitiveness.

The system benefits both competition dynamics and consumers: it provides the players with independence end-to-end, and avoids a new complex system from being created at the building level, comparable to the situation with local loop unbundling, which could require strict regulation. From the consumer perspective, the installation of additional dedicated fibre allows them to switch providers easily, without any down time, and to subscribe to services provided by different vendors, which could in turn help develop new applications. For condominium owners and residents this option could also help reduce the number of service calls over time, particularly at the concentration point inside the building.

Nor does the scheme impose undue constraints on operators. First, there is no indication that the additional costs that it may induce are significant which, despite not having the benefit of hindsight, in any event needs to be assessed with respect to the longevity of the infrastructure (several decades) and the future guarantee that the installation of additional fibres provides. Moreover, manufacturers are already producing equipment that is compatible with multi-fibre rollouts, and the installation of a cross-connection box when needed. Also, multi-fibre deployments taking place in other countries, such as Switzerland and the Netherlands, could help spur the mass production of this equipment.

And, finally, the measure is proportionate since the scheme does not impose a "multi-fibre standard" but rather makes it an option that other operators can exercise. This means that, if no other operator is interested in exercising that option, the building operator can deploy the number of fibres it wants.

In light of all of these elements, this system is proportionate with the objectives stated in Paragraph II of Article L. 32-1 of the CPCE, and is particularly necessary for ensuring:

- job creation, efficient investment in infrastructure, innovation and competitiveness in the electronic communications sector;
- the definition of terms governing access to networks that are open to the public and the interconnection of these networks which guarantee that all users have the ability to communicate freely, and equal competition conditions;
- the most technology-neutral measures possible.

(2) Requests for access to the lines and to associated resources which are made before or after the lines are deployed in a building

Access to a line

CPCE Article L. 34-8-3 stipulates that any party who is establishing or has established in an existing building, or is operating an ultra-fast broadband optical fibre electronic communications line that makes it possible to serve an end user must grant all reasonable requests for access to the line and to the resources associated with it.

In practice, the building operator needs to be able to provide access to the lines at the concentration point, by supplying a continuous optical path from the concentration point to the optical network unit inside the customer premises, whether business or residential. Access to the lines also includes the services needed to manage and maintain the connections.

The existence of a passive offer at the concentration point guarantees third-party operators the ability to control their active equipment and to choose their technology. As with unbundling, the goal is to allow operators to differentiate their offers, to control the technological evolution of their network and the roadmap for its implementation, by providing them with a passive solution over optical fibre. In addition, a passive offer allows operators to have a larger economic area than is the case with an active offer, and to use existing optical fibre collection networks for connecting their copper local loop exchanges as part of an local loop unbundling scheme.

To provide access to a line through a passive solution, the building operator can provide other operators with a dedicated fibre, which gives them permanent access to the customer premises inside the building, or with a shared fibre which gives them temporary access to the customer premises inside the building, depending on which operator's services the residents choose to sign up for.

However, when a building operator has installed at least four fibres per housing or office unit, and when all of the installed fibres are being used by operators, it is reasonable to plan on having the capability to provide access from a point higher up the network, in either passive or active form, to operators that make a request for access after the network has been installed. This scenario seems unlikely to arise given the number of operators who have already announced plans to deploy dense optical fibre networks, and would very probably lead to a great deal of competition on the optical local loop, as it would mean four optical fibre operators engaged in infrastructure-based competition, in addition to the copper network and cable networks.

In such a situation, it does not seem reasonable to require that a building operator install an additional fibre or an cross-connection box on its dedicated fibre to host a new operator. Furthermore, the existence of an offer higher up the network, whether passive or active, opens up the possibility of allowing new entrants into the market, which is a reasonable guarantee for ensuring competition in the marketplace. And, finally, the lack of an obligation to supply a passive offer at the concentration point does not prevent operators from marketing such a solution if they so desire, for instance over a shared fibre.

Access to associated resources

Hosting and accessibility of the concentration point

The building operator will guarantee non-discriminatory access to the concentration point, both for providing connection to this point and for performing any work necessary to operations. The building operator will provide third-party operators with the space they need to perform connection operations at the concentration point.

In particular, when the concentration point is located on private property, the building operator will guarantee other operators non-discriminatory access to the site, without other operators having to ask the property owner for permission. This could take place in the form of a mandate that the building operator issues to the access-sharing operator, as provided for in CPCE Article R. 9-4.

Availability of the host infrastructure

The concentration point needs to be accessible to any other operator wanting to serve the users in question, in other words, all other operators must be able to deploy their own optical fibre cable to the concentration point.

In very high-density areas, where networks are generally installed underground in civil engineering infrastructure, this means that the ducts that make it possible to connect to the concentration point must not be saturated, to allow all operators to connect to it.

When the concentration point is at the foot of the building, ducts capacity need to be available and, when applicable, space in the utility vault or manhole if any coupling operation needs to be performed. In instances where the supply duct is saturated, when conveyance is through an aerial installation or when buildings are outfitted with optical cable up the façade, the building operator must guarantee third-party operators' ability to connect to the concentration point. This means that it will need to obtain all of the necessary permissions.

In the same vein, in more sparsely populated areas where a portion of the networks may be deployed overhead, the aerial installations need to allow for several optical cables to be run to the concentration point.

This set of obligations is proportionate to the objectives set out in Paragraph II of CPCE Article L. 32-1, and are particularly necessary to ensure:

- job creation, efficient investment in infrastructure, innovation and competitiveness in the electronic communications sector;
- the definition of terms governing access to networks that are open to the public and the interconnection of these networks which guarantee that all users have the ability to communicate freely, and equal competition conditions;
- the most technology-neutral measures possible;
- the integrity and security of the electronic communications networks that are open to the public.

Information concerning the lines and the concentration point

To be able to make relevant choices concerning their deployments and their commercial offers, operators making use of wholesale offers need to have access to prior information on these offers, and this within a reasonable timeframe. As it concerns the installation of fibre in

the buildings, the risk would be in having the building operator gain an unfair competitive advantage by keeping information to itself.

Here, we should reiterate that, in its Opinion No. 08-A-06 of 6 May 2008, on the draft version of the Law on modernising the economy, the Competition Authority pointed out that "*the exchange of information between operators is an important bulwark against the dangers of having the operator who has installed the last drop secure a disproportionate number of contracts with end users. If it does not share information in a timely fashion, the operator that has deployed the equipment will be the first and only one to be able to market ultra-fast broadband services to residents for some time, which creates the danger of signing the majority of the potential customers on to lengthy contractual commitments, which will considerably reduce potential competition in the ensuing months and years".*

In its Opinion No. 09-A-47 of 22 September 2009 concerning the present decision, the Competition Authority expresses the desire to have ARCEP introduce conditions that will prevent "*these exchanges of information from enabling collusive behaviour between existing market players*".

It is worth remembering that CPCE Article R. 9-2 stipulates that the building operator must inform third-party operators when it has received permission to equip a building with optical fibre:

> "*In the month following signature of the agreement, the signatory operator will inform the other operators on the list that is maintained by the Electronic Communications and Postal Regulatory Authority, and will provide them with any information that is useful to the implementation of access to the lines provided for in Article L. 34-8-3, and to connecting the lines established under this agreement to electronic communication networks that are open to the public. This information will include:*
>
> - *the address of the building in question;*
> - *the name and address of the owner of the property or the condominium board representing the co-owners;*
> - *the number of residential or office units in the building;*
> - *the person whom other operators must contact to submit their request for access, in accordance with Article L. 34-8-3."*

This information, whose transmission is provided for by regulation, must also include the information concerning access that operators are obligated to exchange with one another.

In addition to the information about the buildings, and to implement access to the lines at the concentration point, the building operator must provide other operators with the information they need to access the concentration point and to connect to it, notably:

- the location of the concentration point (address, environment, means of access),
- the technical properties of the equipment installed at the concentration point and the processes for connecting to it.

This information must allow operators benefitting from access to know how to connect their lines to the concentration point and to scale their network in consequence.

This list of information, which is described in Annex II of this decision, could be revised if necessary, through the adoption of a future ARCEP decision, depending on how the state of the market evolves.

This information needs to be transmitted to other operators within a non-discriminatory time frame, before the concentration point becomes operational – in other words before the date when end users are actually able to connect to this concentration point – in such a way as to allow other operators to connect to it. An advance notice period of three months seems reasonable in light of the practices applied to broadband wholesale offers.

An obligation to provide prior information, notably the information listed here above, is vital for ensuring the efficiency of line access offers, and therefore necessary to sustaining competition over the long term. It is also proportionate to the objectives set out in Paragraph II of CPCE Article L. 32-1, and particularly necessary to ensuring:

- fair and effective competition between electronic communications network operators and service providers which is beneficial to users
- job creation, efficient investment in infrastructure, innovation and competitiveness in the electronic communications sector
- the definition of terms governing access to networks that are open to the public and the interconnection of these networks which guarantee that all users have the ability to communicate freely, and equal competition conditions.

Moreover, in its Opinion No. 09-A-47 of 22 September 2009, the Competition Authority calls on ARCEP "*to ensure that […] the information necessary to implementing sharing schemes circulates properly between all of the operators involved, without discrimination"*.

Here, it stresses that, "*if a centralised system, in charge of collecting and distributing information to the concerned parties, appears to offer the best guarantee, distributed solutions – whereby the information held by each operator would be accessible to all other operators – could also be used. At the very least, the system that is chosen should allow ARCEP to verify, first, that the information transmitted by an operator is confined to what is strictly necessary for implementing infrastructure sharing and, second, that it is accessible, without discrimination, under the same conditions and at the same time, to all of the operators concerned*".

It would therefore seem advisable for the building operator to make all elements available to ARCEP that would allow it to verify that the operator has indeed provided all of the concerned parties with the relevant information within the set timeframe.

(3) Terms and conditions of access pricing

Article L. 34-8-3 of the CPCE stipulates that:

> *"*[…] *access will be provided under transparent and non-discriminatory conditions from a point located outside the limits of the private property, except in cases defined by the Electronic Communications and Postal Regulatory Authority, and which allows third-party operators to connect to it under reasonable economic, technical and access conditions. In the instances defined by the Electronic Communications and Postal Regulatory Authority, access can consist of making available network installations and specific elements requested by a third-party operator prior to the installation of ultra-fast broadband optical fibre electronic communications lines in the building, in exchange for which that operator will assume a fair share of the costs. Any refusal to grant access must be justified […]"*

The tariffs charged by the building operator must therefore satisfy several objectives:

- be beneficial to consumers, by promoting infrastructure-based competition whenever possible and by encouraging pricing schemes which restrict third-party operators' as little as possible with respect to the setting of their retail tariffs;
- encourage operators to invest, notably through co-financing schemes that provide for fair cost sharing between operators.

To meet these objectives, when setting the price of access offers, the following principles should be taken into account, in accordance with the objectives set out in Paragraph II of CPCE Article L.32-1 and with the usual regulated price-setting practices, notably as stipulated in the European Commission Recommendation of 19 September 2005 concerning accounting separation and regulatory cost accounting systems for electronic communications:

- the principle of non-discrimination: discriminating against operators who are in similar situations would weaken retail market competition by artificially favouring a given situation or strategic choice;
- the principle of objectivity: the tariffs set by an operator must be justified, based on clear and verifiable costs elements;
- the principle of relevance: costs must be shouldered by the operators who incur them or who make use of the corresponding infrastructure or services. This means that the building operator must not be required to shoulder the costs incurred by the installation of additional fibre on behalf of other operators. In addition, this principle extends to a correlation between sharing costs and sharing any possible revenue generated from hosting operators that may connect to the building in the future;
- the principle of efficient investment: the costs that are taken into account must correspond to those incurred by an efficient operator. This means that the building operator cannot require third-party operators to support undue or excessive costs.

In its observations, the Commission points to a "*potential lack of legal certainty as regards pricing terms and conditions"* that could affect the predictability of the prices for accessing the concentration point. The Commission specifies in particular that "*investment decisions depend on a number of factors, one of which is regulatory predictability*". In light of which it considers "*that the lack of an official endorsement of access offers prior to their publication may give raise to an undesirable lack of regulatory certainty*."

The Authority fully shares the Commission's analysis of the need for a sufficient degree of predictability to allow all operators, and particularly those wanting to engage in co-investment schemes, to build precise business plans. To be able to commit to such large investments or co-investments, operators need to have a degree of clarity on the costs they will be incurring and the revenue they will be earning.

ARCEP believes that prior approval of operators' pricing schemes is ill-suited to the transitional start-up phase. *Ex ante* approval of pricing would only be possible with enough hindsight to be able to take an accurate measure of the relevance of the proposed cost structures and the reality of the invoiced costs, which is only possible after the market has entered into a mass production stage. Moreover, submitting offers to the Authority's prior approval could raise questions of legal feasibility.

As a result, the Commission suggest that the Authority employ other means to ensure that operators will have enough clarity on their planned future investments or co-investments. To this end, "*the Commission invites ARCEP to foresee in its final measure that it may, in case of*

persistent disagreements between stakeholders on the actual implementation of the currently notified pricing principles and obligations, provide further details on the pricing terms and conditions in the recommendation accompanying the notified draft measure, or require operators to submit their access offers, particularly with regard to the very high-density areas, prior to their publication to ARCEP". Concerned as it is with providing operators with a sufficiently predictable regulatory framework, the Authority will continue its discussions with them on the pricing structure and prices that they will be proposing for accessing the concentration point, notably for co-investment schemes.

Should there continue to be significant and persistent disagreements once these discussions have concluded, ARCEP will complete its recommendation, as invited to do by the Commission, by providing further details on certain reasonable terms and conditions governing the price set for accessing the concentration point, particularly for co-investment schemes.

Cost sharing from the outset

Because the scheme being proposed by ARCEP for satisfying requests for access that are made before the optical lines are deployed in a building is likely to induce costs tied to installing additional equipment, it seems advisable to implement a system of fair cost sharing. Here, the building operator can demand that the operator on whose behalf it is installing this initial equipment help finance the deployment of optical fibre lines at the outset.

To implement this cost-sharing scheme, a distinction needs to be made between those costs that are to be shared by all operators, which correspond to the cost of infrastructure that is useful to all the connected operators – including, if applicable, infrastructure that makes it possible to provide future new entrants with access – and those costs to be shouldered by a given operator or a sub-group of connected operators, which correspond to the cost of the infrastructure installed as a result of their own choices and deployment methods.

Within this environment, and pursuant to CPCE Article L. 34-8-3, it is reasonable to require that each operator pay a fair share of the costs that are to be shared by all operators in addition to assuming the costs incurred by its own deployment choices and methods, in accordance with the principles stated here above.

The pricing terms and conditions that apply to all operators who invest at the outset are not disproportionate as they constitute the necessary minimum to achieving the objectives set out in Paragraph II of CPCE Article L. 32-1, and particularly the one that seeks, first, to guarantee fair and effective competition between electronic communication network operators and service providers that is beneficial to users and, second, that operators in comparable circumstances be treated in a non-discriminatory manner.

Encouraging fibre deployment in buildings and the pre-financing of this equipment

The pricing terms and conditions that are put into place must be such that, on the one hand, they encourage operators to invest, or at the very least do not create disincentives and, on the other, that they do not favour opportunistic behaviour by operators who, by entering the market only after the lines have been installed, could cause an unfair burden on first entrant operators who invest from the outset.

To this end, the proposed scheme favours investment in fibre deployments in the buildings by encouraging cost sharing, hence risk sharing. Each operator has an incentive to equip more

buildings than its competitors to minimize its level of financing compared to its coverage level, while enjoying the commercial advantage of being the first entrant in the building.

Operators also have an incentive to help finance the installation of optical fibre lines from the outset, and so to invest in the corresponding "horizontal" networks.

To encourage market players to equip buildings with optical fibre, and in accordance with the work being done in Europe which is tending to favour risk sharing and giving a risk premium to operators who invest, it is also advisable to include a provision that, when operators enter the market after the lines have been installed, their contribution to cost-sharing will be determined by using a rate of return on investments that takes account of the risks incurred, and which extends a risk premium to the building operator.

(4) Transparency of the terms governing access to ultra-fast broadband optical fibre lines

Article L. 34-8-3 of the CPCE stipulates that access to the lines must be provided under transparent conditions.

As a result, all building operators must publish an offer for accessing their lines, allowing them to satisfy their obligation to grant requests for access, in accordance with Articles 2 and 5 of the present decision, and under the pricing terms and conditions in Article 3.

It is on the basis of this access offer that the building operator will then establish access agreements with interested third-party operators.

Publication of a line access offer

The existence and publication of an access offer satisfies several objectives:

- offset the lack of bilateral bargaining power of operators wanting to have access to lines that have been installed or are managed by the building operator;
- ensure that third-party operators will be treated in a non-discriminatory fashion;
- bring operators the clarity and security they need to establish their business plans;
- make it possible to delink services so that third-party operators pay only for what they need.

When establishing their business plans and their technical and commercial strategies, third-party operators need real clarity on the technical and pricing terms and conditions being offered by the building operator.

Moreover, using a public offer makes it possible to ensure that the different client operators are treated in a non-discriminatory fashion.

The building operator must therefore publish an access offer that includes at least the following:

- terms and conditions for installing a dedicated fibre or a cross-connection box;
- access to the lines through the supply of a dedicated and/or shared fibre;
- access to the associated resources.

For each of these services, the building operator's access offer must include details on the terms and conditions of subscription and cancellation, prior information, the technical characteristics, the delivery processes and after-sales service, timetables and advance notice, quality of service and pricing terms and conditions.

In principle, the access offer published by the building operator constitutes a base offer that applies nationwide, but which may be adjusted at the municipal or supra-municipal level.

This obligation constitutes a guarantee whose purpose is to ensure, in particular, equal terms of competition in the market in question. It is proportionate to the objectives laid out in Paragraph II of CPCE Article L. 32-1, and especially points 3, 4 and 9, with respect to the minimum obligations imposed on the building operator to ensure:

- job creation, efficient investment in infrastructure, innovation and competitiveness in the electronic communications sector;
- the definition of terms governing access to networks that are open to the public and the interconnection of these networks which guarantee that all users have the ability to communicate freely, and equal competition conditions;
- a lack of discrimination, in comparable circumstances, of the way in which operators are treated.

A period of one month from the publication of the present decision in the Official Gazette of the French Republic would seem sufficient time to allow operators to draft their offer for publication. The concerned parties were indeed informed of the obligations that were likely to be applied to them during the consultation process with the sector, before this decision was brought into force.

Cost accounting

On the matter of the pricing principles described above, the building operator must be able to provide the Authority with documents supporting the investments that it made from the concentration point to customer premises. Each building operator must therefore establish and keep up to date information on the costs, tracing the expenditures made from the concentration point to customer premises. This is a necessary obligation, first with respect to the goal of transparency and, second, so that the principle of non-discrimination can be subjected to counter-analysis.

These accounts must also include the main categories into which costs are classified, along with the rules applied to allocating these costs. These documents must provide enough detail to make it possible to verify that, when applicable, non-discrimination and cost-based pricing obligations are being met.

To allow the Authority to perform the appropriate analyses needed to verify that the principle of non-discrimination is being applied, the relevant elements from the information system and accounting data need to be made available for a long enough period of time, which can be set to five years.

Section VI Regulation concerning the location the concentration point

According to the Law on modernising the economy, the concentration point will be located outside of private property, except in those instances defined by the Authority. CPCE Article L. 34-8-3, which is derived from this Law, therefore stipulates that:

> *"access will be provided under transparent and non-discriminatory conditions from a point located outside the limits of the private property, except in cases defined by the Electronic Communications and Postal Regulatory Authority, and which allows third-party operators to connect to it under reasonable economic, technical and access conditions.* […]*"*

The location of the concentration point must satisfy several objectives:

- limit the amount of work that needs to be done on the private property, particularly in common areas. This first objective is the basis of provisions contained in the Law on modernising the economy concerning sharing the last drop of optical fibre networks;
- allow first entrant operators to connect to the concentration point, which implies that it will be accessible under reasonable conditions and located at a point in the network that makes it economically feasible for these operators to connect to it;
- favour infrastructure-based competition as much as possible.

This last point supports the idea of locating the concentration point close to customer premises. Except in certain special cases, it is indeed a reasonable solution in those areas where it is economically possible. When the concentration point must be located higher up the network, coordination between the operators becomes crucial, which brings with it complex implementation issues. It may not be reasonable to oblige operators to acquiesce to this constraint in areas where it is not necessary to locate the concentration point higher up the network. During the parliamentary debates over the Law on modernising the economy, the following conclusion was made on the subject of the concentration point: "*We therefore need to achieve a balance between profitability for operators and effective competition with other operators, and it is not necessarily that far up that the right balance is to be found*".

(1) Determining factors in the location of the concentration point

In its recommendations published in October 2008, the Authority had stated that:

> *"The location of the concentration point is a new issue that did not arise for broadband regulation which proceeded from access to an existing network. In the case of fibre, local circumstances will have a considerable impact on the economics of rollouts, and can lead to different regulation being applied in different parts of the country. Moreover, the process of defining concentration points may demand a certain degree of coordination for operators' rollouts, to avoid lasting gaps in coverage as much as possible.*
>
> *The location of the concentration point depends on housing density and structure. Today, the Authority is releasing a topological survey performed by the firms PMP and Quatrec. It reveals that, outside of very high-density areas, it became inefficient to deploy several parallel networks up to a concentration point located*

too close to buildings. Added to this is the fact that the economic area for replicating the networks is structurally smaller in more sparsely populated zones.

In light of these elements, the concentration point could be located near the buildings (at the curb or at the foot of large building) in the most densely populated areas (e.g. Lyon) and will need to be located higher up the network in other cases, in all likelihood on one of the main traffic arteries for a medium-density city (e.g. Besancon) to serve a neighbourhood."

The location of the concentration point (either inside the building, or accessible higher up the network from customer premises, usually on public property) will go a long way in determining other operators' actual capacity to connect to the building operator's network, and so to provide residents with services.

First, the size of the concentration point (in terms of the number of lines it houses), along with the density of the area in which it is located, will determine the economic equation of operators' rollout costs in the horizontal portion, i.e. in the civil engineering infrastructure. Network rollout costs in relation to subscriber numbers depend a great deal on housing density and structure. The more sparse the population, the harder it becomes from an economic standpoint for several operators to earn a return on the cost of deploying their networks close to customer premises, even over the long term. As a result, to determine the location of the concentration point, a distinction needs to be made between very high-density areas where it is economically feasible for several operators to deploy their own fibre-to-the-home networks, and more sparsely populated areas where operators will need to share a larger portion of the network – on a neighbourhood scale, for instance. These parameters are crucial to assessing at which point in the network sharing can occur. The method used to determine which communes are deemed very high-density areas is explained in Section IV of the present document.

Moreover, even in areas that are dense enough for sharing to occur close to the buildings, it is not always economically viable for the concentration point to be located inside the premises. For it to be economically feasible for several operators to install optical fibre inside a building at the same time, it must be possible to amortise the cost of entering the building to perform an indoor installation on a sufficient number of lines. The following paragraphs will therefore detail what the Authority has determined to be the minimum number of units that an existing building must contain for the concentration point to be located at its foot.

Lastly, it must be possible for the concentration point to be connected under reasonable operating conditions, which implies the availability of host infrastructure for pulling the optical fibre cables (civil engineering, poles, etc.). In the following paragraphs, the Authority examines, in particular, those instances in which the foot of the building constitutes the only relevant point of confluence for operators' horizontal networks.

(2) <u>Instances in which the concentration point can be located inside an existing building</u>

In light of the preceding, the concentration point can only be located inside an existing building located in a very high-density area. The only buildings within these areas concerned by this provision are defined here below, in terms of the determining factors for the location of the concentration point presented above.

Very high-density areas are described Annex I of the present decision, according to method defined in Section IV of the present decision.

Existing buildings with at least 12 units

In very high-density areas, where several operators are able to deploy their own network in virtually every residential street, the minimum size of the buildings that can house a concentration point needs to be determined. Based on available elements, the Authority has determined a threshold of 12 units in a building.

This threshold of 12 customer units appears to suffice with respect to operators' technical-economic constraints, for both those who have opted for PON technology and those who have chosen point-to-point technology.

In the first instance, typical engineering for a PON operator – in very high-density areas at least –generally consists of installing couplers at two levels: one upstream, at a access point of around a thousand lines, and another downstream, at the concentration point for instance. The location of this second level of optical coupler is the result of a compromise between the following two constraints:

- the number of lines situated downstream from the coupler needs to be large enough for it to be sufficiently filled;
- housing these couplers must allow for network flexibility to enable this optimisation.

To satisfy the demands of the first constraint, a PON operator needs to be able to optimise the use of the PON trees and so to eventually fill the coupler installed at the concentration point. Taking the hypothesis of an eventual 100% penetration rate for ultra-fast broadband, a 33% market share for the PON operator being considered, and a 1*8 ratio for the coupler installed at the concentration point, which appears to be a common configuration, it is only starting at 24 lines that a real optimisation of the coupler's occupancy rate can be realised. For a coupler with a 1*4 ratio installed at the concentration point, the threshold is a minimum 12 lines per building.

As to the second constraint, it appears that in very high-density areas the foot of the building can be a suitable environment for the installation of this second level of couplers. The figure of 12 units therefore appears to be adapted to this housing-related constraint as well, since at least half of the dwellings in very high-density areas are located in buildings with at least 12 units (cf. section IV). This threshold therefore allows PON operators to have a simple hosting solution for this second level of couplers for the majority of homes in very high-density areas.

For an operator using point-to-point technology, the 12-unit threshold is neutral with respect to the optimisation of active equipment, which occurs at the optical distribution frame.

Second, the cost elements that emerged from the trials and assessments, along with the responses to the public consultation in May 2009, led to the determination of a fixed cost of connecting to a building of around €500, which corresponds to pulling the optical fibre from public property to the concentration point, in the duct segment for instance. For a scenario of 12 customer units, the cost of this operation comes to less than €50 per household. This appears to be an acceptable figure in terms of the ROI criteria set for fibre rollouts, which operators' financial publications put at a maximum cost of €250 to €300 per household, and in light of other cost items (notably deploying fibre in the horizontal portion and installing fibre indoors).

One additional point, which emerged from the trials performed by operators, is that equipment is available with a 12-base modularity for the different products, whether in terms of optical fibre cable, cross-connection boxes, etc.

The threshold of a minimum 12 lines per building for locating the concentration point at the foot of the building cannot be justified for all levels of population density and all housing structure configurations. Although it is economically viable to have concentration points of at least 12 lines installed at the foot of a building in a very high-density area, such would not be the case in a medium-density city where the concentration point needs to be located higher up the network, and will therefore house a larger number of lines.

Buildings served by the visitable tunnels of a public sewage network, regardless of the number of residential or office units they contain

In Paris in particular, the public sewage networks are visitable and connect to residential buildings via collection tunnels that are visitable as well. Some operators have therefore begun to deploy their FttH networks alongside these sewer networks, by connecting each building to the optical fibre via the collection tunnel.

Provided there is enough space available in these networks to deploy several optical fibre networks, it remains feasible, from an operational standpoint, for several operators to connect to a given building. In addition, some operators connect to the building using France Telecom civil engineering, whereas others employ the sewer network, such that the foot of the building constitutes a relevant point of confluence for the networks. Lastly, while it is possible to plan on connecting the France Telecom civil engineering network to an alternative civil engineering network at an intermediary point, this does not seem to be a reasonable option with the sewer network, given the security restrictions involved. In light of these elements and the population density of the areas of residence being considered, it is legitimate to introduce an exception to the previously stated principle concerning the minimum size of buildings where the concentration point can be located at the entrance.

The concentration point can therefore be located on private property in a residential building connected to a visitable sewer network by a visitable tunnel, and this regardless of the number of residential or office units that are contained in the building situated in a very high-density area.

(3) <u>Location of the concentration point in all other instances</u>

Aside from the instances provided for above, the concentration point for the lines in a building will be located outside the limits of private property, in accordance with CPCE Article L. 34-8-3.

The technical solutions that operators have explored up to now for small buildings in very high-density areas plan on grouping the lines for several buildings or individual homes at a concentration point that can be located on the building's façade, at a base station, in a civil engineering vault, a street cabinet or at the optical distribution frame. Operators are currently in the process of examining these various solutions, each of which involves different constraints in terms of the permits that need to obtained, the availability of infrastructure, operating schemes and costs.

Outside of very high-density areas, efforts are being devoted to exploring sharing solutions higher up the network, which involves a greater degree of coordination between the players. Potential deployment schemes need to be analysed and shared investment possibilities between these players need to be examined for these more sparsely populated areas.

Work is continuing as well on the practical aspects of these sharing solutions, under the aegis of ARCEP, in working groups composed of the operators involved in deploying optical fibre networks and local authorities.

Section VII Opinion the Competition Authority

In accordance with Article L.34-8 of the CPCE, ARCEP appealed to the Competition Authority for its opinion on the decision concerning the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines and the instances in which the concentration point can be located on private property, and on the ARCEP recommendation on the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines. In response to this request, the Competition Authority issued Opinion No. 09-A-47 on 22 September 2009.

(1) On the competition dynamics between players involved in deploying FttH networks in very high-density areas

The Competition Authority notes that in very high-density areas, "*the obligation to provide access can lead to a dedicated fibre being installed on behalf of any other operator that so desires"*. The Competition Authority considers there to be a number of advantages to such a situation as it "*allows operators to remain as independent from one another as possible, each one benefitting from a continuous fibre between the customer premises and its own equipment. In terms of the competitive dynamics, everything occurs as if each operator had deployed its own network to the customer premises. The last drop of the network, the obligatory point of passage for operators deploying FttH networks, is therefore not controlled by a single player, namely the building operator. The dangers of the latter taking advantage of the situation – to gain market share artificially, for instance – are therefore relatively slim"*. The Competition Authority adds that "*the use of a multi-fibre architecture constitutes a unique opportunity to avoid recreating a bottleneck in the last drop of FttH networks, notably in the in-house portion. This architecture therefore offers the best guarantees in terms of network players' independence, technological neutrality and market liquidity that will be beneficial to consumers"*.

On the subject of the retail market, the Competition Authority believes that the system is a favourable one for consumers since they "*can switch operators quickly and without any interruption of service since no adjustment needs to be made on the network and because, unlike with unbundling, prior cancellation is not necessary*".

Looking forward, the Competition Authority expressed the view that "*the ability that all operators are afforded, through the system being proposed by ARCEP, to request that the building operator install an additional dedicated fibre makes it possible to envision a market that will eventually operate in a more autonomous fashion, and a gradual lifting of ex ante regulation in the areas concerned"*.

(2) On the exchange of information

On the process of implementing the network sharing obligation, the Competition Authority expresses the view that "*the processes governing the flow of information, those provided for in the Decree of 15 January 2009, as well as those listed in Annex II of the draft decision* […]*, should be combined to avoid multiplying the number of exchanges between the players. On the one hand, because it is by and large the same information being exchanged and, on the other, this information is being transmitted to the other operators within a similar timeframe. Instilling this consistency will also provide ARCEP with the opportunity to set terms and conditions that will help prevent, as indicated earlier, these exchanges of information from enabling collusive behaviour between existing market players"* as well as "*bilateral exchanges of information between the operators or between certain among them".*

According to the Competition Authority, there are several possible solutions for achieving this, in particular "*if a centralised system, in charge of collecting and distributing information to the concerned parties, appears to offer the best guarantee, distributed solutions – whereby the information held by each operator would be accessible to all other operators – could also be used. At the very least, the system that is chosen should allow ARCEP to verify, first, that the information transmitted by an operator is confined to what is strictly necessary for implementing infrastructure sharing and, second, that it is accessible, without discrimination, under the same conditions and at the same time, to all of the operators concerned.*"

On the matter of the operators that are to receive the information mentioned above, the Competition Authority specifies that "*it does not seem necessary for this information to be made widely available, for instance to the public at large. However, it must be accessible to a new entrant, and this before it enters the market, to allow it to make informed investment decisions".*

In conclusion, the Competition Authority invites ARCEP "*to ensure, on the one hand, that the information necessary to implementing sharing schemes circulates properly between all of the operators involved, without discrimination and, on the other, that only the information that is strictly necessary be exchanged".*

(3) On potential competition and new entrants

The Competition Authority considers that "*the possibility for a new competitor to enter into a market characterised by a small number of suppliers, can exercise considerable competitive pressure on incumbent enterprises, similar to the one that characterises more fragmented markets. For this to be so, the barriers to market entry, and possibly exit, must not be too high. Deploying optical fibre local loops involves high fixed costs, and is therefore characterised by high barriers to entry. A new competitor's entry into the marketplace will therefore be facilitated if the required investments are gradual and if it can have access, during the initial stage, to an offer of access relatively high up the network, possibly in activated form".*

The Competition Authority notes that "*ARCEP's draft scheme does not really address such terms of access, to the extent that the building operator is not obligated, under any circumstances (density of the area, number of dedicated fibres being employed…), to offer, for instance, an activated solution upstream from the concentration point*".

Given the features of the French market, the Competition Authority considers that "*a regular examination by ARCEP of the economic areas between the different wholesale offers, through their cost models for instance, and the publicizing of this process, could help institute a certain degree of self-regulation by giving the players visibility. If, however, this type of wholesale offer were to continue to be non-existent or too far from new entrants' reasonable expectations, it would then be up to ARCEP to intervene by imposing, if applicable, additional ex ante obligations, notably as a result of asymmetrical market analysis"*.

(4) On discrimination in a situation where a risk premium exists

On the matter of a risk premium for the building operator, the Competition Authority notes that it emerges "*from the proposed scheme that the building operator can demand different contributions for the same offer, depending on whether the request for access was made before or after the lines were installed. This difference may need to be examined in relation to the principle of non-discrimination.* The Competition Authority points out that "*a difference in treatment must not be examined in the absolute, but rather according to the circumstances surrounding each of the players. In this particular case, we cannot consider that an operator who contributed to co-financing the last drop of the network, before it had been installed, is in the same situation as an operator that makes a request for access several months or years after such a network has been installed. This difference in situation justifies the fact that the remuneration earned by the building operator will not be the same in the two cases*".

(5) On the terms and conditions of access in more sparsely populated areas

Even if the Competition Authority underscores the fact that "*providing additional dedicated fibres offers the best guarantee for the future,"* it points out that, in more sparsely populated parts of the country, "*there are still a number of uncertainties over the architectures to be deployed in these areas, particularly as the concentration point moves further from the foot of the buildings and concentrates an ever larger number of households*".

The Competition Authority nevertheless expresses the view that "*the deployment of a new infrastructure, which in all likelihood will be operational for several decades, constitutes a unique opportunity to build several parallel networks and to thereby limit the bottlenecks in fixed electronic communications networks to very significant degree. The possibility of installing additional dedicated fibres between the customer premises and the concentration point, even when this point is located relatively high up the network and concentrates the lines from several dwellings, could be tested by the players in the coming months"*.

(6) On the degree of coordination between players in more sparsely populated areas

On the matter of rollouts in more sparsely populated areas, the Competition Authority notes that the main pitfalls to avoid are: "*on the one hand, the overlapping of inefficient networks which would likely undermine the profitability of deployments and, on the other, creating gaps in coverage that are likely to appear between the deployment areas*".

The Competition Authority underscores that, in practice, then, "*the goal of consistent deployments can translate into a greater or lesser degree of coordination between the*

players. At one extreme, we can imagine that all operators are grouped together within a common entity, which would be in charge of deploying a single network. At the opposite extreme, we can picture all operators undertaking the deployment of their own network independently, each in its own area".

Noting that discussions are currently underway and given that, "*each of these solutions gives rise to competition issues,*" the Competition Authority underscores that it is advisable that "*the proposed scheme be submitted in due course to a detailed examination with respect to competition law. The creation of a joint venture between the operators must, among other things, be notified to comply with the oversight of corporate mergers".*

In conclusion, the Competition Authority invites ARCEP to "*ensure that the terms and conditions for rollouts outside very high-density areas enable effective network sharing, in accordance with competition regulation*".

(7) <u>On horizontal deployments and pricing</u>

On the matter of the pricing of France Telecom ducts, the Competition Authority considers that there "*is a danger of double counting the civil engineering, or a portion of it, with copper pair unbundling and a duct supply offer".*

Because of this danger, the Competition Authority invites ARCEP "*in its deliberations to take into account the fact that, at least at this stage of the ultra-fast broadband market development, the different wireline local loop infrastructures occupying the same duct are supporting services which, for the most part, are rival retail market solutions*".

Section VIII European Commission Opinion

In application of Article 7 of the Framework Directive 2002/21/EC, on 5 October 2009 ARCEP notified the European Commission and the competent national regulatory authorities in the other European Union Member States of its draft decision on the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines, and the instances in which the concentration point can be located on private property, along with its draft recommendation on the terms and conditions for accessing ultra-fast broadband optical fibre electronic communications lines. In response to this notification, European Commission published its comments on the documents on 5 November 2009.

(1) <u>On the legal basis of the decision</u>

The European Commission underscores the fact that national regulatory authorities (NRAs) must use Article 5 of "Access" Directive 2002/20/EC as their legal basis, "*with caution and in exceptional circumstances". "NRAs should take into account the strict requirements for this provision to apply, namely that (i) the access and interconnection and interoperability of all services shall only be ensured where appropriate, (ii) NRAs must exercise their responsibility in a way that promotes efficiency, sustainable competition and gives the maximum benefit to*

end-users, and (iii) that the conditions imposed are objective, transparent, proportionate and non-discriminatory."

On the matter of the notified draft decision, "*the Commission appreciates that the proposed measure, coupled with the civil works access offer of France Telecom, seeks to promote infrastructure competition in France, particularly in the so-called very high-density areas, and to create the right framework to avoid reconstituting a bottleneck on in-house fibre wiring. Under such circumstances, the Commission can agree to the appropriateness of applying Article 5 of the Access Directive in conjunction with Article 12(2) of the Framework Directive to regulate access to in-house fibre wiring in France.*"

(2) <u>On the choice of symmetrical regulation</u>

The European Commission, "*invites ARCEP to carefully monitor the development of NGA investment and competition in France, in particular in the very high-density areas of the French territory, so as to evaluate whether the proposed symmetric regulation scheme remains sufficient, justified and proportionate to attain the objectives set out in Article 8 of the Framework Directive, and not to unnecessarily prolong the imposition of the proposed symmetric ex ante regulatory measure*."

"*In particular, if the proposed measures do not lead to the envisaged infrastructure competition in the very high-density areas, or in the rest of the French territory (where only the deployment of a single fibre infrastructure may prove to be economically viable), then asymmetric forms of access to fibre infrastructures might also have to be considered by ARCEP. In this regard, the Commission also refers to ARCEP's fibre-related regulatory measures imposed on wholesale broadband markets in France which were limited, in the light of the symmetric fibre line access obligation imposed by the LME, to the obligation on France Télécom to provide access to its civil works infrastructure (ducts). The Commission invites ARCEP to consider imposing other remedies, such as for example unbundled access to the fibre loop, in relation to these two markets, in case the currently proposed measure coupled with the ducts access obligation would not be sufficient to ensure effective competition within a foreseeable timeframe. Finally, the Commission invites ARCEP to consider whether the imposed obligations are in accordance with the principles set out in the NGA Recommendation once adopted*."

The Authority amended its drafted decision to specify this point.

(3) <u>On pricing terms and conditions</u>

The European Commission *"considers that the lack of an official endorsement of access offers [published by operators in accordance with Article 4 of the present decision] prior to*

their publication may give raise to an undesirable lack of regulatory certainty. Whilst the Commission appreciates that the costs underlying the rollout and sharing of fibre lines in the French territory, and particularly outside the identified very high-density areas, may prove to be, at this stage, still rather difficult to estimate, the Commission also notes that it is generally expected that the deployment of NGA networks requires substantial investment. Investment decisions depend on a number of factors, one of which is regulatory predictability. In the light of what precedes, the Commission invites ARCEP to foresee in its final measure that it may, in case of persistent disagreements between stakeholders on the actual implementation of the currently notified pricing principles and obligations, provide further details on the pricing terms and conditions in the recommendation accompanying the notified draft measure, or require operators to submit their access offers, particularly with regard to the very high-density areas, prior to their publication to ARCEP. With the support of the imposed cost accounting obligation ARCEP should be in a position to evaluate swiftly the compliance of the offers with the obligations and pricing principles set out in the draft decision."

The Authority amended its drafted decision to specify this point.

It is decided that:

Section I. Definitions

Article 1

The term "*ultra-fast broadband optical fibre electronic communications line*" or "*line*" refers to a passive link from an ultra high-speed local loop network comprised of one or several continuous optical paths and which make it possible to provide services to an end user.

The term "*concentration point*" refers to the end point of one or several lines at which the party establishing or having established in an existing building or operating ultra-fast broadband optical fibre electronic communications lines provides other operators with access to these lines, with a view to providing the corresponding end users with electronic communications services, in accordance with Article L. 34-8-3 of the CPCE.

The term "*building operator*" refers to all entities responsible for establishing or managing one or several lines in an existing building, particularly under the terms of a contract with the property owner or manager for the installation, maintenance, replacement or management of the lines, in application of Article L. 33-6 the CPCE. The building operator is not necessarily an operator as defined in Article L. 33-1 of this same code.

The term "*dedicated optical fibre*" refers to the continuous optical path of a line which is made permanently available to an operator, regardless of whether or not the latter provides a service to the end user to which this line is connected.

The term "*shared optical fibre*" refers to the continuous optical path of a line which is made available to an operator in a temporary fashion, allowing that operator to provide a service to the end user to which this line is connected.

The term "*optical distribution box*" refers to a piece of passive equipment that enables connection between the fibres located downstream from the box (running to the end user) and fibres located upstream (running to one or several operators' network) via optical connectors.

The term "*very high-density areas*" refers to the "communes" listed in Annex I of the present decision.

Section II. Provisions concerning the terms and conditions for accessing ultra-fast broadband optical fibre communication lines

Article 2

The building operator will provide other operators with access to the lines at the concentration point, in passive form, under reasonable and non-discriminatory conditions.

Notwithstanding the previous paragraph, when at least four optical fibres have been installed per residential or office unit, and when all of the installed optical fibres are being used by operators, access can be provided at a location higher up the network than the concentration point, in either passive or active form.

In addition to providing access to the lines, operators will be given access to the resources needed to implement a network connection under reasonable and non-discriminatory conditions, notably those stipulated in Annex II of the present decision.

Article 3

The terms and conditions governing the price of access as defined in Articles 2 and 5 of the present decision must be reasonable and comply with the principles of non-discrimination, objectivity, relevance and efficiency. The rate of return on investment used to determine these pricing terms and conditions will take account of the risk incurred and will extend a risk premium to the building operator.

In accordance with these principles, when the operator benefitting from this access contributes at the outset to financing the installation of the lines in the building, its contribution will be composed of financing the costs that are attributable to installations made on its behalf, along with an equal portion of the costs that are to be shared by all of the operators.

Article 4

Within one month of the publication of the present decision in the Official Gazette (*Journal officiel*) of the French Republic, the building operator will publish an access offer that includes the following services in particular, to satisfy the obligations imposed on it by virtue of Articles 2, 3 and 5 of the present decision:

- terms and conditions for installing a dedicated optical fibre or a distribution box;
- access to the lines through the supply of a dedicated optical fibre and/or a shared optical fibre;
- access to associated resources.

For each of the services mentioned in the above paragraph, the offer will specify, in particular, the terms and conditions of subscription and cancellation, prior information, the

technical characteristics, the delivery processes and after-sales service, timetables and advance notice, quality of service and pricing terms and conditions.

The building operator will establish and keep up to date information on the costs, tracing the expenditures made and containing a sufficient degree of detail that enables the Authority to perform an audit, in accordance with the provisions contained in Article 3.

Article 5

The present Article applies only to very high-density areas.

When requests for access are made prior to the installation of the lines in the building, the building operator will grant reasonable requests from operators concerning the component elements of the lines or their technical environment, notably requests:

- to benefit from access to a dedicated optical fibre for each residential or office unit in the building, making it possible to provide the end user with services from the concentration point;
- to be able to install a cross-connection box at or near the concentration point.

The building operator can demand that the operator who has made one of the above requests contribute at the outset to financing the installation of the lines in the building, under the terms stipulated in Article 3.

Section III. Provisions concerning the instances in which the concentration point can be located on private property

Article 6

Notwithstanding the principle established in Article L. 34-8-3 of the CPCE, by virtue of which the concentration point will be located outside the limits of private property, this access point can be situated within these limits in the case of existing buildings in very high-density areas that have at least 12 residential or office units, or which are connected to a visitable public sewage network through a supply tunnel which is also visitable.

Section IV. Execution

Article 7

The Director General of the Authority is responsible for the execution of the present decision which will be published in the Official Gazette of the French Republic, after having been approved by the Minister responsible for electronic communications.

Paris, 22 December 2009

Jean-Ludovic SILICANI
Chairman

Annex I: List of very high-density communes in France

unité urbaine	code INSEE	nom de la commune
Bordeaux	33063	Bordeaux
Clermont-Ferrand	63113	Clermont-Ferrand
Grenoble	38151	Échirolles
	38185	Grenoble
	38229	Meylan
	38317	Le Pont-de-Claix
	38421	Saint-Martin-d'Hères
	38485	Seyssinet-Pariset
Lille	59350	Lille
	59410	Mons-en-Baroeul
	59512	Roubaix
	59599	Tourcoing
Lyon	69029	Bron
	69034	Caluire-et-Cuire
	69081	Écully
	69123	Lyon
	69142	La Mulatière
	69199	Saint-Fons
	69202	Sainte-Foy-lès-Lyon
	69256	Vaulx-en-Velin
	69259	Vénissieux
	69266	Villeurbanne
	69286	Rillieux-la-Pape
Marseille	13055	Marseille
Metz	57463	Metz
Montpellier	34172	Montpellier
Nancy	54395	Nancy
	54547	Vandoeuvre-lès-Nancy
Nantes	44109	Nantes
Nice	06004	Antibes
	06011	Beaulieu-sur-Mer
	06027	Cagnes-sur-Mer
	06029	Cannes
	06030	Le Cannet
	06079	Mandelieu-la-Napoule
	06088	Nice
	06123	Saint-Laurent-du-Var
Orleans	45234	Orléans
Paris	75056	Paris
	77083	Champs-sur-Marne
	77285	Le Mée-sur-Seine
	78158	Le Chesnay
	78208	Élancourt
	78242	Fontenay-le-Fleury
	78297	Guyancourt
	78372	Marly-le-Roi
	78524	Rocquencourt
	78640	Vélizy-Villacoublay
	91215	Épinay-sous-Sénart
	91228	Évry

unité urbaine	code INSEE	nom de la commune
Paris	91286	Grigny
	91345	Longjumeau
	91521	Ris-Orangis
	91692	Les Ulis
	92002	Antony
	92004	Asnières-sur-Seine
	92007	Bagneux
	92009	Bois-Colombes
	92012	Boulogne-Billancourt
	92014	Bourg-la-Reine
	92019	Châtenay-Malabry
	92020	Châtillon
	92022	Chaville
	92023	Clamart
	92024	Clichy
	92025	Colombes
	92026	Courbevoie
	92032	Fontenay-aux-Roses
	92033	Garches
	92035	La Garenne-Colombes
	92036	Gennevilliers
	92040	Issy-les-Moulineaux
	92044	Levallois-Perret
	92046	Malakoff
	92047	Marnes-la-Coquette
	92048	Meudon
	92049	Montrouge
	92050	Nanterre
	92051	Neuilly-sur-Seine
	92060	Le Plessis-Robinson
	92062	Puteaux
	92063	Rueil-Malmaison
	92064	Saint-Cloud
	92071	Sceaux
	92072	Sèvres
	92073	Suresnes
	92075	Vanves
	92076	Vaucresson
	92077	Ville-d'Avray
	92078	Villeneuve-la-Garenne
	93001	Aubervilliers
	93006	Bagnolet
	93007	Le Blanc-Mesnil
	93008	Bobigny
	93027	La Courneuve
	93029	Drancy
	93031	Épinay-sur-Seine
	93039	L' Île-Saint-Denis
	93045	Les Lilas
	93046	Livry-Gargan

unité urbaine	code INSEE	nom de la commune
Paris	93048	Montreuil
	93051	Noisy-le-Grand
	93053	Noisy-le-Sec
	93055	Pantin
	93061	Le Pré-Saint-Gervais
	93063	Romainville
	93064	Rosny-sous-Bois
	93066	Saint-Denis
	93070	Saint-Ouen
	93077	Villemomble
	93079	Villetaneuse
	94002	Alfortville
	94004	Boissy-Saint-Léger
	94011	Bonneuil-sur-Marne
	94016	Cachan
	94018	Charenton-le-Pont
	94019	Chennevières-sur-Marne
	94028	Créteil
	94033	Fontenay-sous-Bois
	94034	Fresnes
	94037	Gentilly
	94041	Ivry-sur-Seine
	94042	Joinville-le-Pont
	94043	Le Kremlin-Bicêtre
	94046	Maisons-Alfort
	94052	Nogent-sur-Marne
	94067	Saint-Mandé
	94069	Saint-Maurice
	94073	Thiais
	94077	Villeneuve-le-Roi
	94080	Vincennes
	94081	Vitry-sur-Seine
	95127	Cergy
	95252	Franconville
	95268	Garges-lès-Gonesse
	95555	Saint-Gratien
	95680	Villiers-le-Bel
Rennes	35238	Rennes
Rouen	76157	Canteleu
	76322	Le Grand-Quevilly
	76540	Rouen
Saint-Étienne	42218	Saint-Étienne
Strasbourg	67482	Strasbourg
Toulon	83137	Toulon
	83153	Saint-Mandrier-sur-Mer
Toulouse	31555	Toulouse
Tours	37195	La Riche
	37261	Tours

Annex II: Resources associated with access to the lines

The resources associated with the effective implementation of access under reasonable and non-discriminatory conditions, and which must be provided to operators, pursuant to Article 2 of the present decision, include, in particular:

- hosting at the concentration point and the conditions that guarantee the availability of host infrastructure and accessibility for operators, notably to connect their ultra-fast broadband local loop network and to perform the necessary operations;
- information concerning the building, which must be provided within a maximum one month after the possible conclusion of an agreement signed with the property owner or the condominium board, in application of Article L. 33-6 of the CPCE, notably:
  - the address of the building in question;
  - the name and address of the owner of the property or the condominium board representing the co-owners;
  - the number of residential or office units in the building;
  - the person whom other operators must contact to submit their request for access, in accordance with Article L. 34-8-3.
- information concerning the concentration point which, unless otherwise stipulated in a decision from the Authority, will be provided within a period of no less than three months before the concentration point becomes operational (i.e. the date upon which users are actually able to connect to this concentration point), notably:
  - the identifier of the concentration point;
  - the address of the concentration point;
  - the technical properties of the equipment installed at the concentration point and the processes for connecting to it;
  - the addresses of the buildings served by the concentration point and those that are likely to be in future, along with the corresponding number of residential or office units.
- information needed to operate the lines;
- the information system used, notably for processing orders, subscriptions and cancellations, maintenance, requests for repair, management of slamming, tracking orders and requests for repair, billing.