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Response to the consultation regarding the proposed market definition of markets 3a and 3b

The Swedish Local Fibre Alliance is a trade association representing local fibre networks in 190 municipalities. These are network owners selling wholesale products to both operators and service providers. Thus, the alliance represents an absolute majority of the players actively investing in new modern infrastructure for broadband in Sweden.

The Swedish Local Fibre Alliance promotes open networks, a model that has been very successful. The open network model means that the local fibre network is responsible for ensuring that equal and non-discriminatory terms are observed and healthy competition is ensured.

The Swedish Local Fibre Alliance appreciates the opportunity to respond to the consultation sent out by the Swedish Post and Telecom Agency (PTS), which is based on the memoranda for markets 3a and 3b.

Introduction

The fibre industry is a young industry, despite the fact that competition has markedly increased. It was only a few years ago that the local fibre networks, in conjunction with Telia, were virtually alone in deploying fibre in a municipality. But in recent years many different players in the industry have competed to win contracts for fibre connections in order to then manage to deliver them. Competition to deploy fibre to the single-family home market remains strong. In many cities and cities, parallel fiber infrastructures are installed in single-family houses, so the expansion is in very high competition.

Definition of the end-customer market

The Swedish Local Fibre Alliance agrees with PTS that there are two separate end-customer markets: one in which broadband is delivered over fibre-based access networks and cable TV networks, and the other in which broadband is delivered over copper-based access networks. The Swedish Local Fibre Alliance also agrees that mobile broadband services are not included. It is also reasonable that WiFi is not included in the relevant market because of the low number of subscriptions.

MDU and SDU

Question 4: Do you believe that the division of the product market into SDUs and MDUs, as described above, is appropriate? Please state your rationale.

Question 5: Do you think that this definition of MDU and SDU in terms of number of households (SDU as less than or equal to 10 apartments and MDU as larger than 10 apartments) is appropriate? Please state your rationale.

The Swedish Local Fibre Alliance considers that PTS is in a definite way wrong when they define houses with more apartments in their definition of SDU. By definition, SDU is a single-family dwelling, and it is an

accepted international term that is also used in other contexts than for network infrastructure deployment.[1] Therefore, PTS should not redefine SDU as something other than what it really means.

The Swedish Local Fibre Alliance agrees with PTS that it is reasonable to divide the product market into multi-family dwellings (MDUs) and houses (SDUs). But PTS should also analyse the product market based on open network and group connections aspects, in which the latter are usually closed networks.

Another aspect that is important when the product market is based on MDU and SDU is that whoever owns an SDU has two roles: as both the property owner and the end customer. It may well be that a homeowner rents out his house, and in that case the property owner and the end customer are not the same person. Hence, there are different transactions involved in connecting and activating a house: a *connect transaction* with the property owner and an *activate transaction* that the service provider makes with the end customer upon connection.

Question 19: Given that SDU is a separate product market, do you share the PTS assessment that each individual fibre network to single-family homes and small multi-family dwellings is a separate geographic market?

The Swedish Local Fibre Alliance agrees with PTS that each individual fibre network to single-family homes and small multi-family dwellings could constitute a separate geographic market. However, it is important that in its analysis PTS takes into account the fact that in a residential area there may be houses and multi-family dwellings regardless of size that can be connected to different network owners, which at present is the most likely scenario. In addition, the situation is different in different parts of the country.

Question 10: Is access to the SDU segment separately profitable or does it need to be combined with MDU access?

This is complex, and there is no simple answer to the question of profitability of the SDU segment since there are various circumstances that affect profitability.

Deployment of fibre occurs today by area, which means that the area under consideration for deployment of fibre is projected. The network owner then takes into account how many customer groups and properties are in the area, future utilisation, etc. This means that deployment in an area is not based on the nature of the properties but of the area as a whole.

The profitability of an SDU connection depends on the costs of connection, which vary depending on the area and its potential. The reason for cost variations depends, for example, on how many houses in an area will be connected at the same time, the distance to be excavated and soil conditions. (For example, an SDU connection that includes one or more companies can be more profitable.) For a house to be connected, generally several other houses have to be connected at the same time. Otherwise, the cost will be far too high for the SDU, and the connection will not be profitable for the network owner either. Most network owners have a bottom limit that determines whether or not they go into an area. The decision to install fibre in an area with SDUs/MDUs is made when a sufficient number of agreements has been submitted to the network owner, making it sufficiently profitable. When the profitability of an SDU

[1] The term is internationally accepted and used in several industries in addition to our industry, such as construction, electricity and energy, water and sewage, ventilation, etc.

segment is to be assessed, PTS should also take into account geographical differences. The segment certainly has competition, but there is a high degree of uncertainty about how far outside of urban areas the ongoing rapid deployment to the SDU segment will extend. As the density of the houses decreases, there are fewer end customers to share the cost, which reduces the players' incentive to invest.

It is important for PTS to understand that there are local differences. Residential districts in urban areas or near urban areas are likely to be profitable, but the farther the SDU is from an urban area, the less profitable the district is likely to be (because distance is a major cost factor). Some communities (classified as residential districts) can contain 200 households and be considered large. But the houses can be far apart, which means that they still become unprofitable. To clarify this, there is an example of a municipality that has projected the average cost per household for its fibre deployment at over SEK 500,000. Therefore, the conclusion is that profitability varies among different areas and their nature more than whether it is a single-family dwelling or a multi-family dwelling.

Question 11: What is required to start providing access to SDUs and MDUs in an area where only one of these products is currently provided?

First, customer demand for fibre access is required at the outset in order for fibre access to be offered. Few network owners go into an area and offer fibre if there is not sufficient demand and willingness to pay.

Secondly, planning of the area needs to be carried out. Then the network owner takes into account the area's potential. For example, are there one or more MDUs, customer groups, etc. and is there fibre in the area? Subsequently, a calculation is made to determine if an SDU, for example, can be offered fibre. The network owner then sends out an offer to the SDUs, and if enough SDUs are interested, the area's houses will be connected to fibre.

Access – what happens to houses that decline the offer: either the house will receive a connection point to facilitate connection in the future or the network owner will just pass by the house without a connection point.

- The cost of subsequent connections is high if there is a single SDU that wishes to become connected later.
- If there are many in the area who have not connected their SDUs initially, a do-over can be done, thereby bringing down the price per connection. This requires, in principle, that everyone becomes connected in the second round.

Access to SDUs is offered to operators and service providers when the connection to an SDU is established. The access varies, depending on the products offered. The primary product then is service delivery through the open network structure as a transmission service to end customers on layer 2 or on the communications operator's/local fibre network operator's own layer 3 structure.

Access to SDU – offering dark fibre to a house. This is done after a rollout that is combined with an emplacement of active equipment for the operator at a central node. Generally, it can be said that there are few operators that want to rent dark fibre to *one* house, since each connection must have its own active equipment and terminal equipment. That means, in addition to dark fibre, a rental of space (stand or rack space) in a site/node for electricity, heating/cooling, access control systems, etc. However, there may be interest in renting dark fibre to several houses that can share the operator's cost.

The Swedish Local Fibre Alliance would like to clarify the local fibre networks model when it comes to providing access to dark fibre to houses. The construction method for optical fibre is different from that of the old copper network; it is no longer justifiable to build distribution nodes with active equipment far out in the network for a small number of connections. To a large extent, local fibre networks deploy fibre networks with a centralised interconnection node designed for thousands of connections. In most places, one centralised interconnection point is sufficient. This leads to a lower installation and production cost, higher network security and robustness and less administration of access. Moreover, this brings about an increased pace of deployment because more resources can be added to connect more households instead of costly rollouts of traditional base stations. This means that the pilot projects that exist regarding fibre to a house are based on central access for the wholesale customer with physical placement of active equipment that reaches larger customer areas to achieve cost efficiency, high network security, robustness and the ability to offer operators emplacement of active equipment in the node. It leads to more flexible, more cost-effective and faster deployment for emplacing the wholesale customer's active equipment.

Question 12: Describe your understanding of the prerequisites for a parallel rollout of infrastructure by an operator inside and outside urban areas.

Because of the prevailing competitive situation in the market, parallel rollouts now commonly occur in residential areas, smaller communities, shopping areas and in areas with a lot of multi-family buildings. They are more prevalent in urban areas and the countryside near urban centres than in the countryside.

Question 13: Please include whether it is generally attractive in your opinion to establish a second connection to multi-family dwellings outside urban areas.

If a player goes in and does a parallel rollout in order to install new infrastructure, sufficient customer demand is required or the player must see a possible deal for new contract negotiations within a few years. There must be profitability going into a project, regardless of whether it is inside or outside an urban area.

"Moreover, all network owners that PTS interviewed have reported that they have no immediate plans for parallel rollouts in any residential area." Source: Wholesale market memorandum (Promemoria grossistmarknad) 3a, page 36.

After fiber to villa (SDU), took off, the deployment of fibre for single-family households has been intense. There is now both a high demand and a high willingness to pay to get fibre on the part of single-family households. In addition, there is also a strong willingness among network owners to invest in building and delivering fibre to houses. There are several players that choose to focus offers on single-family households. They include local fibre networks, IP-Only, Telia, Stadsnätsbolaget i Sverige AB (Swedish Infrastructure), Fibertjänst, Telenor and Com Hem.

Parallel rollout of fibre infrastructure to an SDU is not socio-economically or commercially profitable. But based on the prevailing competitive situation, it is not uncommon for multiple access operators to go in and compete with each other to provide a residential area with fibre. The players do not roll out parallel infrastructure to each SDU, but may very well roll out parallel infrastructure in the area. Therefore, the

Swedish Local Fibre Alliance does not agree with PTS that, according to the PTS SDU definition, there are no parallel rollouts within the SDU segment. However, the Swedish Local Fibre Alliance agrees with PTS that no parallel rollouts to individual SDUs are occurring, provided that the accepted international term for SDU is used.

In its description of the market, PTS should also take into consideration the competitive situation that has arisen in many cities in recent years that has resulted in several different access operators offering fibre to SDUs in a residential area. This means that:

- Several players are trying to process the residential area
- SDUs can choose among several different offers
- Homeowners' interest in signing an agreement to connect their houses to fibre is divided among the players
  - Each of the players then gets some customers in the residential area. Those that don't achieve their bottom limit do not excavate to customers who showed interest, and they withdraw.
  - One player garners enough interested customers and deploys fibre to those who wish to be connected.
  - All players get enough customers and deploy fibre to their respective customers in parallel with each other.

In cases where end customers, SDUs, have received offers to be connected from several different players, one can verify that there is competition over the price of being connected. Connection of the SDU is handled by one of the players that offered the connection. When the SDU is connected, in the majority of cases the connection is to fibre in which the network owner can provide an open network. These customers in the single-family households can then choose a service provider from the open platform which means that the end customer can choose service providers in competition. The single-family households that choose to connect with a closed network can choose only the operator's end-customer services. The Swedish Local Fibre Alliance believes it is good that competition at the end-customer level is also studied because it is competition at the level of services that is vital to consumers. Effective competition at the service level is a good indication that competition also exists at the underlying infrastructure levels.

The Swedish Local Fibre Alliance believes that PTS should observe these parallel rollouts in residential areas in its work because they can have consequences. Normally access is prepared for all houses in the area. By looping a duct along the border of lots for houses that declined to be connected, preparations have been made so that if an SDU subsequently requests fibre, excavation will be required only on the lot itself to the loop. But with the prevailing market situation, the risk is high that no preparatory net infrastructure is being established for the houses that do not connect today.

Dark fibre rates

"In cases where the network sells dark fibre and communications operator access, there is a significant negative correlation between dark fibre prices and the communications operator fee. For PTS this indicates that part of the spread in dark fibre is due more to differences in business models than enduring differences in competition among different networks.
.... Those offering dark fibre access at prices above SEK 2,000 probably do so partly for reasons of cost and partly because their primary business strategy is to offer service providers access via communications operators."

Source: Wholesale market memorandum (Promemoria grossistmarknad) 3a, page 3, PTS.

The Swedish Local Fibre Alliance wonders how these price comparisons are made.

The national operators are buying the dark fibre of local fibre networks. The goal of the Swedish Local Fibre Alliance is to simplify transactions between national operators and local fibre networks, therefore the CESAR2 service has been developed. To facilitate commerce the CESAR2 system is used for selling and buying wholesale products, which is contains a package of agreements developed through industry consensus and a pricing model.

When it comes to pricing, the Swedish Local Fibre Alliance has made it possible for local fibre networks to offer fixed prices for non-recurring charges and monthly rent as well as price per metre in CESAR2, something that makes it easier for operators who want to do business with local networks and be able to quickly quote a price to their end customers. The Swedish Local Fibre Alliance sees a growing trend regarding fixed-price areas in CESAR2. More and more local fibre networks in CESAR2 apply a price list based on fixed prices, particularly in urban centres and in areas where the degree of connectivity and demand is high.

The prices of local fibre networks vary because each local network has different parameters that differ from a cost perspective, and each local network must make its own product calculations for its infrastructure products. The product calculation consists of parameters such as deployment, excavation and fibre costs, organisation operations and troubleshooting.

A local fibre network that wants to develop a fixed price for a geographic zone bases its price on the market situation and takes into account a median of capital budget, expected revenue per customer, turnover in the customer base, price changes over time, etc. The local fibre network can then establish a price for one or more fixed-price areas. Where it is not possible to create fixed-price areas, the price is calculated based on the metres of fibre between interconnection points, and work on a manual quotation is then required.

The price is set for different called-off service levels and the length of the agreement. In CESAR2 there are three different service levels agreed upon in the industry. The length of agreements varies from 3 months to 10 years. Normally it is 3 years.

Different players are offered the same price and terms for equivalent services. It should be possible to offer standard volume discounts to those that buy more. Therefore, the price for dark fibre varies on account of volumes.

The following table shows what 72 local fibre networks offered for dark fibre connections (pairs) to operators during the period from 2016 to August 2017. The monthly price for dark fibre is a mix of fixed-price and metre price, which accounts for the monthly rental price spread. It should be noted that 80 percent of 13,574 connections have a price that is below SEK 3,000 per month and 50 percent have a price that is below SEK 2,000. According to PTS, *"Those offering dark fibre access at prices above SEK 2,000 probably do so partly for reasons of cost and partly because their primary business strategy is to offer service providers access via communications operators."* After studying more than 13,000 connection requests in CESAR2, the Swedish Local Fibre Alliance's conclusion is:

- Local fibre networks with external communications operator. Usually the network owner that manages dark fibre business. We do not see that the price is either higher or lower on account of the business model.

- Local fibre network operator – own communications operator. When the Swedish Local Fibre Alliance reviewed the connection requests in CESAR2 and its prices, we could not draw the same conclusion. There are no differences in the dark fibre prices on account of the own communications operator business model.

The Swedish Local Fibre Alliance questions the calculations and conclusion of PTS. What communications operators have been studied? At what price has PTS made its calculations? What parameters are included in the price that PTS studied? How many, according to PTS, are their own communications operator and have a higher dark fibre cost?

The Swedish Local Fibre Alliance would like to have a dialogue about this because we cannot draw the same conclusion when it comes to our members.

Table 1 Rental of dark fibre

Rental price per month	Number of connections	Percent
SEK 0-2000	6,842	50%
SEK 2,001-2,500	2,366	17%
SEK 2,501-3,000	1,588	12%
SEK 3,001-3,500	875	6%
SEK 3,501-4,000	555	4%
SEK 4,001-4,500	383	3%
SEK 4,501-5,000	224	2%
> SEK 5,000	741	5%
Total	**13,574**	

Source: CESAR2 August 2017

Question 17: As things now stand, would you be interested in installing fibre infrastructure in a SDU-area where fibre infrastructure has already been deployed? Would the incentive change, given: i) an increase in dark fibre price from the network owner with existing infrastructure; ii) an increase in end-customer prices from the network owner with existing infrastructure; and iii) the market-driven deployment has reached its limit? If possible, specify how much of an increase would be required for each one of the options i-iii.

If the share of properties in the area is great enough, even if there is established fibre infrastructure from another operator, and the economic calculus is sound, there would be an interest in making a sales pitch. The decision to build fibre infrastructure then depends on the outcome of the processing – i.e., how many of the area's potential SDUs are interested in being connected.

Renting another network owner's infrastructure is difficult because of the prevailing market situation, in view of the fact that there probably are not prepared connections to the SDUs, but rather the fibre infrastructure is only available to the SDUs that ordered initially.

i) Most likely no. These dark fibres most likely do not terminate in the same interconnection node, and the cost of making the transition to the correct node must be taken into account in addition to the cost that operators want to charge for their ducting. It's unlikely this ducting will be rented out.

ii) To raise the end-customer price for specific customers in an area for the same service is not feasible.

iii) N/A

Telia's Pricing

Question 16: What influence does Telia's pricing of dark fibre have on the competitive situation and price picture in terms of: i) access to infrastructure; ii) terms for communications operator access; and iii) service delivery to the end customer?

Because Telia is one of the players that is very actively competing with local networks and other players, Telia's pricing also affects us on account of the prevailing competition. This is true regardless of access to the infrastructure or that a communications operator wants to become established in a network. This is also reflected in the end-customer price.

Actions of the municipalities

Question 18: Do you share this assessment about the differences in how municipalities act? Please describe as fully as possible.

The Swedish Local Fibre Alliance believes:

- That the municipality's terms and fees regarding excavation permits should be equal for all market players.
- That the municipality's replacement costs and other fees should be transparent.
- That the municipality should allow different methods for installing fibre.
- That municipal officials and politicians should become informed about Robust Fiber www.robustfiber.se.
- That the municipality should have a strategy and a goal for fibre rollout.
- That the municipality can choose to have collaboration agreements with operators, and that the municipality then needs to draw up agreements calling for them to reach the municipality's broadband goals together.

Wholesale market memorandum (Promemoria grossistmarknad) 3b

Question 2. Do you think that PTS' description of virtual access on layer 2 and layer 3 is technically and economically correct? Is any significant economic or technical aspect missing? S18

See the answer to question 3 below. The Swedish Local Fibre Alliance believes that in its description PTS has forgotten the open network structure of customer segments in 3b.

Question 3: What do you think is the difference between access in layer 2 and layer 3? Technical, economic or other differences?

Local access mostly consists of point-to-point connections in the form of dark fibre and Ethernet capacity connections in layer 2. The market has a joint package of agreements that is frequently used for this type of wholesale business, which is the CESAR2 package. All operators and 128 local fibre networks have

approved and use the agreement's wholesale services portfolio to call off the service in wholesale market 3a. The connections offered are point-to-point dark fibre connection, Ethernet Light, Ethernet Medium, Ethernet Premium and Ethernet MEF access, the latter as the EPL (port-based connection) or EVPL (VLAN-based connection). The offered virtual connections established as Ethernet services are all point-to-point. The services require processing by the buyer. Layer 3 services for operators are not offered in this market segment. Operators that call off these services have a great need for technically transparent services where there is little or no effect on service content. These services have dedicated bandwidth per customer and may not be overbooked and sold as best effort. Typical end-customer groups are companies with branches/outlets throughout the country, systems integrators, data centres and telecommunications operators.

PTS has missed a technical solution model.
Central access, wholesale market 3b, addresses another end-customer segment. These operators, which call off services based on central access, have private markets and small businesses as end customers. The Swedish Local Fibre Alliance believes that PTS has missed a model for a technical solution that is very common.

Central access with virtual connections usually occurs on layer 2 or layer 3, and all operators are on the same layer 3 networks. Specific layer 3 network access for each customer is offered by national operators as an enhanced business service, such as a private MPLS (Multiprotocol Label Switching) network per customer. The open network, which both national operators and local fibre networks offer to end customers today, is of a different nature. All operators' services are routed in a common layer 3 network and separated with the operator's IP range and with filters. The reason is that it is cost-effective in producing transmission services for end customers that are individuals and small businesses. These services are based on best effort and prioritisation in case of overloading.

For this market, the industry has also agreed on an industry-wide package of agreements with distinct products and service levels for transmission services in an open network structure for the private and small company market. It is called the Service Provider Agreement (Tjänsteleverantörsavtalet) and can be requisitioned from the Swedish Local Fibre Alliance. The agreement harmonises and clarifies the requirements for both network owners and service providers. It brings about similar opportunities for service providers to deliver their services in open networks, which further promotes market development and competition in the market. The agreement is drawn up as a standard agreement with contract terms as well as a number of standard contract appendices to the agreement. The contract appendices describe: collaboration among the parties to the agreement; technical specifications; service levels; services and prices; fault clearance of services; and other processes and procedures.

Open networks, where service providers are given the opportunity to deliver their services, have been singled out as a success factor in several studies. Open networks constrain prices and increase freedom of choice for customers. In this way, the new Service Provider Agreement promotes further development of the Swedish broadband market. This open network model is not described in the PTS proposal and needs to be included under wholesale market 3b, central access.

Question 4: Do you sell or buy central access to layer 2 or 3 directly from a network owner or from another player, such as a communications operator? Please describe in detail the relationships between network owners and involved operators.

(For more, see the answer to question 3 above). Central access is purchased as a transmission service in an open network structure such as layer 2 or layer 3 produced by a communications operator or local fibre network operator.

Network owners are sometimes their own communications operator or an external communications operator is procured. The network owner's fibre network is made available to the external communications operator – for example, through a lease agreement – and payment occurs when the customer calls off services by the communications operator and network owner as a transmission fee for called off services.

Question 5: Regarding central virtual access on layer 3, do you sell or buy this in the form of individual connections or entirely through a communications operator?

Many local fibre networks today are composed of both L2 and L3 networks because it is a cost-effective solution to use the L2 network. As a result, virtual central market access under the 3b market extends over the L2 and L3 networks, and the market is established for these services. This is reflected in the Swedish Local Fibre Alliance's industry-wide package of agreements, the Service Provider Agreement.

If only central access to the L3 networks were restricted, heavy investments and resources would need to be used to rebuild existing operational network structures, resulting in a sizeable delay in broadband deployment and connections for new households.

The Swedish Local Fibre Alliance recommends that the 3b market, Central Access, include the L2 and L3 networks.

Market 3b – Especially about the communications operator model and generally about products in fibre-based access networks

Question 6: Do you think the description of communications operator models stated above is complete and correct? If not, explain your views. Is there any other type of communications operator activity that commonly occurs and is significant for the current market?

The Swedish Local Fibre Alliance shares the PTS description in part. The Swedish Local Fibre Alliance believes that the PTS description is not complete. The form in which a jointly owned operating company/municipal association is established with a communications operator's service is lacking in the PTS description. It is rather common and should therefore be included in the discussion.

The model involves network owners that have a joint operating company/municipal association which offers communications operator services to several municipalities together. The operating company/municipal association is jointly owned by the municipalities, and the fibre optics network in each municipality is rented by the operating company/municipal association.

> Addition to the description: *d) that network owners have a joint operating company/municipal association that offers communications operator services to several municipalities together. The operating company/municipal association is jointly owned by*

the municipalities, and the fibre optics network in each municipality is rented by the operating company/municipal association.

Question 7: As a network owner, do you have the opportunity to provide individual virtual access connections to wholesale customers if a communications operator is present in the network? If not, explain why not.

No, the enhanced virtual services PTS describes belong to wholesale market 3a and are operator services point-to-point with high technical transparency and accessibility. They are based on delivery through dedicated bandwidth to customers. The customer segment is companies with branches/outlets, groups, systems integrators, data centres and telecommunications operators. These services are not used for private and small companies.

For private and small companies, delivery occurs through end-customer services with transmission services based on open network structure in Layer 2 or a common Layer 3 network for all operators and service providers. These enhanced virtual services belong to wholesale market 3b. The industry has agreed on the technical specifications for these services. See Appendix 3, Technical specifications (08/14/17, ver 2017.0).

It is important to point out that an external communications operator – an operator that does not own its own network – has the private and small business market as a customer group. An external communications operator does not handle requests from customers who wish to rent dark fibre connections or enhanced virtual services that target operators (CESAR2). This business is managed by the network owners themselves, or in cases where there is a joint operating company, by the company.

Question 8: In your capacity as a communications operator, what would you be able to deliver in terms of:

a. Best effort
b. Quality of service
c. Accessibility
d. Repair time

Please specify if any additional aspect is of great importance in offering communications operator products. Please attach a brief description of your product.

Along with service providers and communications operators, local fibre networks have developed an agreement, the Service Provider Agreement, which regulates the above. See the following appendices that describe (a), (b), (c) and (d) for the open network structure used by communications operators for delivery of end-customer services for private and small companies. The Swedish Local Fibre Alliance has developed a standard for this and the following appendices are the result of an industry-wide effort:

- Appendix 3, Technical specifications (08/30/17, ver 2017.0)
- Appendix 4, Service levels (08/30/17, ver 2017.0)
- Appendix 5, Contracted services and prices (08/30/17, ver 2017.0)
- Appendix 6, Errors in transmission products (08/30/17, ver 2017.0)

Customer segments in market 3a or 3b

The Swedish Local Fibre Alliance questions conclusions of the Post and Telecom Agency (PTS) about the customer segments that are assumed to be in market 3a and market 3b.

The business-related portion that PTS has studied is not incorrect, but it lacks an important customer segment. The Swedish Local Fibre Alliance believes a more in-depth analysis is desirable because there are different platforms for these customers, depending on their demand for products.

3a Local access – customers

The Swedish Local Fibre Alliance's interpretation is that the services in local access are, just as PTS writes, to be equated with the industry-determined product specifications for wholesale services in CESAR2. This means that the services are specified with different quality requirements.

The Swedish Local Fibre Alliance disagrees with the PTS assertion that small companies only want services in 3b. When it comes to small businesses/workplaces that belong to a larger unit – such as franchises, a company that belongs to a chain or a branch – demands for a service arise that involve higher quality in which the features are different. These businesses need transparency and will buy services according to the CESAR2 specification and then demand high standards of service.

For example, in almost every city with a shopping centre, several of the large chains demand services where quality requirements and features are high. Another example is filling stations.

It is important to understand that the access offered in market 3a has operators as the primary target group. These services are used by end customers who have demands for added value. Therefore, these are wholesale services with a high level of technical transparency. These products have been developed to meet the requirements of the operators and telecom operators for access connections. Most of these connections are access or connection links to an operator's core network.

3b Local access – customers

There are local small companies that do not place high demands on their connection, and as PTS rightly describes, they will ask for services sold through a *service provider specification*. The Swedish Local Fibre Alliance has developed an industry-wide specification for these types of services, and it can be found within the Service Provider Agreement.

Access to market 3b offers simpler transmission services to end customers and small businesses. These should be inexpensive but of course reliable. Often the same CPE/customer switch is used to establish services from operators/service providers to end customers cost-effectively. This involves completely different technical requirements than the products offered in market 3b. See the appendices to the Service Provider Agreement for technical specifications, service levels, etc.

Question 17: What obstacles are there to exposing communications operators to competition when/if you want to enlist an external communications operator to the network? Is the selection of communications operators limited?

Usually the term communications operator is used as a collective name, but it is important to realise this is a role that includes many different functions. It is up to each local fibre network to determine which of the 13 functions should be included in the agreement and what the contracting party shall be responsible for.

At present, there are only two independent communications operators. Other communications operators are owned by national operators that have both a communications operator service and their proprietary service. When local fibre networks report that they have procured an external communications operator, it is usually a question of one of the following players, and one can say that the supply is limited. It is, of course, possible to expose procurement of an external communications operator to competition with these parties. But in response to the question from PTS about whether the selection of communications operators is limited, the answer is that it would be desirable to have more independent options.

- Open Universe, formerly OpenNet. Owned by Telenor since 2012.
- iTUX, owned by Com Hem.
- Zitius (Quadracom). Owned by Telia since 2013.
- Telia Open Fiber, Telia.
- Teracom
- Via Europa

What are the obstacles?

One obstacle to changing communications operators is that the change is complex and requires resources to be implemented. Because changes in networks occur often, changing the communications operator can cause long interruptions and errors. The Swedish Local Fibre Alliance has developed a standardised process for changing communications operators. This does not replace the agreement between the parties, but the new agreement can refer to the process, and greater clarity and quality assurance results. The purpose of the process is first of all to minimise problems and disruptions for end customers when there is a change in communications operator. The process is intended to enable a change of communications operators in both large local fibre networks and in networks for individual multi-family properties. Service providers, communications operators and local fibre networks have participated in developing the process.[2] Other obstacles can be the difficulty of defining requirements properly in procurement, that the communications operator is not interested in the deal because the network is too small or that the national communications operator does not have local support.

[2] Read the recommendation Process for changing communications operator: https://www.ssnf.org/globalassets/nat-i-varldsklass/rekommendationer/rekommendation-process-for-byte-av-kommunikationsoperator-2014-12-14.pdf

Question 18: Is there competition between communications operators when a property owner wants to sign an agreement with a communications operator? Please state the reasons for your answer.

This is a question that PTS needs to ask property owners. The Swedish Local Fibre Alliance, along with the Swedish Association of Public Housing Companies, recommends that property owners procure a communications operator.

Question 19: Can prices for virtual fibre access connections with a regional or national access point differ between different parts of the country and between large multi-family buildings (MDUs) and single-family homes and small multi-family buildings (SDUs)?

Yes, the price of virtual fibre access connections differs between different parts of the country, etc. The reason for this is that there are different network owners in different parts of the country. Each network owner sets its price based on the prevailing market situation and other circumstances.

In conclusion

Through the local fibre networks, business models have been developed in Sweden that significantly separate basic infrastructure from end-customer services. The open local fibre network allows for players, global as well as local, to enter the market without having to defray the cost of investing in the basic fibre infrastructure themselves. They can choose to lease dark fibre or capacity at low prices in a market exposed to competition. The local fibre networks help operators and service providers to be efficient and gain economies of scale by selecting the level of investment in the value chain. This local fibre network model has been successful and has stimulated competition at the service level, with more and more players in the entire value chain as a result.

For the convenience of players in the market, there are industry-wide product specifications regarding wholesale products in both 3a and 3b. This means that operators and local fibre networks know what technical requirements apply to transmission and dark fibre connections both for operator-related products and products adapted for the private and small business market. The Swedish Local Fibre Alliance attaches details about this in appendices to PTS. The Swedish Local Fibre Alliance would like to have a dialogue with PTS about these models, from a technical and a business perspective.

We can also verify that the rollout of fibre broadband to houses is taking place competitively. More and more homeowners are getting offers from more than one network owner to be connected to a fibre network. It is also common for multiple players to simultaneously connect various houses in the same residential area to their respective fibre networks. But there are also many examples of municipalities with residential areas where there is a lack of competition.

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