AMT FÜR KOMMUNIKATION
FÜRSTENTUM LIECHTENSTEIN

Analysis of the market for call termination on fixed networks (M3)

Call termination on individual public telephone networks at a fixed location (wholesale service market)

(Final version)

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Kirchstrasse 10 | Postfach 684 | 9490 Vaduz | Liechtenstein | T +423 236 64 88 | F +423 236 64 89 | info@ak.llv.li | www.ak.llv.li

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1 Introduction

1.1 Legislative basis

By virtue of Art. 20 of the Law concerning Electronic Communication (KomG)[1] the Office for Communication is required to examine whether effective competition obtains on the electronic communication markets in Liechtenstein. If effective competition does not exist, that is, one or more providers possesses significant market power, the Office is to apply such measures of special regulation (under Art. 23 et seq. KomG) as are needed in order to remove the competition problems that have been determined to exist. This procedure is termed market analysis.

The Office for Communication has defined, and the Government has published in the Official Gazette,[2] the scope of the service and/or product markets that are to be investigated in accordance with Art. 21 (1) KomG. This was done taking into consideration the Recommendation on Relevant Markets by the EFTA Surveillance Authority.

The existence of significant market power – corresponding to a position of dominance in a market under general EEA competition law – has to be determined by taking into account in particular the criteria laid down in Art. 31 VKND.[3]

If the Office for Communication determines that one or more providers have significant market power in a defined market, the Office has the power to impose such measures of special regulation under Arts. 34 to 43 VKND as are necessary and proportionate and suited to remove the competition problems obtaining on the market in question.

The following market analysis first investigates the question of whether self-sustaining competition exists from an economic perspective on the wholesale service markets for "call termination on individual public telephone networks at a fixed location (fixed network call termination markets) or, as the case may be, whether self-sustaining competition would prevail from an economic perspective without regulation. Such factors and problems as may stand in the way of such self-sustaining competition shall be identified. The presence of economic market power will be investigated in this connection; in particular the criteria of Art. 31 (1) to (3) VKND will be considered according to their relevance for the market in question. Proceeding from a determination of providers having significant market power and the identification of relevant competition problems on the fixed network call termination markets, the necessary measures of special

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1 Law of 17 March 2006 concerning electronic communication (Kommunikationsgesetz; KomG), LGBl. 2006 No. 91.

2 Announcement of 3 February 2009 on the determination of relevant material and geographical electronic communications markets (market definition), LGBl. 2009 No. 69.

3 Ordinance of 3 April 2007 on electronic communication networks and services (VKND), LGBl. 2007 No. 67.

regulation will be imposed that are suited to remedying the problems for competition that have been determined.

1.2 Market analysis process

The procedure for the market analysis and the imposition of measures of special regulation consists of the following steps:

Complete process of special regulation		1	Collection and analysis of the necessary data on the market and from undertakings.
	Market analysis in its broad sense	2	Definition of the relevant markets in a national context from a material and geographical point of view.
		3	Determination of (any) SMP undertakings.
		4	Identification of any current and potential problems for competition.
		5	Structure and design of any measures of special regulation that are to be imposed.
		6	Consultation of interested groups nationally, i.e. undertakings which will be affected by planned measures.
		7	Submission of the market analysis and the planned measures for review by the EFTA Surveillance Authority and the regulatory authorities in the EEA.
		8	Imposition of any necessary measures by means of an administrative decision.
		9	Control of the implementation and compliance with the measures which have been imposed.

Figure 1: Overview of the complete process of special regulation

The above overview presents the process of special regulation as a whole. The market analysis in its broad sense here[4] is understood to include the adoption of any necessary regulatory measures if need be, and so extends across steps 2 to 8 in the above overview.

1.3 National and EEA-wide consultation

To the extent that the Office for Communication foresees adoption of measures of special regulation that are likely to have significant effects on the market concerned, it is obliged to announce this to interested parties in conformity with Art. 24 (1) KomG and to give

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[4] One can define market analysis in its narrow sense as relating to steps 2 to 5.

such parties the opportunity to make their position known within a reasonable period. The Office is for this purpose empowered in particular to hold public consultations in accordance with Art. 46 KomG.

Hence the Office for Communication published on 27 April 2009 under Art. 40 KomG its official analysis of the market for fixed network call termination. Interested parties were invited to submit comments on the analysis and in particular on the measures of special regulation proposed in it during a public consultation period in accordance with Art. 24 (1) in conjunction with Art. 46 (1) KomG and Art. 24 (1) RKV.

The following undertakings submitted comments by the end of the national consultation period on 30 June 2009: ICT-Center AG; Liechtensteinische Kraftwerke (LKW); Mobilkom (Liechtenstein) AG; Swisscom (Schweiz) AG; Telecom Liechtenstein AG (TLI); MTtel AG; Wasserversorgung Liechtensteiner Unterland (WLU). The comments are, in so far as they are not subject to confidentiality, published on the Office's website.[5]

The comments were taken into consideration when preparing the present final version of the market analysis in so far as they were in the Office's view of importance and/or entailed consequences.

The Office for Communication has formally notified TLI of the planned regulatory measures in M3 by letter dated 22 January 2010. By response letter dated 15 February 2010 TLI maintained its previous position on the matter without raising any new objections. It requested however to allow for sufficient time to comply with the regulatory measures to be imposed, in particular with regard to the cost accounting and reference offer requirements.

If the Office for Communication intends to adopt measures of special regulation which are likely to have effects on trade between EEA States, the Office has then in addition to the national consultation exercise to consult the EFTA Surveillance Authority and the other NRAs in the EEA beforehand in conformity with Art. 7 of the Framework Directive 2002/21/EC (Art. 24 (2) KomG).[6,7] This EEA-wide consultation serves to establish transparency and the consolidation of the single market.

During a first phase, the EFTA Surveillance Authority is given a period of one month to review the analysis and any planned measures submitted to it. If the Authority expresses a reasoned doubt as to the compatibility with EEA law of measures that have been submitted, it can extend this period by two months in order to allow further investigation of the matter. If no such doubts exist, the Office for Communication can adopt the

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5 http://www.llv.li/amtsstellen/llv-ak-marktanalysen/llv-ak-marktanalysen-konsultationen.htm.

6 Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services ("Framework Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cl.01).

7 For the details of the procedure for submission according to Art. 7 of the Framework Directive see also: Recommendation of the EFTA Surveillance Authority No. 193/04/COL of 14 July 2004 on notifications, time limits and consultations provided for in Article 7 of Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ L 113, 27.4.2007, page 10.

measures that were submitted. On the other hand, if the EFTA Surveillance Authority comes to the conclusion within the extended period that the market definition or the analysis of significant market power is contrary to applicable EEA law, it can forbid the Office for Communication from bringing the planned measures into force.

With regard to the structure and design of concrete measures of special regulation per se, that is the obligations which are imposed on providers, the EFTA Surveillance Authority has solely the competence to comment on them, not to reject them. If the EFTA Surveillance Authority does comment on a draft measure submitted, then the Office for Communication has to take its comments into utmost account.

All relevant documents and published information related to the submission of measures of special regulation by the Office for Communication are accessible via the electronic portal[8] of the EFTA Surveillance Authority. All public documents related to the national consultations are viewable on the Office for Communication's website.[9]

1.4 Basic aspects of the market analysis

From an economic viewpoint, the position of significant market power is related to an undertaking's power to increase prices without having to suffer significant sales losses. In accordance with the thesis of equivalence from the EFTA Surveillance Authority and the European Commission, effective competition prevails on a market when no undertaking on the market possess a position of significant market power.[10]

In the following market analysis, the terms "effective competition", "functioning competition", "competition that is effective" are used synonymously. Effective competition presupposes that the competition also exists without any ex ante regulation (anticipatory regulation) on this market, but taking into consideration ex ante regulations on other markets of relevance for this market. If the competition on one market is also not dependant on regulations on other markets, not only is the competition effective, but also self-sustaining. Accordingly in the market analysis, the conditions for competition are to be assessed as to whether none of the ex ante regulations affecting this market exist on the present market (this is also termed the "green field approach"). Otherwise the danger exists that effective competition is ascertained for a market although the market outcome is primarily determined by existing regulation and not by competitive forces. The consequence of this would be that (at least over the medium term) structurally driven competition deficits arise and market dominant operators utilise their position to the disadvantage of the consumers.

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8 https://eea.eftasurv.int/portal/

9 http://www.llv.li/amtsstellen/llv-ak-marktanalysen/llv-ak-marktanalysen-konsultationen.htm

10 Cf. chapter 3.1.1.

1.5 Composition of the market analysis

The market analysis is composed as follows: The first chapter provides an introduction to the subject-matter under investigation. Chapter 2 contains the market definition and delineation as well as a description of the products and services. The analysis of competition itself is to be found in chapter 3, in which all aspects for the assessment of relevant market power indicators are examined. Chapter 4 focuses on the potential for market abuse and (potential) competition problems on the call termination markets at fixed locations. Finally, chapter 5 discusses the regulatory measures that are appropriate for remedying the competition problems that have been determined and formulates the concrete measures of special regulation.

1.6 Time frame

The time frame for the present market analysis amounts to two to three years. The Office for Communication will continue to keep the market concerned under further observation during this period and, if necessary, initiate a fresh market analysis. Art. 21 (2) KomG lays down that the conditions for competition in the markets identified in the Announcement on market definition are to be reviewed at least once every four years.

1.7 Sources of data

The essential data that have provided the basis for the following market analysis were collected by the Office for Communication by means of an annual questionnaire to operators over the years 2004 to 2008. The collection of market data takes place each year in the summer in relation to the preceding calendar year. For reasons of proportionality, any collection of the requested data between these intervals is normally only conducted additionally if this seems indicated by a rapid change in market conditions or by other special reasons.

To supplement the data gathered in the context of the yearly questionnaires, data obtained under the previous legal framework have been used as necessary. No further reference will be made in the following market analysis to these data or to the data collected during the survey of operators; all other external sources of data will only be referred to specifically as necessary. Additionally, the Office for Communication keeps the market in question, like other relevant markets, under constant observation. Hence the present analysis also relies on the Office's further current information and data.

1.8 Competition authority

Liechtenstein has no national competition law beyond the rules of competition applicable under the EEA Agreement. Nor does Liechtenstein have an independent competition authority at present. Legal recourse in competition cases is therefore to be sought in accordance with the applicable EEA law before the ordinary national courts or by referring the matter to the EFTA Surveillance Authority and/or the European Commission. The exception to this is the Office for Trade and Transport by virtue of Art. 2 (1) of the Law of 23 May 1996 on the Implementation of the Rules of Competition in the European Economic Area, LGBl. 1996 No. 113, under which that Office has responsibility for the implementation of competition rules to the extent that the courts do not have jurisdiction. This responsibility is however essentially directed towards supporting the EFTA Surveillance Authority and the undertaking of actions by the State, and not towards the material application and enforcement of EEA competition rules.

For these reasons, cooperation with or consultation of a competition authority in the sense of the second sentence of Art. 16 (1) of the Framework Directive 2002/21/EC[11] is not possible in the case of the present market analysis in Liechtenstein.

11 Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services ("Framework Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cl.01).

2 The market under investigation

2.1 Development of the fixed network sector in Liechtenstein

Up to 1998, the provision of telecommunications in Liechtenstein occurred under the PTT Treaty of 1978 concluded between Liechtenstein and Switzerland. The network in Liechtenstein was an integral part of the Swiss telephone network (of Swisscom). The network components situated in Liechtenstein, including the access network, were provided, maintained and operated by Swisscom in the name and on the account of the Liechtenstein State. Their owner was the Liechtenstein State. In 1998, the separation from the Swiss telephone network occurred with the liberalisation of the telecommunications sector and the founding of the 100% State-owned stock corporation LTN Liechtenstein Telenet AG (hereunder called "LTN").

LTN was only entrusted with the operation of the network. Following an invitation for tenders in relation to the provision of basic services, the retail customer relationship was transferred to Telecom FL AG which belonged to Swisscom. Telecom FL was then 100% taken over by LTN in 2003 following an increase in LTN's capital. The merger of the two undertakings to now become Telecom Liechtenstein AG (hereunder called "TLI") occurred on 1 January 2008.

The Liechtensteinische Kraftwerke (LKW), which is also 100% State-owned, is responsible for the expansion and operation of the copper, optical fibre and CATV networks in Liechtenstein. At the beginning of 2007 and as a result of a "consolidation agreement" concluded between LTN and LKW, all retail customer relationships and "intelligent" network components were concentrated at LTN and all passive network components, including in particular the access network, transmission lines, cable routes, etc. were bundled together at LKW. Hence from this point in time, LKW has been the owner of all fixed access networks. LKW is no longer active on the retail customer market but rather only on the wholesale service market. By contrast only TLI has a presence on the retail customer market.[12]

2.2 What is fixed network call termination?

Call termination at fixed locations is an interconnection service and serves to secure the mutual accessibility (i.e. interoperability) by subscribers in their own network and beyond network boundaries. When a subscriber calls a subscriber of another communications network operator (in brief: network operator), this call is transferred either directly (direct

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[12] Please also see section 3.5, item 3, second sentence of Annex II from 27 February 2008 to the consolidation agreement from 11 July 2006, published in ruling 605/08/COL by the EFTA Surveillance Authority dated 17 September 2008, Annex, pages 4 and 7.

interconnection) or indirectly via a transit network operator (indirect interconnection) to a predefined point of interconnection (POI) at the network of the called subscriber and supplied from there to the called subscriber.

The termination service which is provided on the call termination market is the transmission of voice traffic from the last interconnection-capable exchange to the subscriber. The last interconnection-capable exchange is regarded as that exchange to which at least one network operator is interconnected and/or can be and on which the traffic can be handed over close to its destination (see chart 2-1).

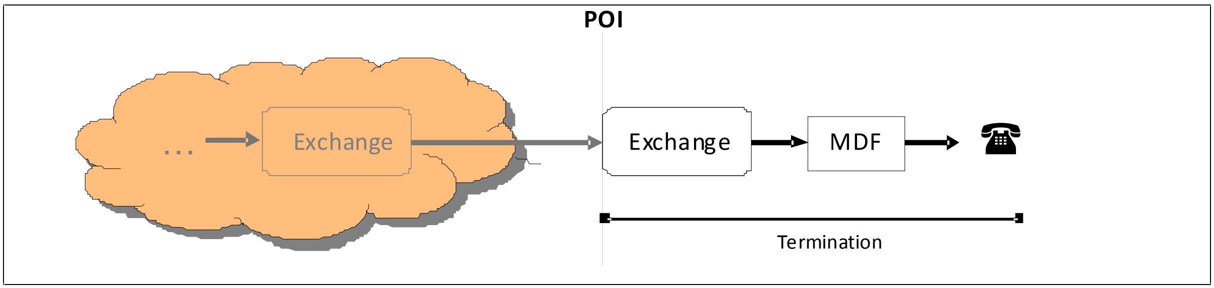

Chart 2-1: Termination service from the last interconnection-capable exchange to the subscriber

The termination service is – because it is requested by network operators and not by retail customers – a wholesale service (i.e. wholesale product), for which the network operator requesting same pays a rate (called a termination rate) to the provider. The demand for call termination on the wholesale level is derived from the demand by the subscribers on the retail customer level: Every subscriber of a network operator requires call termination as a wholesale service to carry out a call to another subscriber – regardless of whether they are connected to the same or to another communications network operator.

However the fixed network termination service is related only to that service which is requested by network operators in Liechtenstein, i.e. only to national and not to international interconnection services. Hence the findings provided in this document are only applicable to the termination service vis-à-vis domestic network operators and only this is subject to the regulation under consideration.

For this service vis-à-vis the domestic network operators, the network operator charges – provided it concerns a source network priced call – a rate, the so-called call termination rate. The network operator requesting the service – directly or indirectly – in turn invoices the termination rate to the calling subscriber (i.e. party) in the context of the retail customer rate. With this invoicing principle termed the calling party pays principle (CPP), the caller – unlike with the receiving party pays principle (RPP) – bears the complete costs of a call; the person called (i.e. receiving party) bears no costs. In Liechtenstein this principle is – like in all other European countries – applied by all operators. The CPP principle is the reason for the occurrence of external effects.[13] On the one hand negative

[13] External effects arise when individual actions have side effects (of a positive or negative nature) on another party without them having to provide monetary consideration (payment) to the other party. In all cases where significant external effects arise, as a rule inefficient resource allocation by the market occurs.

effects are caused by the fact that a benefit accrues to the called party without a (monetary) consideration having to be provided for his benefit (call externality). On the other hand the respective subscriber, who through his choice of the fixed network operator selects the (call termination) network, is not identical with the subscriber who ultimately pays the termination service. The externality generated by this is the main cause of market failures in connection with the call termination markets, as will be provided in more detail in the context of the competition analysis.

2.3 Definition of the relevant product market

In accordance with the Guidelines[14] of the EFTA Surveillance Authority on market definition and the assessment of significant market power (hereunder called the "SMP Guidelines"), the basis for the definition of the materially relevant market is a test of substitutability on the demand and supply sides of the product or service in question. Products all belong to the same market when both consumers and providers see them as sufficiently interchangeable. A generally acknowledged procedure for determining this is provided by the so-called SSNIP test (small but significant non-transitory increase in price – SSNIP) or the test of the hypothetical monopolist.

The EFTA Surveillance Authority in its Recommendation on Relevant Markets[15] has identified in accordance with Art. 15 of the Framework Directive 2002/21/EC[16] those materially relevant product and service markets which can be considered for ex ante (anticipatory) regulation. It is assumed that for these markets – because the EFTA Surveillance Authority has already examined whether the applicable criteria are fulfilled – ex ante regulation will also be considered in Liechtenstein if need be. Hence the Office for Communication does not have to repeat this examination as the competent Regulatory Authority, unless it has reasonable doubt as to the criteria's specific concordance with the national context or the definition of the relevant national product market deviates from that which has been recommended.

In accordance with the EFTA Surveillance Authority's Recommendation on Relevant Markets, the relevant material market was defined in Part A, item 3 of the Annex to the Announcement on market definition as "call termination on individual public telephone networks at a fixed location." This market corresponds to Market No. 3 in the EFTA

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14 Guidelines of the EFTA Surveillance Authority of 14 July 2004 on market analysis and the assessment of significant market power under the regulatory framework for electronic communications networks and services referred to in Annex XI of the Agreement on the European Economic Area, OJ C 101, 27.04.2006, page 1.

15 EFTA Surveillance Authority Recommendation of 5 November 2008 on relevant product and service markets within the electronic communications sector to be considered for ex ante regulation in accordance with the Act referred to at point 5cl of Annex XI to the EEA Agreement (Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services), as adapted by Protocol 1 thereto and by the sectional adaptations contained in Annex XI to that Agreement, OJ C 156, 9.7.2009, page 18.

16 Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services ("Framework Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cl.01).

Surveillance Authority's Recommendation on Relevant Markets as well as that from the European Commission's Recommendation on Relevant Markets.[17]

The market covers the termination of voice calls in an individual fixed network. This market includes voice as well as fax and modem dial up connections with the exception of dial up connections to the internet. Termination services by means of Voice over Broadband (VoB) are components of the market under consideration as they represent a substitute, while termination services by means of Voice over Internet (VoI) are not.

Fixed telephone network operators provide within each internal network call a termination service to themselves (self supply) even in the case where the terminating traffic is not routed to the network termination point via an exchange which is interconnection-capable with other networks.

In each case this is regardless of whether the call termination is offered as a wholesale service component of a retail customer product to the own communications service provider or to a third party.

As this wholesale service cannot be provided by another provider other that the one to whose network the subscriber is connected and the call termination rate is not sufficiently taken into account in the selection of the network due to the calling party pays principle (CPP) externality, we are dealing with operator-specific call termination markets. In other words, the respective network operator has – in accordance with the current level of technology – a call termination monopoly in its network. Furthermore, operators are obliged[18] to guarantee end-to-end connectivity and interconnection.

Hence the decisive material market for the present market analysis is in accordance with the EFTA Surveillance Authority's Recommendation on Relevant Markets. From the Office for Communication's perspective, there are no indications that the relevant market does not fulfil the criteria for a potential ex ante (anticipatory) regulation in Liechtenstein or will have to be defined differently in terms of its material dimension due to national circumstances.

2.4 Services and products

The operator-specific market for call termination covers the termination of voice calls in the network of the respective operator (constituting the market), whereby the services presented in the table hereunder fall within the market.

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[17] The European Commission has described the underlying material product markets in its explanatory remarks to the Recommendation on Relevant Markets, Explanatory Note (Commission staff working document SEC2007/1483) to Commission Recommendation 2007/879/EC of 17 December 2007 on Relevant Product and Service Markets within the electronic communications sector to be considered for ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, OJ, L 344, 28.12.2007, page 65.

[18] Cf. especially Art. 44 (1) and Art. 46 (1) (a) VKND.

Service	Description	Currently provided in Liechtenstein
IC[19] call termination	Termination of calls via an interconnection-capable exchange to the selected fixed network telephone	✓
Internal network call termination	Termination service that occurs in the context of an internal network voice call	✓

Table 2-1: Services of the termination markets

2.5 Definition of the relevant geographic market

The geographically relevant market is that geographical area in which the relevant product is supplied and demanded under sufficiently similar or homogeneous competition conditions.

The geographically relevant dimension of the fixed network call termination markets is the geographical area over which the network of the respective operator extends. This geographical market definition is based on the fact that every market is defined in an operator-specific manner and the operator does not differentiate the call termination prices in accordance with different target destinations or connected subscribers.

2.6 Provider of fixed network termination services

Since the merger of LTN and Telecom FL to become Telecom Liechtenstein AG (TLI) on January 2008, currently there is only one provider of fixed network termination services in Liechtenstein.

Liechtensteinischen Kraftwerke (LKW), to which at the beginning of 2007 the ownership of the passive network infrastructure was transferred from the former LTN, does not itself have its own subscribers and exchanges and does not offer – at least at present and in line with its strategy as communicated – any termination services of relevance for the present markets.

In addition to this single provider of fixed network termination services, other fixed network operators which already have a basic infrastructure at their disposal (such as for instance Matt Antennentechnik AG with its CATV network), or other providers which request access to LKW's country-wide infrastructure on the wholesale service level, could enter the market.

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[19] Interconnection.

In the event that further operators connect up their own fixed network subscribers and offer fixed network termination services, due to the call termination monopoly, in each case they establish their own operator-specific call termination market. This is to be recognised as the case may be in the context of a new and/or supplementary market analysis.

2.7 Development of the fixed network termination markets

The following table contains information on the extent and development (measured in minutes of termination traffic) of the fixed network termination market of TLI (formerly LTN and/or Telecom FL).[20]

Year	From interexchange network operators	From mobile phone networks	Internally	Total
2004	7'435'471	3'078'988	38'661'846	49'176'305
2005	7'097'472	3'747'597	35'256'200	46'101'269
2006	7'294'201	3'432'986	30'409'644	41'136'831
2007	7'636'600	3'656'647	28'724'083	40'017'330
2008	6'800'747	3'627'366	27'269'003	37'697'116

Table 2-2: Development of the termination market of the fixed network operator TLI (in termination minutes)

The development of the fixed network termination traffic and its composition can be presented graphically as follows:

[20] In the details on the call termination volumes, those termination minutes have been excluded which are processed via an existing national bundle (NSPC) between Swisscom AG and TLI, because these are not used for the terminating traffic in TLI's fixed network as per the details provided by Swisscom.

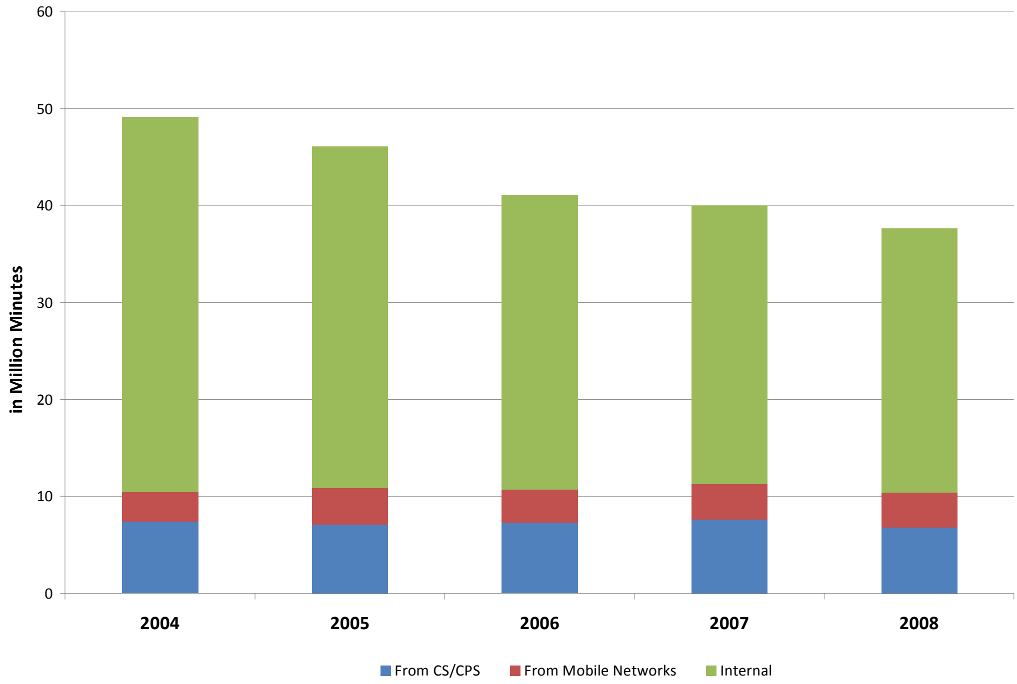

Chart 2: Development of the fixed network termination market 2004 to 2008

The above presentation shows that TLI's fixed network termination market shrunk by almost a quarter overall from 2004 to 2008. The decrease in the termination volume can be traced back especially to the striking reduction in the fixed network internal calls, which in turn might be attributable to the powerfully increased mobile traffic (on-net and between mobile networks)[21] in the period under comparison. This shifting of the voice call traffic is also verified by the only slight increase in the termination traffic from the national mobile networks to the fixed network in the period under consideration. The fixed network termination traffic generated by interexchange network operators by means of CS/CPS was subjected to certain annual fluctuations in the period under consideration, however most recently it decreased by 11% in 2008.

2.8 Buyers of fixed network termination services

The buyers of fixed network termination services are other national mobile communications network operators as well as (potential) fixed network operators.[22]

2.9 Earlier regulation of the fixed network termination markets

To date the only provider of fixed network termination services submitted its cost accounting for the calculation and approval of the rates at regular intervals to the Office

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21 Cf. analysis of the mobile termination markets (M7).

22 Increasingly, VoIP (Voice Over Internet Protocol) providers are also requesting call termination in fixed networks.

for Communication. The rates as set were approved on the basis of the full costs. The validity of the Reference Interconnection Offer (RIO) for LTN of 1 April 2005 was last extended by a decision of the Office for Communication of 28 June 2007 up to the publication of the conclusive results of the market analysis in the corresponding markets. From 1 January 2008 onwards the operator, now named TLI, has been offering the Reference Interconnection Offer utilising the same prices as those earlier approved for LTN.

The only point of interconnection (POI) which is offered as an interconnection-capable exchange in Annex 4 to RIO is the one in Schaanerstrasse 1, FL-9490 Vaduz. No other interconnection-capable exchanges exist. However when requested, TLI offers further interconnection points in accordance with the RIO. As per the information provided to the Office for Communication, the other network operators are only interconnected with TLI at the exchange as named.

In Annex 5 to RIO, a price of CHF 0.04 per minute is demanded for "transmission on the fixed network", whereby transmission is understood to mean in each case a combination of an origination as well as a termination service. An explicit separation of the two services is not provided in Annex 5. However the offer of CHF 0.02 per minute for the "call termination in the national network", which however (somewhat misleadingly) is aimed explicitly only at carrier pre-selection operators, can be taken as an indication of the price for the termination service alone.

Hence the regulated price for the call termination service in TLI's fixed network, i.e. the termination of voice calls via an interconnection-capable exchange to the selected fixed network telephone, currently amounts to CHF 0.02 per minute.

3 Market power

3.1 Undertakings with significant market power

3.1.1 Single dominance

Under Art. 3 (1) (3) KomG an "undertaking having significant market power" is regarded as "an undertaking that either individually or jointly with others enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers." Art. 3 (1) (3) KomG is coextensive with the applicable requirements of EEA law under Art. 14 (2) of the Framework Directive.

In connection with the assessment of whether an undertaking individually enjoys a position of significant market power (single dominance), the Office for Communication is required to consider "in particular" the following criteria in accordance with Art. 31 (1) VKND:

a) The size of the undertaking, its size in relation to the relevant market, as well as the changes in the relevant positions of market players over the course of time;
b) The magnitude of barriers to market entry as well as the degree of potential competition resulting from this;
c) The degree of countervailing buying power;
d) The degree of demand and supply elasticity;
e) The respective maturity of the market;
f) Technological advantages or superiority;
g) Any advantages in the sales and distribution organisation;
h) The existence of advantages resulting from economies of scale, scope and concentration;
i) The degree of vertical integration;
k) The degree of product diversification;
l) Access to capital;
m) Control over infrastructure not easily duplicated;
n) Market behaviour in general, such as pricing policy, marketing approach, bundling of products and services or the establishment of barriers.

The national as well as the EEA legal framework have resolved the connection between "significant market power" in the meaning of Art. 3 (1) (3) KomG and "effective competition" in the meaning of Art. 20 (1) KomG by means of the so-called "thesis of equivalence", whereby no effective competition prevails if at least one undertaking having significant market power is found to be present. Thus the EFTA Surveillance Authority in its Guidelines[23] states that the conclusion that genuine competition exists on a relevant market is equivalent to the finding that on this market there is no operator that has a dominant position individually or jointly with others. "Effective competition" is defined to the effect that on the relevant market there is no undertaking that enjoys a position equivalent to dominance individually or jointly with others (cf. Recital 27 of the Framework Directive).

The above-mentioned Guidelines on Market Analysis and the Assessment of Significant Market Power are decisive in rendering the market analysis operative: In contrast to general competition law, sector-specific regulation pursues an ex ante approach – the assessment of competitive relationships proceeds from the premise that no regulation exists (the "green field approach"). Hence the EFTA Surveillance Authority also states the following in its Guidelines: *"[W]hen assessing ex ante whether one or more undertakings are in a dominant position in the relevant market, NRAs are, in principle, relying on different sets of assumptions and expectations than those relied upon by a competition authority applying Article 82 of the Treaty and Article 54 of the EEA Agreement ex post, within a context of an alleged committed abuse. Often, the lack of evidence or of records of past behaviour or conduct will mean that the market analysis will have to be based mainly on a prospective assessment. […] The fact that an NRA's initial market predictions do not finally materialise in a given case does not necessarily mean that its decision at the time of its adoption was inconsistent with the Framework Directive."*[24] Footnote 74 in the Guidelines states in addition that *"NRAs do not have to find an abuse of a dominant position in order to designate an undertaking as having SMP."*

If an undertaking enjoys significant market power on a particular market, it can then also be considered as an undertaking having significant market power on a closely related market horizontally and vertically and/or geographically, when the links between the two markets are such as to allow the market power held in one market to be leveraged onto the other market, thereby strengthening the overall market power of the undertaking (on "leveraging", see Art. 22 (2) KomG).

3.1.2 Collective market power (joint dominance)

Two or more undertakings can be assumed to have significant market power jointly if they – even in the absence of structural or other relationships between them – are active on a market whose character displays incentives for coordinated behaviour (Art. 31 (2) VKND).

As the fixed network call termination markets concern operator-specific markets, i.e. in accordance with the definition only one provider is active per market, the assessment of collective market power is superfluous.

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[23] Cf. SMP Guidelines, Paras. 19 and 113.

[24] Cf. SMP Guidelines, Paras. 71 and 72.

3.2 Market players and market shares

Market shares provide a natural starting point for the investigation of competitive relations on a market and are regarded especially in case law as an essential indicator for market power.[25] The economic significance of this indicator flows above all from the theory of monopolies and oligopolies as well as from empirical evidence for the linkage between market shares and profitability (in the form of price-cost margins). Thus there is both theoretically and empirically a positive connection between an (undertaking's individual) market share and an (undertaking's individual) price-cost margin. Neither the empirical nor the theoretical literature however provide information as to from which level of market share onwards "significant market power" may be suspected (or even proven) to exist. In case law, the following thresholds have established themselves: With a market share below 25% it can be presumed that the undertaking in question does not enjoy a position of (individual) dominance. A market share of 40% will raise, according to the decision-making practice by the European Commission and EFTA Surveillance Authority, suspicions about the existence of a dominant position, while in some cases market dominance could also exist below this threshold (because of other factors). The consistent case law of the European Court of Justice has held that at 50% – leaving extraordinary circumstances to one side – the existence of market power can be taken as proven.[26]

A high market share on its own does not however mean the existence of a dominant market position; in reaching a judgement an essential aspect is also the development of the market shares: Thus it is important for example to observe the market share of an undertaking not only at a particular point in time but also to look at the change in the market share over time. If the market share is high and stable (or even growing) over a long period of time, the existence of market power is more likely to be assumed than when the market share is sinking or subject to significant fluctuations. Furthermore, the market share has also to be placed in relation to the market shares of the competitors. If the undertaking in question has a significantly higher market share than even the largest of its rivals, the finding of a dominant market position is then more probable than in cases in which several undertakings have high market shares. It goes without saying that – in order to obtain a comprehensive picture – even in cases of very high market shares, further indicators must still be examined; in particular the causal factors underpinning the high market share must be investigated.[27]

The structure of the market and thus the number of market players as well as their market shares are dependent on economies of scale, sunk costs and the minimum efficient scale[28] of an undertaking. If for instance there are high economies of scale, then ceteris paribus a

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[25] Art. 31 (3) (a) VKND as well as the SMP Guidelines, Paras. 75 to 78.

[26] Cf. SMP Guidelines, Para. 76.

[27] By way of example, a higher market share on an innovative market in a very early stage of the market would be assessed differently than in an already saturated market with switchover costs.

[28] MES – minimum efficient scale.

higher concentration is also to be expected. In extreme cases the industry is a natural monopoly, i.e. costs are (from a static perspective) optimal even if only one single undertaking is in production. Since high economies of scale can thus lead both to a high concentration and to high market entry barriers, market power can fairly be assumed where significant economies of scale exist.

As already detailed in chapter 2.3 the present market for fixed network call termination is defined in an operator-specific manner. The logical consequence of this is that the sole provider TLI has a 100% market share in its fixed network termination market.

3.3 Relevance of SMP indicators

Hence the market for call termination in individual public telephone networks at fixed locations is a monopoly market as per the market definition. Thus any competition by (potential) competitors is effectively ruled out and ultimately the other side of the market (the buyers) is the only power which can potentially discipline the market power of a monopoly position. This has a range of consequences for the present market analysis: Firstly the operator-specific market is only to be assessed with regard to the existence of single market dominance. As each fixed network operator with connected subscribers which newly enters the fixed network sector as such constitutes a new operator-specific call termination market, the existence of joint market dominance on the call termination markets is inconceivable. On the other hand, the assessment of single market dominance is reduced to very few SMP criteria due to the market definition. It is briefly explained hereunder why several of the SMP criteria which are usually assessed provide no or very limited information about the degree of competition on the operator-specific termination markets and/or why an in-depth examination of some indicators is not required (due to the clarity of the result):

- In cases of call termination, the **barriers to market entry** are per the (market) definition infinitely high and **potential competition** does not exist. The termination service of a new provider has no impacts on the structure of the existing (monopoly) termination market and constitutes its own market in turn. For this reason further analysis of the barriers to market entry are superfluous for the termination market. The reason for the present market definition lies not least in unique structural aspects of the termination service (monopoly with the call termination and calling party pays principle). The barriers to market entry are insurmountable.
- The market for call termination in individual public telephone fixed networks is a monopoly market as per the market definition. Hence the relative **market share** remains constant at 100%. Here too a more extensive analysis is superfluous. Differences – even if only of limited relevance for the assessment of the competition situation – could be a given with several termination markets in terms of the **absolute scales** of the respective operator-specific termination markets. But

as TLI is currently the sole fixed network termination operator in Liechtenstein, such a comparison is not necessary.

- For this reason, SMP indicators which are applicable to the scale relations of the potential undertaking with sole significant market power vis-à-vis its (strongest) competitors on the market in question are also of little relevance. This concerns the following SMP indicators: **Technological advantages or superiority, any advantages in the sales and distribution organisation, the existence of advantages resulting from economies of scale, scope and concentration, access to capital and the control over infrastructure not easily duplicated.**
- Because the termination service is a monopoly service and there is no sufficient substitute for the (operator-specific) termination service, the **degree of demand and supply side elasticity** as well as the **degree of product differentiation** are not relevant. An undertaking is in more of a position to raise its prices above (marginal) costs (and thus enjoys market power in a economic sense), the more inelastic the individual demand function ("residual demand") is.[29] On a market with more than one products it is true that ceteris paribus the more substitutes there are on this market the more elastic the residual demand is and the lower the price setting scope of the undertaking is. In the case of a monopoly market, the individual demand function coincides with the total market demand. In this case the price setting scope depends – due to a lack of products from competitors – solely on the elasticity of the total market demand and only in the extreme case of a very elastic demand does the undertaking not have any noteworthy price setting scope (and hence no market power). The demand for fixed network call termination on the wholesale level concerns a demand derived directly from the retail customers' demand for voice calls in fixed networks and the elasticity on the wholesale service level is – as will be detailed – lower, or at least not higher than the elasticity of the retail customer demand for calls in fixed networks. Consequently with the usual elasticity of the retail customer demand for telecommunications markets it can be ruled out that the demand for fixed network call termination is sufficiently elastic to restrict a monopoly provider in its price setting behaviour.

On a resistant monopoly market, the other side of the market (the buyers) is ultimately the sole remaining power that could discipline the market power (of the sole provider) accompanying the market monopoly. For this reason the **demand-side bargaining power** is ultimately <u>the key criteria</u> for assessing market power on the operator-specific termination market. Hence the next section is devoted to it.

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[29] The price setting scope – the possibility a profit maximising undertaking has to set its prices above the marginal costs – of a provider can be described by means of the so-called "lLerner index", whereby the price-cost margin is inversely proportional to the elasticity of the residual demand ((price-marginal costs)/price=1/elasticity). As this correlation shows, the price setting scope (and hence the degree of market power) decreases with increasing elastic residual demand.

3.4 Countervailing buying power

The degree of the countervailing buying power is detailed in Art. 31 (1) (c) VKND[30] (as well as in the SMP Guidelines and the EFTA Surveillance Authority) as one of the criteria for assessing a market dominant position. Countervailing buying power is generally understood to mean the bargaining power of customers vis-à-vis the provider of a product/service. Where applicable this manifests itself by the fact that customers have a significant influence on the price setting behaviour of the provider so that it is not possible for it to behave to an appreciable degree independently from its customers.[31]

For the present investigation, it is first necessary to generally clarify the correlation between countervailing buying power and the demand function:

Fundamentally the demand function has a negative outcome[32] on every market (regardless of the concrete constellation of offers) which articulates a situation whereby the customers demand a lower volume at higher prices and extend the volume demanded at decreasing prices. The elasticity of demand[33] can differ, whereby it is fundamentally true that higher elasticity indicates lower price setting scope (higher volume reactions) and (but not necessarily) higher intensity of competition. This correlation is fundamentally true for all markets so that the demand side (depending on its price sensitivity) can exert a restrictive impact on the price setting behaviour of the operator. This generally valid correlation between demand and supply is for the assessment of the countervailing buying power in the case of monopolies only relevant for the question of price setting; in assessing the countervailing buying power it is far more a question of whether the demand side manages to prevent the monopolist from increasing the price to the maximum profit level for him and forces him to bring the price closer to the production costs.

For the establishment of countervailing buying power it is necessary that the buyer has an effective and credible threat potential at his disposal. A threat is only credible when it is rational for the buyer to also carry it out in the event that the provider does not yield to the demands. This threat is even more effective the higher the costs are on the part of the seller (revenue losses). Hence a concentration of the volumes demanded among a few customers promotes the countervailing power because key customers (with high demand volumes) are more likely to be in a position to articulate their threat potential of a reduction in demand (with potentially high revenue losses) and prevail in price negotiations with the monopolists. A central element of the countervailing buying power (because it significantly underscores the credibility) is the existence of alternatives (so-called outside options): By means of the credible threat to purchase the product from

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30 Ordinance of 3 April 2007 on electronic communication networks and services (VKND), LGBl. 2007 No. 67.

31 Cf. Case 27/76, United Brands/Commission, Comp. 1978, 207.

32 Here, the unique aspects of a completely inelastic, a completely elastic and a positively inclined demand function as can occur with Giffen goods are not mentioned as these have no relevance in the present context. The demand function derived for termination services may be relatively inelastic overall.

33 The demand elasticity provides the percentage volume reaction of the demand related to a price change.

another provider, produce it itself, or do without the consumption, significant pressure can be exerted on the provider.[34] A second central element is the benefit of and/or damage from temporary or permanent disagreements (conflict point). The costs of extended negotiations do not have to be evenly allocated, just like the damages when negotiations fail. Furthermore there can be differing preferences with regard to the status quo (inside option). In addition for the assessment it can be relevant whether customers have similar interests which can be organised in the same way and thus an aggregation of countervailing buying power can occur as the case may be.

The extent to which the countervailing buying power of individual customers (or groups of customers) leads to a situation whereby the monopolist can exploit his price setting scope generally, i.e. not vis-à-vis one single customer, is dependent not least on the extent to which, by means of price discrimination, he manages to not let a solution found for customers with potential countervailing buying power become a general one. In as far as price discrimination is possible (and/or individual solutions can be found) and a resale between customers can be prevented, the monopoly power is reduced to the remaining part of those customers who do not have sufficient countervailing buying power.

The countervailing buying power can be exerted on various levels by various customer groups:

<table>
<tr><td>Retail customer level</td><td colspan="2">Retail customers of the termination network operator</td><td colspan="2">Retail customers of other providers</td></tr>
<tr><td>Wholesale service level</td><td>Interexchange network operators (INO)</td><td colspan="2">Mobile network operators</td><td>Fixed network operators (FNO)</td></tr>
</table>

Table 3-1: Groups of buyers who could exert countervailing buying power

3.4.1 By retail customers of the termination network operator

Only a few larger business customers are in a position at all to negotiate price conditions with a fixed network operator. Hence the starting point of the following discussions is the assumption that the retail customer of the termination network operator is a major undertaking – with demand side bargaining power (!) – which has a larger number of employees with fixed network connections.

In certain cases, such as for instance when initiating business or in the event of providing services, an undertaking can have an interest in having the lowest possible termination

34 It has to be assessed on a case by case basis the extent to which this threat can be considered realistic. The market entry can be linked to high outlays both financially and in terms of time, the unit costs can be higher that those of the former monopolist (minimum efficient scale), and the own market must first be established. For the call termination area, the barriers to market entry are certainly absolute.

costs (which in turn are found in its retail customer rate) for the calling party. However this presupposes that any potential reduction in the call termination rate due to the demand side bargaining power also reaches subscribers calling from other networks, i.e. that it is reflected in their retail customer rates, in other words that it really is passed on by their network operators as well. Since neither the undertaking nor its own fixed network operator has any influence on the retail customer pricing structure of the calling party's network operator, the undertaking's interest as indeed that of the operator is low for such a solution (reduction in the termination rates).

When an undertaking wants to be reached cheaply by its customers, the market offers suitable products/services in order to take into account the interests of the undertaking. By means of freephone numbers or telephone numbers with regulated upper price limits, calling customers could reach the undertaking for free and/or at cheap tariffs. The additional costs which at the most arise for the undertaking can (with sufficient bargaining power) also be satisfied by means of lower rates for (other) purchased services.

Even if such products/services were not suitable for an undertaking (because for instance it wants to be reached cheaply via a geographical telephone number) it can only prevail in reducing the call termination rate if it has overwhelming bargaining power vis-à-vis the termination network operator, as such a reduction concerns the call termination service per se and hence all call termination traffic of the network operator. On the part of the provider it must be weighed up whether a general reduction in the termination rate for all subscribers would be cheaper that losing the undertaking with all its fixed network service requirements. Even in the case of extremely large clients this question is purely hypothetical, because the general revenue reduction from call termination will as a rule exceed by a large factor the asset and liability side revenues linked to the undertaking.

Hence it is shown that it is not even possible for very large undertakings and/or organisations (which potentially have bargaining power vis-à-vis the fixed network operator) to enforce lower call termination rates for calls from third parties from other networks because the net balance is, as a rule, negative for the fixed network operator, the passing on of a reduction in the call termination costs by other operators cannot be sufficiently guaranteed and the other products already mentioned are available at significantly lower follow-up costs in order to achieve the desired effect by the undertaking (the customer).

When the cheap accessibility only concerns voice calls within the undertaking, i.e. that employees at various fixed locations can communicate cheaply with each other or that employees can call other employees at fixed locations cheaply from mobile phones, then virtual private network (VPN) solutions from a provider are suitable which often provide for a monthly flat rate amount and with which voice calls can be made within the undertaking to fixed or mobile connections in an agreed framework without any additional costs as required. In this way the countervailing power on call termination rates is fundamentally undermined because these calls are removed from the external call termination area. At the same time the incentive arises to purchase the connections from a single operator.

For the fixed network market in Liechtenstein, such considerations are purely hypothetical because undertakings of a size that could be best considered for such buying power are connected via foreign operators and internally interconnected and/or available via world-wide locations, and hence TLI does not have any undertaking as a customer which is the sole one receiving a major share of the incoming traffic. Hence for the sole provider of fixed network termination services in Liechtenstein, such a threat can de facto be ruled out.

Conclusion

For major undertakings, there are other products available for internal communications in the undertaking and for being cheaply accessible that are more attractive (i.e. cheaper) for the termination network operator than to generally reduce the call termination rates. Even a reduction in the call termination rates does not have to automatically lead to lower retail customer rates, because the passing on of the reduction is not necessarily guaranteed.

Thus it is demonstrated that even if it is assumed that an undertaking's threat to switch the operator can be made credible (something which can certainly be doubted with a complete portfolio of services and the transaction and/or switchover costs linked to this), no countervailing buying power via its own retail customers exists with regard to the call termination rates. Hence a countervailing power to reduce the termination rates for calls from other networks that reaches such an extent as makes it impossible for the fixed network operator to exert its market power resulting from the call termination monopoly can be ruled out.

3.4.2 By retail customers of other providers

In this case the calling customer has no direct contractual relationship with the termination network operator. A retail customer – even if he has a very large volume of voice calls – has hardly any possibility to exert direct demand side bargaining power vis-à-vis the fixed network operator providing the call termination. Apart from the fact that the latter cannot negotiate with it about call termination rates and will always require the involvement of his own provider (which actually sets the retail customer rates), the caller would also de facto not enjoy any bargaining power because he has not alternative to the call into the network of the termination network operator – it is hardly possible for him to be able to substitute the call with a call to another fixed network operator.

Hence any pressure to have a reduction in the termination fee for calls into a specific fixed network can only ever be exerted indirectly via one's own operator. Because the provider at the same time also aggregates the demand from its retail customers for termination services in other networks and is on the wholesale service level of the contractual partner for interconnection services, it is first and foremost on the wholesale service level that demand side bargaining power can be found as the case may be.

3.4.3 On the wholesale service level

Because the incentive structure and the countervailing power can potentially differ between TLI and the other network operators, the countervailing buying power of various kinds of buyers vis-à-vis TLI has been examined. A distinction is drawn as to whether they

- are active as an **interexchange network operator** and themselves do not set any call termination rates because they do not have any subscribers connected to them,
- are active as **mobile network operators** (and thus compete on various retail customer markets), or
- are active as **fixed network termination network operators** (and thus compete on the same retail customer markets).

3.4.4 The bargaining power of interexchange network operators

The bargaining situation between interexchange network operators (INOs) and the fixed network operator TLI is characterised by the fact that the INOs themselves do not offer any call termination services (one-way access). The INO has an incentive to negotiate low call termination rates because that would give it a competitive advantage over the competitors (otherwise it would simply roll-over the excessive fixed network termination rates onto its retail customers). On the other hand, the termination network operator has an incentive to demand the highest possible call termination rates. A INO is not able to react to excessive demands from TLI with a similar countermeasure. Higher call termination rates solely represent wholesale service costs for the INO which flow into the calculation for the retail customer rate and thus are disadvantageous for the retail customers. Since the INOs directly service TLI's retail customers and thus compete directly with it on the downstream markets, there is a further incentive for TLI to increase the costs for the INOs by means of unreasonable rates and weaken their competitiveness on the retail customer market or even block the INOs from retail customer markets by denying the service. Of course TLI only have such an incentive to deny the service if it is not already able to siphon off the complete monopoly rent on the wholesale service level by means of excessive prices.

The INO has no means to counter such anti-competitive behaviour because it cannot as a countermove demand higher call termination rates or otherwise set some kind of parameter that could discipline TLI's behaviour. Even if the INO purchases large volumes of termination services from TLI, it cannot exert any countervailing buying power because in the event that the INO is eliminated from the market this volume of call termination minutes would again initially accrue to TLI as own services.

In this bargaining situation, practically all of the negotiation advantages are on the part of TLI. Apart from conflict points (interconnection negotiations collapse), the INO has no alternatives (outside options) and for it the denial of the interconnection means having to withdraw from the market because its customers could not reach almost all of the subscribers in Liechtenstein. Hence there is little credibility in the threat to deny interconnection in the event of no reduction in the call termination rates. Thus the connection network operator does not have any buying power that could restrict the provider of fixed network termination services with regard to its price setting behaviour.

3.4.5 The bargaining power of mobile network operators

Not only does a mobile network operator buy termination services from fixed network operators, for its own part it also sells termination services to the fixed network operators with subscribers connected to it (two-way access). As mobile network operators are not (and/or only to a limited extent) competing with the fixed network operator, any foreclosure incentives are of minor importance, whereas on the other hand maximising the margins from the call termination is the central focus. Hence both the fixed network as well as the mobile network operators will try for their own part to enforce the monopoly price and if both interconnection partners were to unilaterally set the prices (without negotiating), monopoly prices would arise.

The question is whether negotiations (in the absence of regulation) between mobile communications operators and the fixed network operator could lead to a different result as the case may be (fundamentally of course both of them would be interested in low purchase prices). Neither of the negotiating partners have any (noteworthy) alternatives to the call termination in the respective other network. In the event that the negotiating party concerns a major mobile communications operator with a critical mass of subscribers, non-agreement (and/or delays in the negotiations) is also not an option for both parties. Such a strategy would have significant negative impacts for both negotiating partners, for which reason in the event of conflict (non-agreement) both operators would accept the monopoly price unilaterally set by the negotiating partners (instead of ending the interconnection). Hence if both operators could siphon off the rent on the retail customer level linked to the call termination monopoly, it would be conceivable that they agree together to cost efficient prices on the wholesale service level. This however would presuppose that monopoly structures exist on the retail customer level (in both the fixed network as well as the mobile network areas). In this case both operators profit from call termination rates in line with the costs because in this way they can neutralise the problem – which is also disadvantageous for them – of double marginalization. In cases of competitive retail customer markets (and/or a regulatory obligation with regard to passing on wholesale service prices), it can be assumed that the fixed network and mobile network operators, both of which have a critical mass of connected subscribers, will in a non-regulated environment agree on a "logical focal point" (namely the respective monopoly price). Both sides simply lack the alternatives to enforce buying power.

In the event that the mobile operator is regulated with regard to its call termination rates, it has – in a modified green field scenario – all possible existing countervailing buying power removed from it because it has to abide by the regulatory requirement. Without a regulatory obligation, TLI can exert its complete market power over such an operator.

3.4.6 Denial of service and reduction in volumes

Where there is a lack of options to switch to an alternative provider and in the case where there in an increase in the call termination rate by the terminating network, one of the few instruments remaining to the buyer to enforce his interests is to deny the interconnection.

The consequence of denying the interconnection with TLI would be that households as well as small and medium sized operations are not accessible in Liechtenstein. However this would mean that the service can now only be offered to industrial clients and a major share of the market cannot be addressed. For the operator, a denial of service by TLI would entail such high economic damage, because reaching the subscribers connected to TLI would be so impaired in terms of its attractiveness, that it would have to withdraw from the market for small and medium sized operations as well as households. Because of this damage, a denial of the interconnection is not a credible threat and/or alternative.

A similar argumentation is true for reducing the volumes demanded (see introduction to chapter 3.4). The network operator providing the demand cannot have a direct influence on the demand volume when the volume demanded is determined (and thus derived) from the call behaviour of the connected customers. Hence the only possibility the network operator has left to reduce the demand volume (and thus exert pressure) would be to require a prohibitively high retail customer rate for voice calls in the respective destination network. However first and foremost such an increase in the rate sensitively curtails the attractiveness of the rates offered on the retail customer market (and even more so when it is applied to call termination rates that are increasing anyway), so that ultimately the telecom provider causes more damage to itself in terms of its competitive position on the retail customer markets than to the call termination network operator.

Due to the significant danger of damaging oneself through these two fundamental potential ways of reacting to an increase in the call termination rates, ultimately they are also lacking in credibility in order to accord some force to the threat potential.

Apart from that, a further aspect is that in accordance with Art. 18 (1) KomG in conjunction with Art. 44 (1) VKND every operator of a public communications network is obliged to provide to other operators of such networks an interconnection offer[35], and in this regard the goal being striven for is to permit and improve the communications between users of various networks. In the event that no agreement is reached, the Regulatory Authority can be called upon (Art. 46 VKND in conjunction with Art. 27 KomG),

[35] For the legal definition of an interconnection see Art. 3 (1) item27 KomG and Art. 45 VKND.

which can order an interconnection (as a subsidiary measure). This obligation is derived from the economic interest to guarantee the any-to-any connectivity and secure competition structurally. In this way the operators are powerfully restricted in terms of their possibilities to utilise interconnection as an instrument to enforce demand driven interests and threats related to interconnection (e.g. denial of service) lose their credibility.

3.4.7 The negotiating power of fixed network termination network operators

Although TLI is currently the only fixed network termination network operator in Liechtenstein, the bargaining power vis-à-vis a potential termination network operator in a fixed network must be examined because the analysis is to occur in a forward looking manner for the next 2 to 3 years and during this time period an operator could offer termination services in its fixed network. For instance, Matt Antennentechnik with its CATV infrastructure already available could offer Voice over Broadband.

By contrast with the mobile communications operators, the focus of the negotiations between two fixed network operators – because the providers compete with each other – are the impacts on the individual competitive positions of the undertakings. If it concerns established fixed network operators (with a critical number of subscribers) both negotiating partners have no real alternatives than to interconnect. Not interconnecting does not represent an alternative for both parties, with (unilaterally set) monopoly prices on both sides resulting as a logical "focal point" in the negotiations.

The negotiating situation – with an absence of regulation – between the established TLI and a smaller fixed network operator (with a relatively small customer base) is to be evaluated differently. In this case the established operator has a foreclosure incentive, i.e. it can profit from a market exit or a non-successful market entry. The alternative subscriber network operators are dependent on the termination service from TLI which maintains the fixed network connections and thus has terminated the complete termination traffic into the fixed network to date, so that any denial of interconnection on the part of TLI would be equivalent to a de facto ousting of the competitors from the retail customer markets. This is because the voice services of a competitor are unattractive for retail customers when more than 90% of the subscribers cannot be reached. The possible threat by TLI, to refuse/delay the interconnection or charge prohibitively high prices is credible. Hence the established operator is in a position to exert price pressure on the call termination rates of the small operator and enforce lower call termination rates (than it charges itself). The only problem in this regard is that for the established operator the conflict situation (non-interconnection) can be the most interesting of all results and thus the danger exists that in the absence of regulation it utilises the interconnection as a vehicle in order to close off the market to new entrants. However this can only be prevented by regulating the interconnection with the established operator so that it even loses its bargaining power vis-à-vis the small operator. This would lead to the unsatisfactory situation whereby the small operator now possess the complete bargaining power while TLI loses its bargaining power as a result of the regulatory conditions imposed. Hence it would be appropriate to also examine more closely the operator-specific call termination market of a new entrant in the event of a market entry.

Hence the Office for Communications has come to the conclusion that potential alternative termination network operators could not exert any countervailing buying power that restricts TLI from exerting its market power.

3.4.8 Conclusions regarding the countervailing buying power

At the start it was noted that a buyer only then has bargaining power when he has a credible and effective threat potential; i.e. when a significant demand volume is concentrated in his hands and he can credibly threaten the provider to suspend or reduce this in the event that the provider does not concede to the demand for a lower price. The threat to purchase the service from another provider or to produce it oneself is the most effective and credible one in connection with countervailing buying power. However this is not available to a buyer of termination services on the wholesale service market, which limits his negotiating power very significantly. As the analysis shows, even large mobile communications operators do not have any credible threat potential available to them to enforce demand driven interests because the economic damage due to the non-provision of interconnection would outweigh same. In a modified green field approach, legislative obligations affect regulated mobile network operators as buyers which restrict their buying power. Also a potential fixed network termination network operator does not possess any bargaining power that could discipline TLI. Hence as a result it can be ascertained that demand side bargaining power is not able to exert a sufficiently disciplining impact on the price setting scope linked to the fixed network monopoly.

4 The potential to abuse market power and competition problems

4.1 Introduction

Hereunder, on the one hand current as well as potential competition problems on the fixed network termination market are examined.

With a view to the imposition of measures of special regulation as required, it is of central importance to consider which specific market failures and which competition problems would be expected (including their implications from the point of view of public welfare economics) in connection with an unregulated fixed network termination service (green field approach). The analysis of the potential to abuse market power that arises from a situation with a lack of regulation of course relies on the indicators assessed. Reference is made in this connection to the ERG's Common Position on Remedies (2006)[36], which forms the reference sources for this chapter.

4.2 Denial of access

Due to its market power on the termination market, TLI can where there is a lack of regulation leverage this onto other markets by refusing the potential competitors access to the termination service. This also covers situations in which the service is available at unreasonable conditions. As it is partly integrated vertically and active on the other markets and provides significant volumes of termination minutes, it has an incentive by means of such partitioning off to increase its market power on other markets and/or to push up the costs of its competitors by means of unreasonable conditions. In this way it could establish a competitive advantage for itself on other markets and operate more independently from its potential competitors.

4.3 Excessive prices

The undertaking with significant market power can set excessive termination prices without being exposed to any countervailing buying power. The main source of this competition problems lies in the calling party pays principle (see chapter 2.1) which establishes that only the caller pays; the party called is as a rule not affected by the costs of the calling party. In this way the termination network operator, which sets the termination rates and at the same time has the called party but not the caller as a

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36 Revised ERG Common Position on the approach to Appropriate remedies in the ECNS regulatory framework, Final Version May 2006, ERG (06) 33, http://erg.ec.europa.eu/documents/docs/index_en.htm.

customer, has an incentive to demand excessive prices without its own customers being affected by this. This leads to allocation inefficiencies and a distorted price structure.

The termination network operator has this incentive to demand excessive prices regardless of the number of connected up subscribers and its market size because the operator can maximise its profit with the monopoly prices. Hence this incentive even exists for operators with few connected up subscribers. The only restriction on not setting the price above the monopoly price is the reduction in volumes when the increase in the call termination rates is reflected in the retail customer rates. Yet even the setting of prices above the monopoly price would not hypothetically be completely ruled out when such an approach is utilised not to maximise profit but rather for strategic purposes. In this way the aim can be pursued to shut out (i.e. foreclose) competitors from other markets in that the price on the wholesale service market results in a de facto market foreclosure.

The provider of termination services is not restricted with regard to its price setting behaviour and has a (monopoly) price setting scope. The caller cannot substitute the voice call (to a specific subscriber) by a call to another fixed network operator with lower call termination rates. Hence no substitution from one call termination network to another can occur.

Hence the competition problem of "excessive prices" is applicable to TLI.

4.4 Non-price related aspects

Non-price related aspects concern delays, unjustified conditions and/or quality and the bundling of products.

By means of delays with the interconnection or the provision of the service, the termination network operator can also put the competitors at a disadvantage on the downstream markets and in this way erect market entry barriers to these markets and/or delay the market entry. In this way for instance, unjustified changes to interconnection points and increases in the number of interconnection-capable exchanges can place competitors at a disadvantage.

Horizontal market power leveraging between markets whose products are complementary is then possible when the undertaking which has market power on one market offers a bundle from among these products that other undertakings are not able to replicate. With bundled products consisting of the termination service and other services, TLI can leverage its market power onto other markets and in this way harm competitors on other downstream markets. This is true in particular for the bundling of the termination service with the transit service. In a first case, the competition problem consists of the fact that the excessive prices if applicable are not only being demanded for the termination service but rather for the transit service contained in the bundle and thus a possible regulation of the termination prices can be of no avail. In a second case, the termination network operator refuses to provide the direct interconnection (denial of access) and at the same time refers to an (associated) transit network operator through which its termination service is to be purchased in a bundle. In this way the transit network operator can now demand unregulated prices for its transit service and share the profit with the termination network operator. In both cases the termination network operator is leveraging its market power onto the transit market.

By means of this possible measure, TLI especially could establish a competitive edge for itself on other markets and disadvantage the competitors on these markets.[37]

4.5 Price discrimination/margin squeeze

TLI could discriminate with regard to its call termination rates for the purpose of market power leverage in that it demands higher rates from external undertakings than from its own retail arm. In this way it could place its own retail arm in a better position than other undertakings so that it could offer better conditions than the competitors on the downstream markets. Basically with such a practice it would utilise the profits gained from the excessive prices on the termination market to subsidise other markets in order to offer predatory (i.e. foreclosure) prices there and in this way distort the competition. That an incentive for such behaviour is a given in the event of a lack of regulation is reasoned by the competitive advantage that TLI gains through this on downstream markets. TLI could also discriminate between different buyers (especially if it concludes business with its own operators in other areas) which then negatively influences the competition.

In summary with the absence of regulation, the following potential competition problems can be ascertained on TLI's termination market due to its market power:

- Excessive prices;
- Denial of access;
- Non-price related aspects: Delays, bundling of products and unjustified conditions and/or inferior quality;
- Price discrimination/margin squeeze.

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[37] Cf. ERG Remedies (2006).

5 Regulatory instruments

5.1 Regulatory instruments under the KomG

In accordance with Art. 20 KomG, the Office for Communication is to take the necessary measures to remove or reduce the negative consequences of a lack of effective competition in the electronic communications markets. For this purpose it imposes on operators with significant market power – in accordance with Art. 23 KomG in conjunction with Arts. 34 to 42 VKND – one or more of the following measures of special regulation:

- The obligation of non-discrimination (Art. 34 VKND);
- The obligation of transparency (Art. 35 VKND);
- The obligation of accounting separation (Art. 36 VKND);
- The obligation to grant access to network facilities and network functions (Art. 37 VKND);
- Price controls and cost accounting obligations related to access (Art. 38 VKND);
- Obligations regarding services for retail customers (Art. 39 VKND);
- Obligations regarding the provision of leased lines (Art. 40 VKND);
- Obligations regarding retail customer rates (Art. 41 VKND);
- Obligations regarding carrier selection and carrier pre-selection (Art. 42 VKND).

According to Art. 43 VKND, the Regulatory Authority can impose other obligations related to interconnection and access than those laid down in Arts. 34 to 42 VKND on undertakings with significant market power where there are extraordinary circumstances. In such a case the Regulatory Authority must make a corresponding request to the EFTA Surveillance Authority. The EFTA Surveillance Authority's decision then forms the basis for that of the Regulatory Authority. As the regulatory obligations in accordance with Arts. 39, 41 and Art. 42 VKND are only to be imposed due to competition problems on the retail customer market and Art. 40 VKND is related to the leased lines service market, Art. 34 to Art. 38 VKND are left as the pertinent potential regulatory instruments for TLI's fixed network termination market.

5.2 Principles for the application of regulatory instruments

With regard to the imposition of regulatory instruments (measures of special regulation) for the regulation of competition, the Office for Communication is obliged to consider the goals for regulation under Art. 1 (2) KomG as well as the principles contained in Art. 5 (2) KomG.

As in the pertinent provisions of the EEA legal framework (Art. 8 (1) of the Framework Directive 2002/21/EC, Art. 8 (4) of the Access Directive 2002/19/EC[38] and Art. 17 (2) of the Universal Service Directive 2002/22/EC[39]), the principle of proportionality is explicitly referred to as one that must be complied with. The principle of proportionality states that the means used to achieve a particular goal may not exceed that which is necessary and appropriate for doing so. In order for a measure of the Regulatory Authority to conform to the principle of proportionality, there must firstly be a justified goal laid down in Art. 1 KomG (or the applicable principles under EEA law) which the measure pursues. The measure used to achieve this goal has secondly to be necessary for achieving same. Thirdly it may not represent an unreasonable burden for the operator concerned. The measure taken should thus be the minimum needed to achieve the goal in question.

On the basis of the goals contained in Art. 8 of the Framework Directive and in conjunction with further provisions in the relevant Directives (especially Art. 8 of the Access Directive and Arts. 10 and 11 of the Authorisation Directive 2002/20/EC[40]), the ERG[41] has in cooperation with the Services of the European Commission (Directorates-General Competition and Information Society) established four principles that should be observed in the application of regulatory instruments:[42]

(1) Decisions of national regulatory authorities need to be well reasoned and in line with the goals and obligations of the Directives;

(2) Where the infrastructure of the market dominant undertaking cannot be duplicated, the exercise of market power vis-à-vis consumers must be prevented;

(3) If replication of the incumbent's (i.e. market dominant undertaking's) infrastructure is viewed as feasible, the available remedies (i.e. regulatory instruments utilised) should assist in the transition process to a sustainable competitive market based on infrastructure competition;

(4) Remedies should be designed to be incentive compatible, i.e. the incentive to comply should be greater than the incentive to cheat (i.e. evasion).

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[38] Directive 2002/19/EC of the European Parliament and the Council of 7 March 2002 on access to and interconnection of electronic communications networks and associated facilities ("Access Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cj.01).

[39] Directive 2002/22/EC of the European Parliament and the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services ("Universal Service Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5cm.01).

[40] Directive 2002/20/EC of the European Parliament and the Council of 7 March 2002 on the authorisation of electronic communications networks and services ("Authorisation Directive"; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"): Annex XI – 5ck.01).

[41] European Regulators Group: It was established as an advisory body to the European Commission under Decision 202/627/EC of the European Commission of 29 July 2002 (OJ L 200, 30.07.2002. page 38; EWR-Rechtssammlung: Anh. XI – 5ci.01). The Office for Communication and the EFTA Surveillance Authority regularly attend the ERG.

[42] ERG Remedies (2006), pages 51 to 67.

5.3 Selection and assessment of the regulatory options

As a result, regulatory instruments are selected and assessed while taking into consideration the principles detailed above. In this regard, firstly the regulatory instrument(s) (or combinations of instruments) are identified that correspond to the nature of the competition problems that have been found to exist and are suited to eliminating them. If several alternative instruments (or combinations of instruments) are suited to eliminating the competition problems, that instrument (or combination) will be chosen in a second step – according to the principle of proportionality – which represents (in a cost-benefit sense) the mildest means (Principle 1). The second step can be overlooked if in the first step only one regulatory instrument (or combination of regulatory instruments) is identified as being suitable.

Art. 33 VKND lays down, in an explicit embodiment of the general administrative law principle of proportionality, that measures of special regulation must correspond to the kind of problem that has emerged, be appropriate in light of the regulatory principles in accordance with Art. 5 (2) KomG and be justified.

The competition problems identified in chapter 4 are such that it is not Principle 3 *(If replication of the incumbent's (i.e. market dominant undertaking's) infrastructure is viewed as feasible, the available remedies (i.e. regulatory instruments utilised) should assist in the transition process to a sustainable competitive market based on infrastructure competition)* but rather Principle 2 *(Where the infrastructure of the market dominant undertaking cannot be duplicated, the exercise of market power vis-à-vis consumers must be prevented)* which is effective here: The operator-specific call termination market is – and will also remain so with the market entry of a further call termination provider – a resistant monopoly market, so that the cardinal objective in imposing regulatory instruments on this market cannot be to promote competition on the termination market itself, but rather the elimination of the competition problems identified in the market analysis with their detrimental impacts on competition on the downstream markets, and especially however on the retail customer.

The analysis of each instrument begins with a discussion of its purpose and general considerations. After that it is assessed which identified competition problems the regulatory instrument addresses and to what extent it is suited to deal with these or hinder the market power and/or its negative impacts. This is then followed by more details about the relationship to other regulatory instruments and the question is posed whether other obligations would be more proportionate. Finally the concrete design of the regulatory obligation is presented, whereby with combinations of obligations the analysis essentially examines in depth and/or refers to other regulatory instruments.

5.4 Access to network facilities and network functions

5.4.1 Purpose

The fundamental purpose of an access obligation (Art. 37 VKND) is to prevent the denial of the access/interconnection and – if a certain access variant does not yet exist – to specify the conditions for the access/interconnection (the wholesale service product). For this purpose, Art. 37 VKND contains detailed provisions on which obligations can be imposed with regard to the access of an undertaking with significant market power (technical interfaces, collocation, etc.). The access obligation is an effective instrument in order to stop the general refusal of the interconnection and/or to prevent non-price related anti-competitive practices.

5.4.2 Application to the identified competition problems

As already detailed, where there is a lack of regulation TLI has an incentive to leverage its market power onto other markets by it denying access to the termination service. The granting of access to date based on TLI's RIO was a consequence of regulatory pressure. The access obligation regulatory instrument is suitable for dealing with such abuse:

The obligation guarantees that the accessibility by the subscribers to the (largest) fixed network in Liechtenstein is a given and access may not be denied.

Furthermore, the competition problems of delays and competition impeding bundling of products – i.e. not necessarily price related problems – are prevented on the basis of the access obligation. In this way the access obligation in conjunction with the non-discrimination obligation guarantees that TLI does not establish a competitive advantage for itself by delaying the access for alternative network operators: When introducing new retail customer products that require other kinds of termination service as wholesale services (e.g. any flat rate offers), it should notify such alternative providers in a timely manner and offer them the corresponding wholesale service products at the latest at the same time as these retail customer products are introduced (see non-discrimination obligation in chapter 5.6).

Through the access obligation it is guaranteed that TLI fulfils all reasonable requests for access products and the termination services can be purchased without any bundling with products from other markets. In this way the potential problems with the bundling of products is also dealt with.

5.4.3 Relationship with other regulatory instruments

The access obligation is considered to be suitable when the access to wholesale services is thereby guaranteed whose replication is regarded as being technically unfeasible and/or economically inefficient and no change to this circumstance is to be expected over the next few years. As an alternative to an obligation to grant access in accordance with Art.

37 VKND, a non-discrimination obligation can be considered. This obligation states that an undertaking has to provide services and information for third parties at conditions equivalent to those for itself and/or affiliated undertakings (so-called internal non-discrimination obligation). This provision covers the aspect of market power abuse especially by means of non-price related practices (for a more detailed explanation see chapter 5.6). However in cases of call termination, the non-discrimination obligation cannot be regarded as being equivalent to the access obligation because firstly the obligation can only be imposed in a very abstract manner and secondly forms of access for third parties that the undertaking does not offer itself are not sufficiently covered by the non-discrimination obligation. Furthermore, the imposition of a non-discrimination obligation would not be a milder means because the intensity of the conditions imposed would barely be lower in order to guarantee the same effectiveness of the regulation.

The most important kinds of access and their conditions should be defined by means of a Reference Interconnection Offer (RIO) that represents a requirement in accordance with Art. 34 VKND (non-discrimination obligation) (see chapter 5.6.4).

5.4.4 Concrete design of the access obligation

The access obligation should guarantee, without being affected by the general conditions for interconnection, that TLI grants access to its network and to its network components to the extent that this concerns call termination and is reasonable. In the context of such an interconnection, TLI should undertake all measures required for this and make the corresponding services and information available in a timely manner (tolerance of the connection through joining link, etc.). From the Office for Communication's viewpoint, this should occur in a form that lays down for every valid and reasonable request for access within the framework of Art. 37 VKND a corresponding wholesale service offer within a reasonable period of time, while also other requirements such as cost orientation and non-discrimination are taken into consideration.

Direct interconnection

TLI should be obliged to facilitate direct interconnection to the sole interconnection-capable exchange present. This should deal with the danger that TLI accepts the traffic for alternative network operators solely via a third party network (affiliated to/cooperating with it) whose operator demands an excessive transit tariff as the case may be. In order to rule out such market power leverage strategies, TLI should be obliged to interconnect directly with other networks (in the meaning above).

Number and location of the interconnection-capable exchanges

Changes in the number and location of the interconnection-capable exchanges should be able to be taken into consideration. On the part of TLI, such changes should in any case be notified to alternative providers in such a timely manner that the competition is not impaired.

Time aspects

The interconnection should not be delayed or hindered in such a way that unreasonable preconditions are demanded that increase the costs of the interconnection partner or delay the interconnection excessively. Hence open access to technical interfaces, normal protocols or key technologies should be guaranteed. Likewise, arrangements for collocation facilities or other forms of shared usage of facilities should be provided for.

Finally, the access obligation in connection with the non-discrimination obligation should also guarantee that when introducing new retail customer products that require other kinds of termination services as wholesale services (e.g. any flat rate offers), TLI offers such products to alternative providers at the latest at the same time as the introduction of the retail customer products. Here, at the same time is understood to mean that new products may only first be offered by TLI on the retail customer level when a correspondingly adequate wholesale product is also offered to third parties. In this way the establishment of unjustified first mover advantages should ultimately be prevented.

Participation in the provision of the joining link

As the interconnecting of networks is achieved by means of joining links, the access obligation imposed should also cover the participation in the provision of joining links as this is a necessary prerequisite for the flow of traffic between networks and at the same time any refusal of same by undertakings with significant market power can be abused to prevent the entry of competitors and thus also ultimately has impacts on the structure of the transit market. The standard to be applied for the calculation of the rate for joining links is – because these also consist among others of a leased line (see analysis of the market for terminating segments of leased lines) – to be determined for the corresponding market by means of existing regulation as required.

Technical and economic sustainability

The technical and economic sustainability for the use of and access to TLI's infrastructure is a given in terms of the interconnections for the purpose of call termination to the extent that such interconnections have already been established to a significant degree over the last few years. They represent the cornerstones of a liberalised market and thus are necessary to guarantee competition over the long-term on the downstream stages of the value added chain. The initial investments required for the interconnection were already undertaken over the course of liberalisation, while for other forms of access the costs should be allocated in a fair and reasonable manner.

5.4.5 Conclusion

In order to deal with the competition problem of denying access and the vertical as well as horizontal leveraging of market power discussed in the market analysis, the regulatory instrument of an access obligation should be imposed on TLI – because the general interconnection obligation in accordance with Art. 44 and Art. 45 VKND as detailed above is not sufficient under certain circumstances. In this way it can be guaranteed that it provides corresponding offers to reasonable requests for access and that the termination services are provided via direct as well as indirect interconnection.

5.5 Price control

5.5.1 Purpose

Art. 38 VKND provides that the Office for Communication can impose obligations on undertakings with significant market power with regard to price controls and cost accounting. It has to take into consideration criteria such as for instance the efficiency, the investments made, the return on investment and the current market risk in correctly determining the access prices. Furthermore, Art. 38 (2) VKND contains provisions related to the burden of proof issue: It obliges an undertaking with a cost orientation obligation to verify that its rates can be computed from the costs and a reasonable return on investment. The Office for Communication can impose a cost accounting system on the operator that is independent from its own cost accounting.

Art. 13 of the Access Directive obligates the regulatory authorities to design measures regarding cost accounting and price controls in such a way that these serve the requirements for efficiency and sustainable competition and maximise the interests of the retail customers.

The price control instrument prevents an undertaking from being able to abuse its significant market power on its termination market in order to set excessive prices. Otherwise it could achieve excess profits on this market and leverage its market power onto other markets.

The price control is a necessary extension to the access regulation, because otherwise an undertaking with significant market power would – by means of setting excessive access prices – have the possibility of price related foreclosure strategies.[43] Furthermore, excessive prices lead to a lower volume of termination services than that which would arise with effective competition. In this way, allocation inefficiencies and public welfare losses occur.

5.5.2 Application to the identified competition problems

In essence, the price control instrument is aimed at directly and effectively (i.e. directly and appropriately to the nature of the problem) redressing the identified problem of excessive prices. This regulatory instrument is also able to prevent an operator from setting excessive prices in order to increase the interconnection costs of its competitors and worsen their competitive position on the retail customer market – through to a foreclosure. As no sufficient duplication of the infrastructure can be expected on the current market for the foreseeable future (Principe 2), the cost orientation standard in the

43 Cf. ERG Remedies (2006).

sense of the effective provision of services – provided it is proportionate and reasonable – is to be applied because this is the only way that allocation and production inefficiencies can be curbed.[44]

As an obligation, the price control is an intervention intensive measure for the undertaking concerned because its price setting scope – a fundamental factor of the business activities on the market – is limited or even lost. In addition to its high intervention intensity, the price regulation also raises several specific economic issues. It is repeatedly argued by critics in connection with the cost orientation price regulation that the regulatory setting of rates does not take sufficiently into account dynamic competition effects (e.g. penetration pricing, external effects) as well as uncertainty and investment risks, or that inefficient price structures are selected when there are overhead costs (e.g. no Ramsey pricing). The result is that losses in efficiency caused by the regulation could be induced by this. Hence it must be examined in the sense of proportionality, whether other milder instruments can produce effective impacts similarly with comparable effort and outlays.

5.5.3 Relationship with other regulatory instruments

It must be considered whether if need be a combination of the non-discrimination obligation (in accordance with Art. 34 VKND) together with the obligation of accounting separation (in accordance with Art. 36 VKND) can replace the cost orientation obligation.[45] By means of the obligation of accounting separation, the internal transfer prices can be made transparent which could then also be a basis for external transactions with the help of the non-discrimination obligation. In fact it would be conceivable to order separate accounting for the complete undertaking on the product level. However this would be disproportionate to measures affecting the product level, as areas would also be affected by this which are not subject to the regulation and the burden for the undertaking with significant market power would in general be far greater than if only certain products are subject to a price control and cost accounting obligation. Hence the non-discrimination obligation together with the obligation of accounting separation is not proportionate and also not suitable to adequately address the problem of excessive prices; thus a price control in accordance with Art. 38 VKND is preferable. Furthermore in the event of a lack of regulation, a non-discrimination obligation could from an economic viewpoint result in distorted retail customer prices on the retail customer market, because the undertaking would also have to take into consideration wholesale service prices when setting the retail customer prices and could not align these solely in accordance with the requirements of the market as the case may be. Furthermore, services which TLI does not provide to itself cannot be sufficiently covered by the non-discrimination.

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[44] Cf. ERG Remedies (2006).

[45] Cf. ERG Remedies (2006).

5.5.4 Concrete design of the price control

If the Regulatory Authority should now set – in the context of a dispute settlement procedure or by intervention on the part of the authority – call termination rates, a price determination method is to be applied. In this connection, the following approaches are relevant:

5.5.5 Efficient component pricing rule (ECPR)

ECPR prices are determined by taking the costs of the service in addition to those opportunity costs which accrue to the undertaking with significant market power when it offers the service to a competitor on the retail customer market. Under certain conditions, the ECPR is reduced to retail minus (retail customer price minus retail costs). ECPR prices would be considered especially when the development of self-sustaining competition on termination markets is to be expected in the foreseeable future[46] or market developments indicate that prices of retail customer markets in competition with each other could be utilised as a starting point. This approach is not suitable for determining the termination costs as such a development is not expected in the foreseeable future and indications of such a development are not identifiable.

5.5.6 Cost orientation

Cost orientated prices are most proportionate in situations in which the undertaking with significant market power can charge excessive prices and the market power will not be limited by competitive forces over the longer term (Principe 2). The operator-specific terminations markets in general and TLI's fixed network termination market in particular are resistant monopoly markets – and will remain so even if a further fixed network provider enters the markets. Depending on the cost accounting method that is applied, the setting of cost oriented prices can be very costly, time consuming and intervention intensive for the undertaking concerned.

The allocation distortions which were determined as competition problems are tightly connected to TLI's incentive to increase the termination rates above the competitive level. Hence the cardinal objective of the regulation must be to correct this market failure and set the termination rates at the amount of the competition prices – the level at which the public welfare is maximised. The "correct price" from an economic perspective is at the amount of the long-term marginal costs of an efficient operator for the provision of the service in addition to a premium for common costs and overhead costs. In a market with effective competition, when viewed over the long-term a "uniform market price" results from the dynamic market forces (e.g. market entries and market exits, volume adjustments, adjustments to the production factors) which is oriented to the long-term marginal costs of the industry which arise in order to efficiently satisfy the total demand (with the lowest costs). This long-term competitive equilibrium leads to a situation

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[46] ERG Remedies (2006).

whereby the macroeconomic public welfare is maximised. Any deviation from this level worsens the consumers' position.

In an EEA-wide comparison, a range of regulatory authorities have utilised cost accounting systems based on the LRAIC principle (long run average incremental cost) that are independent[47] from the operators, or approaches related to this. In accordance with this method, from an economic perspective the efficient price for the access is at an amount of the long-term marginal costs for the service provision of a sufficiently efficient operator. With this approach, the taking into account of the overhead costs occurs in accordance with the stand-alone criteria: Only those kinds of overhead costs are to be proportionately included which would be unavoidable and which would also accrue to an operator which solely offers the termination service. Hence every cost item must be examined in terms of its necessity for the provision of the termination service (for instance, sales services on the retail level are not taken into consideration). In addition, the FL-LRAIC (forward-looking LRAIC) approach is based on the revaluation of the assets at replacement prices.

Engineering-like bottom-up models such as those utilised by numerous European regulatory authorities are suitable to calculate the efficient call termination costs. However the effort and outlays to develop such a model and the collecting of valid cost input data for the model is considerable and linked to the usage of substantial financial and personnel resources. Furthermore when it is applied, a significant period of time has to be expected before the termination rates are determined. The disadvantages named above are even more marked in the unique context of the small-scale relationships in Liechtenstein and in the opinion of the Office for Communication are clearly disproportionate to the size of the market and the operators. Hence, historic full cost accounting is worth considering as a simpler alternative cost accounting model. In comparison to the LRAIC approach, this is linked to certain principles related disadvantages, however it does offer a range of implementation advantages.

However by utilising this cost accounting instrument, negative incentive structures can arise for the regulated undertaking (e.g. the danger of gold plating) if the actual costs which occur historically for the undertaking concerned (top-down) are utilised. The result is that losses in efficiency caused by the regulation could be induced by this. In order to counter corresponding incentives for the regulated undertaking to use resources inefficiently and report higher costs, it is necessary for the Regulatory Authority to identify possible inefficiencies and deduct them. Benchmarking which is described further below can be considered especially to identify possible inefficiencies.

TLI is the most important interconnection partner in Liechtenstein. It has a country-wide fixed network and terminates the most minutes by far. Furthermore it has an incentive to leverage its market power onto other markets. Considering its importance and the

[47] Art. 38 (2) VKND permits the Regulatory Authority to take a cost calculation independent from the cost calculation of the undertaking concerned to determine the costs of an efficient provision of the service.

available cost accounting which was already submitted to the Office for Communication, it is proportionate to regulate the termination rates on the basis of its costs.

No other (milder) instrument is suitable compared to the cost orientation obligation to eliminate the identified competition problem aspects (excessive prices) linked to the price. Hence it follows that in light of the identified competition problems and the regulatory Principle 2, the setting of cost oriented termination rates is a suitable and necessary measure.[48] Instead of using an engineering-like bottom-up model operated by the Regulatory Authority which in the opinion of the Office for Communication is clearly disproportionate to the size of the market and the operators concerned due to the resources and time required for it, the imposition of a cost orientation provision on the termination service in TLI's fixed network should occur on the basis of historic full cost accounting. In order to identify inefficiencies, benchmarking should be used to provide support.

According to the available price list[49] for the TLI interconnection, Annex 5 (valid since 1.4.2005), TLI currently demands for the termination service in the national network a rate of CHF 0.02 per minute (without any peak/off-peak difference). As per the price list, this price is (explicitly) only valid for carrier pre-selection. While it is true that mobile network operators pay the double rate for the origination and termination service, in future however this will be adjusted to the extent that also for the mobile operators one rate will be set only for the termination service.

The Office for Communication takes note that the European Commission issued on 7 May 2009 Recommendation 2009/396/EC on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU. The EFTA Surveillance Authority has issued (to date) no such own recommendation. The Commission recommends in particular that national regulatory authorities impose cost oriented termination rates by 31 December 2012 and introduce to this end an LRIC cost model. In exceptional circumstances, in particular due to limited resources on the part of the authority concerned, it may defer the introduction of such a cost model until 1 July 2014 or where it would be objectively disproportionate for those NRAs with limited resources to apply the recommended cost methodology after this date, such NRAs may continue to apply an alternative methodology up to the date for review of the Recommendation. This is on condition that the outcome resulting from the alternative methodology does not exceed the average of the termination rates set by NRAs implementing the recommended cost methodology.

The Office for Communication is of the view that the resources necessary for the introduction of an LRIC cost model are not available within the very small Office for Communication and that, therefore, the application of the recommended method would be objectively disproportionate. For that reason it intends to make use of the exemptions

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48 See in this regard ERG Remedies (2006), page 73 et seq.

49 The validity of the Reference Interconnection Offer (RIO) for LTN of 1 April 2005 was last extended by a decision of the Office for Communication of 7 July 2006 up to 30 June 2007. The setting of the fees was approved on the basis of the full costs.

provided for by the Recommendation in these cases and to apply an alternative method as described in the present market analysis. It will take into account the EEA-wide average termination rates.

5.5.7 Benchmarking

With benchmarking the setting of the price occurs on the basis of comparative values. For such a comparison, the prices on national and international markets[50] with comparable services can be utilised. As a price determination method, benchmarking is applied especially when the implementation effort in connection with the previously described price setting method (in relation to the competition problem) exceeds an extent justifiable for the Regulatory Authority and the undertaking and/or a correspondingly good basis for comparison exists. During the comparison, care must be taken to ensure the comparability of the markets utilised and if necessary any existing striking differences in the services which are taken for the comparison (differences in the costs, in the network capacity, in the technology, in countries' specific price levels, etc.) are to be adjusted when determining the termination prices to be applied. The markets utilised for the comparison neither have to nor can they be completely identical. This would also not be achievable in reality and would ignore benchmarking's applicability as a reliable price setting method in the first place. Hence any possible striking differences which remain are to be taken into account instead when setting the concrete prices. As a price determination method, benchmarking is applied especially:

- When the implementation effort in connection with the previously described price setting method (in relation to the competition problem) exceeds an extent justifiable for the Regulatory Authority and/or the undertaking.
- Or if the results of the survey of costs are for their own part implausible due to the database and/or significantly deviate from those prices which would normally arise on a (competitive) market. Such a kind of implausible result is for instance possible in the market entry phase when the undertaking concerned is operating in an area with declining average costs (and/or increasing economies of scale).[51]
- And/or when a basis for comparison exists for the price comparison which is sufficiently secure statistically and hence the prices (costs) of the market dominant undertaking can be estimated.

Art. 38 (2), last sentence, VKND provides that the Office for Communication can for the setting of cost oriented prices also take into consideration other rates which are applicable to comparable markets open to competition. This comparative international methodology for setting the rates is what benchmarking is. The low intervention intensity

[50] Art. 38 (2), last sentence, VKND.

[51] In such a "temporary" market entry phase, the average costs can be far above the "normal market" prices (even above those that a profit maximising monopolist would set) and thus they cannot be applied. This argument is relevant especially in connection with new market entrants.

for the undertaking concerned when this method is applied, the low use of resources linked to this, the quick setting of the rates under consideration in terms of the time required as well as its transparency and reliability represent its major advantages.

If a cost accounting model is operated by a regulated undertaking to determine the cost oriented prices, there is an incentive to report (too) high costs. Likewise with a lack of competitive pressure, the undertaking has no incentive to provide the services by means of an efficient use of resources. X-inefficiencies (e.g. the danger of gold plating) occur. In order to identify these as well as any reporting of excessive costs and be able to curb them, international benchmarking should be used as a supporting methodology to determine cost oriented fixed network termination rates in Liechtenstein.

From the viewpoint of the Office for Communication, the instrument fulfils the principle of proportionality and hence is regarded as the adequate[52] supporting measure in terms of the competition problem determined of excessive prices.

5.5.8 Fixed network termination prices in an international comparison

Hereunder a comparison is made of the average termination prices in the fixed networks of the incumbents[53] in the European countries with TLI's applicable call termination prices in Liechtenstein. In this regard the European Commission published in its 14th Progress Report[54] a total of three different average values[55] for the EU as of October 2008:

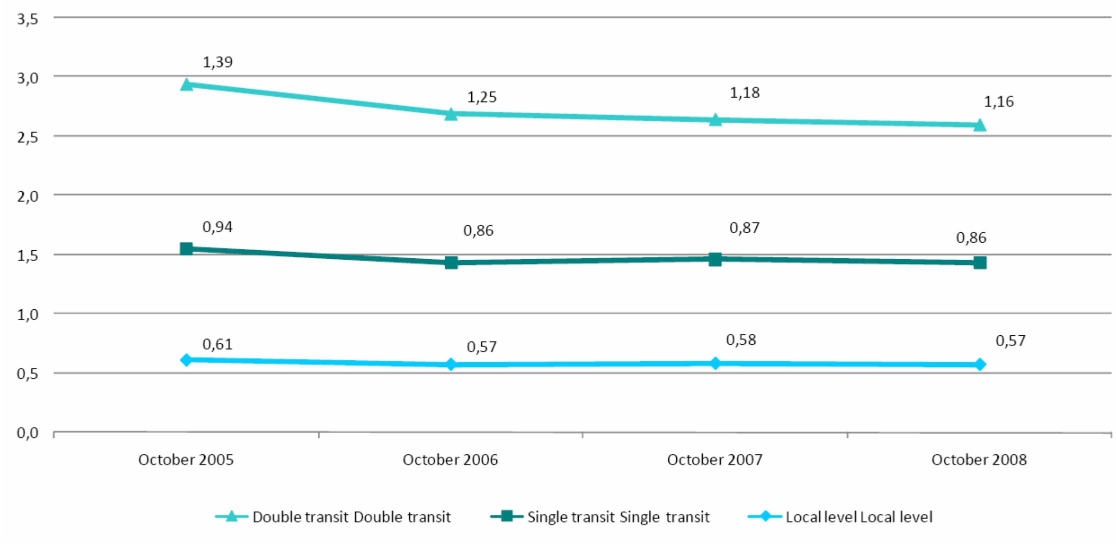

Chart 5-1: Presentation of the fixed network interconnection rates in the EU[56]

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52 See in the regard ERG Remedies (2006), page 73 et seq.

53 Former monopolists and/or state-owned operations.

54 European Commission Progress Report on the Single European Electronic Communications Market 2008 (14th Report) SEC (2009) 376.

55 The calculation of the simple average value is based on a three-minute call at peak times without VAT.

56 Staff Working Document (Volume 2) on the European Commission Progress Report on the Single European Electronic Communications Market 2008 (13th Report) SEK (2009), page 95.

The average values were each surveyed separated for the three different interconnection levels consisting of the local level (0.57 euro cents per minute), single transit level (0.86 euro cents per minute) and double transit level (1.16 euro cents per minute).

In Liechtenstein, the national interconnection with TLI's fixed network occurs at a single interconnection-capable exchange in Vaduz. This exchange is equipped with so-called TransLocal software that brings together the functions of the local and the transit switch (national and international). Hence hereunder, both the average values for local interconnections as well as for single transit are utilised for the comparison with Liechtenstein.

The interconnection rates on a local level are as follows for the individual EU countries:

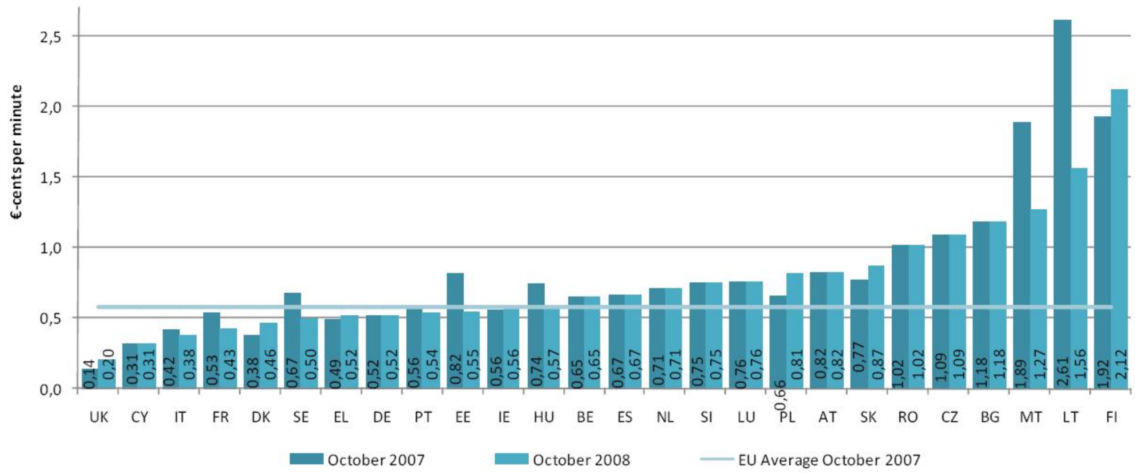

Chart 5-2: Local level interconnection rates[57]

The interconnection rates on a single transit level are as follows for the individual EU countries:

[57] Ibid.

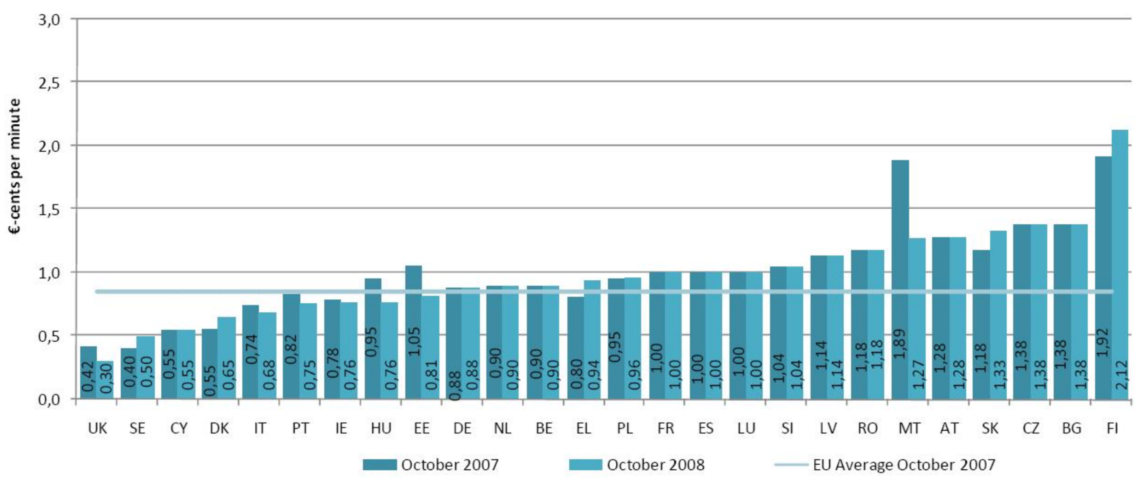

Chart 5-3: Single transit level interconnection rates[58]

In comparison to this, the call termination price[59] in TLI's fixed network (based on the last approved RIO of TFL) amounts to CHF 0.02 per minute (1.26 euro cents per minute).[60] TLI provides interconnection country-wide at only one exchange.

The comparison between the average prices calculated by the European Commission on the basis of validated data from the national regulatory authorities and TLI's call termination price is as follows:

IC level	**EU average**	**TLI termination price**	**Difference**
Local	0.57 euro cents per minute	1.26 euro cents per minute	+ 221%
Single transit	0.86 euro cents per minute	1.26 euro cents per minute	+ 146%

Table 5-1: Comparison of the EU and Liechtenstein call termination prices

When assessing the degree of cost orientation in the context of the future approval of TLI's Reference interconnection Offer, the Office for Communication will – in order to avoid unwanted inefficiencies in the provision of the service – align the call termination rates to the respective applicable European average.

58 Ibid., page 96.

59 There is no difference between peak and off-peak rates and no call set-up charges.

60 For reasons of comparability with the data surveyed by the European Commission as of October 2008, it is converted into euros at the same exchange rate of CHF 1.5818 to the euro reported by the European Central Bank on 1 October 2008.

5.5.9 Price control – conclusion

The Office for Communication has drawn the conclusion from the considerations of the various price determination methods that for TLI, the termination rates and other tariffs related to the call termination should be set on the basis of historic full cost accounting supported by benchmarking. A determination of the costs on this basis is also proportionate because TLI is the only fixed network operator with subscribers connected to it and is the most important interconnection partner for all network operators.

From the discussions so far, it is clear that the price control, despite its intervention intensive character, has been identified as proportionate and as the sole effective instrument that can deal with the competition problems of excessive prices on the termination market.

5.6 The obligation of non-discrimination

5.6.1 Purpose

The non-discrimination obligation guarantees that the undertaking with significant market power offers other undertakings the equivalent conditions under the same circumstances as well as providing services and information for third parties at the same conditions and at the same quality as it does for itself and/or affiliated undertakings. In this way the non-discrimination obligation can guarantee that by means of its pricing the undertaking with significant market power cannot discriminate and prevents an undertaking which is regulated with regard to its rates on the wholesale market from leveraging its market power onto other markets by means of non-pricing variables. In order to support this non-discrimination obligation, it is necessary to oblige the undertaking to publish a Reference Interconnection Offer (RIO). In this offer, partial services are to be sufficiently detailed, broken down in accordance with the market requirements and the conditions including the rates are to be specified.

5.6.2 Application to the identified competition problems

On the one hand the non-discrimination obligation is aimed at preventing price discrimination vis-à-vis the alternative network operators. This obligation guarantees that the undertaking with significant market power treats all competitors on the downstream markets equally and does not place them in a worse position than its own retail arm. Such an abuse of market power is prevented by the non-discrimination obligation.

Furthermore, the non-discrimination obligation is able to curb the identified competition problem of market power leveraging by means of non-pricing variables (such as in the form of delays in negotiations, the withholding of necessary information and other unreasonable measures that ultimately increase the costs of the competitors or delay the market entry).[61] In particular, the non-discrimination obligation in the form of the duty to submit an RIO permits more legal certainty and the provision of better information to the providers on the market. The RIO has the advantage for alternative network operators, and especially for undertakings just about to enter the market, that they have sufficient information available to them regarding the conditions for an interconnection with TLI, so that it is possible for them to be able to estimate the economic meaningfulness of an interconnection and/or of a business case even before concrete negotiations have commenced.

Moreover, a RIO lowers the transactions costs for all parties concerned because central elements are defined from the outset so that the stability on the market can be guaranteed and the incentives to make investments and for entries into downstream markets are provided. Furthermore a RIO shortens the negotiation time, because negotiations only need to be conducted about deviations, it eliminates potential disputes and gives operators the security that services can be purchased at non-discriminatory conditions.

5.6.3 Relationship with other regulatory instruments

The RIO primarily serves the purpose of setting essential access conditions for compliance with the non-discrimination obligation and reducing the transaction costs. Hence it is suitable for preventing possible non-pricing anti-competitive strategies. On the other hand, the access obligation guarantees that all operators must be granted reasonable access when they request it. Hence it goes above and beyond the obligation intended for standard cases in a RIO, whereby due to the non-discrimination obligation any discriminatory treatment of the buyers should also be ruled out for other forms of access (not provided for in a RIO), provided that the discriminatory treatment is not objectively justified.

5.6.4 Concrete design of the non-discrimination obligation

In order to be able to effectively deal with the competition problems discussed, TLI should be obliged to make available to all other undertakings similar termination services under the same circumstances at equivalent conditions as it does for itself. For offers which are repeatedly requested, it is economically sensible and efficient with regard to the transactions costs if TLI publishes a RIO that contains all necessary technical, economic and legal conditions required for the purchase of the service. The RIO should include sufficiently detailed partial services and the service offers should be broken down into individual components in line with the market requirements. In concrete terms the offer is, under consideration of the services requested, to be designed in such an unbundled way that a buyer does not have to purchase services which he does not regard as necessary for his service provision. The offers in the RIO should, without being affected by

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[61] Cf. ERG Remedies (2006) as well.

any negotiations between the operators about special regulations outside the RIO, be sufficiently specified so that they contain the most important parameters and information in order to carry out the call termination via a direct and an indirect interconnection. This includes especially the rates and the conditions for the provision of the termination services.

In addition to a part that should contain the general provisions of a contractual nature, the RIO should at least contain the following components which are to be defined more closely:

(1) Regulations concerning interconnection links (joining links);

(2) Information about locations of the interconnection-capable exchange(s);

(3) Kinds of traffic and rates;

(4) Regulations concerning the interconnection with the interconnection-capable exchange(s);

(5) Regulations concerning emergency services;

(6) Regulations concerning private networks;

(7) Regulations concerning personal services;

(8) Regulations concerning other services (public short numbers for telephone fault reporting, recorded messaging services, public short numbers for special services);

(9) Regulations concerning the hand-over of traffic to transit network operators on behalf of third parties.

The costs to establish the interconnection links, the information about locations and exchanges, the rates and further regulations on the interconnection represent the essential basis for carrying out interconnection. The further conditions concerning emergency services, private networks, personal services and other services establish the basis for the provision of the call termination to areas with special numbers, whereby in terms of proportionality, their inclusion in the RIO should only then occur when these services are regularly requested or purchased. The regulations on the traffic interconnection guarantees that TLI also accepts the traffic for third parties from transit network operators which on behalf of third parties transmit the traffic to TLI's network from the third party network.

The reference offer must cover all access conditions. It is to be submitted in advance for approval to the Office for Communication and to be published by TLI. For this purpose the Office for Communication must be able to inspect all necessary documents through which an assessment of the measure imposed (e.g. with regard to the price control and/or cost orientation) can be undertaken. With these measures, in overall terms both comprehensive framework conditions and the further development of supportive framework conditions for termination services should be established.

Further details of the reference offer are in the event of dispute to be clarified in proceedings before the Regulatory Authority. In principle, all call termination related problems which arise over the course of time should be addressable in this way. Primarily however, a contract concluded under private law is to be given preference over proceedings because in the event of doubt, technical and processing aspects especially can be specified more closely in line with the requirements by the parties involved than by the Authority. Hence not every amendment wish negotiable between the parties involved must perforce lead to an imposed change in the reference offer. In the event however that a settlement cannot be reached, the invocation of the Regulatory Authority should be possible in all matters concerning the call termination.

From the Office for Communication's perspective, the obligation to publish a Reference Interconnection Offer (RIO) does not represent a disproportionate intervention into the operator's sphere because these contracts are – against the background of the interconnection and interoperability obligations – already available and a functioning practice for dealing with interconnection contracts and negotiations has been a given for years.

5.6.5 Conclusion

The non-discrimination obligation guarantees that TLI treats all competitors equally on downstream markets and does not place them in a worse position than its own retail arm. The obligation to publish a RIO guarantees that all necessary provisions required for the purchase of standard termination services by third parties are available in an appropriate form and thus the non-price related anti-competitive strategies such as delays and unjustified conditions and quality are prevented. At the same time such an obligation increases the transparency on the market and reduces the transaction costs so that the entry of new operators on downstream markets is facilitated. Hence the non-discrimination obligation for TLI is suitable, necessary and proportionate.

5.7 The obligation of transparency

The fundamental purpose of the transparency obligation (in accordance with Art. 35 VKND) is to improve the vertical market transparency (between providers and buyers) and thus to lower the transaction costs (e.g. search costs) and/or to intensify the competition (on prices). Only when the buyer of the (wholesale) service is sufficiently informed about alternative offers (prices) can the competitive forces be effective.[62] Economic theory shows that on markets with imperfect information (e.g. information asymmetries), inefficient market results cannot be ruled out. However the pro-competitive impact of strengthening the market transparency cannot be merely reduced to the price parameter. Especially whenever an access price regulation exists and undertakings have an incentive

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[62] The competitive impact of vertical market transparency is unequivocally positive in contrast to horizontal transparency.

to get around non-pricing action parameters, the transparency obligation can in conjunction with other obligations such as the non-discrimination obligation (in the form of a Reference Interconnection Offer) be an effective instrument in order to impede such non-pricing tactics.[63] Furthermore the transparency obligation can be utilised to support the Regulatory Authority when monitoring (possible) anti-competitive behaviour.

In order to assess the effectiveness of this instrument, the question must be posed whether the transparency obligation (alone) has an influence on the behaviour parameter of the market dominant undertaking, especially on the price, and if so which one. The reply to the first question is no. A necessary precondition for this would be that a buyer on the wholesale service level is able to purchase the service from more than one provider: Only then when at least one substitute exists can competition (on prices) – supported by an improved market transparency – develop. This is not the case with the call termination monopoly service so that a transparency obligation (on the wholesale service level) alone is not suitable in order to deal with the identified competition problems (and especially the problem of excessive prices).

Against this background, the transparency obligation is primarily to be seen as an auxiliary instrument for other obligations. Through the obligation to publish a RIO (in accordance with Art. 34 (3) VKND) the transparency requirements vis-à-vis other market players has been largely taken into account.[64] However the Office for Communication is dependent on this information in order to assess the compliance with other duties. Hence further information duties in accordance with Art. 35 VKND are to be imposed on TLI. The information on accounting and cost accounting is required in order to determine the rates, while information on the technical specifications, network characteristics and the provision and usage conditions form a necessary component of an interconnection agreement. The information on the rates including the discounts and special conditions supports the price control instruments and serves the assessment of the non-discrimination obligation. The Office for Communication determines more precisely which concrete information is required and the degree of detail in this that has to be submitted in the course of fulfilling the price control as well as the design of the RIO.

Conclusion: The transparency obligation alone is not suitable to eliminate the identified competition problems. However the instrument does serve as an auxiliary instrument in combination with other obligations such as for instance the non-discrimination obligation in order to design these instruments and/or their controls or implementation more effectively.

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[63] Cf. ERG Remedies (2006) in this regard as well.

[64] The RIO obligation can also be regarded as discharging the transparency obligation, whereby this obligation has a close connection with the non-discrimination obligation (cf. Art. 9 (2) Framework Directive).

5.8 Accounting separation

The instrument of accounting separation (Art. 36 VKND) serves to make transparent internal expenditures, costs and revenue among different areas of activity for the benefit of the Regulatory Authority in order to identify (for the Regulatory Authority) as the case may be cross-subsidisation and discrimination between the internal provision (internal transfer price) and external sales.[65] Accounting separation alone as well as in conjunction with the transparency obligation is not suitable to redress the competition problems as named. Analogously to the transparency obligation, here too the question whether the accounting separation obligation alone (and/or in conjunction with the transparency obligation) has an influence on the behaviour parameter of the market dominant undertaking, and especially on the price, has to be answered in the negative. Hence the accounting separation instrument is to be primarily regarded as a supplement to the other instruments such as the non-discrimination obligation (see below) or the price control (to collect data on costs).

However with the accounting separation obligation, precautions are taken in the way that it requires the assessment of the costs, the breaking down of the cost elements and the correct allocation to the cost centres to support the compliance with the price control obligation. At the same time the preconditions for the price control are established because the regulated undertaking is required to utilise certain formats as well as cost accounting methods so that an assessment of the cost is also possible quickly.

A global perspective of aggregated revenues and costs is still required in this connection in order to be able to make transparent possible shifts of profits or costs from regulated to unregulated areas (or vice versa). Otherwise an undertaking could have an incentive to allocate common costs for instance to those areas which are subject to regulation. As the price control only affects the products on the relevant market and as a rule this represents only a small part of an integrated operator's activities, accounting separation is necessary for the whole of the undertaking.[66]

For undertakings with a large number of products, the determination of cost orientation by means of a (short) procedure is only possible when there are regularly assessed separated accounts in the accounting separation framework. Only in this way can it be guaranteed that especially common costs and overhead costs on all products are allocated in accordance with where they arise.

In order to prevent the shifting of costs between the regulated markets and between the regulated and unregulated areas and thus guarantee the allocation of costs in accordance with where they arise, the accounting separation should at least occur and be organised in accordance with the relevant markets as per the Recommendation on Relevant Markets.

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[65] Cf. ERG Remedies (2006) in this regard as well.

[66] Cf. ERG Remedies (2006).

At a minimum, the following information is to be provided in conformity with the requirements of the Office for Communication:

- revenues,
- costs (which can be differentiated in accordance with personnel costs, costs for the depreciation of assets, the costs of capital and sundry costs),
- a detailed schedule of fixed assets for the undertaking, key figures on personnel, cost drivers such as especially traffic volumes and other information necessary to assess the cost accounting.

The details of the concrete form the information is to take are specified by the Regulatory Authority in the context of an assessment performed at regular intervals. In this regard it is to be assessed whether the cost information that is to be provided regularly to the Office for Communication has the necessary specificity and granularity.

Conclusion: Accounting separation combats the competition problems of margin squeeze and excessive prices (by avoiding incorrect cost allocations), however as a sole obligation it cannot redress this problem or reduce the impacts of the market power. It is to be imposed as a necessary instrument to support the cost oriented price control obligation because TLI is active on other markets and the incentive exists to shift costs from unregulated to regulated fields of business. In light of the identified competition problems, this obligation should be imposed on TLI.

5.9 Other obligations

The Regulatory Authority can also impose obligations other than those laid down in Arts. 34 to 42 VKND with regard to access (Art. 43 VKND). These are either obligations on the retail customer level or obligations not named in KomG for when extraordinary circumstances arise. In such a case the Regulatory Authority must make a corresponding request to the EFTA Surveillance Authority. The EFTA Surveillance Authority's decision then forms the basis for that of the Regulatory Authority.

In accordance with their causes, the identified competition problems unequivocally concern problems on the wholesale service level. The application of measures on the retail customer market would be neither economically sensible nor – in light of the new "wholesale service regulation before retail customer regulation" legal framework premise – proportionate.

In the current analysis, only those obligations named in KomG have been examined and no others, because according to the Office for Communication there was neither the occurrence of any extraordinary circumstances which would justify the application of such obligations nor are there any other instruments available which are suitable to eliminate the competition problems and which would be more appropriate.[67]

5.10 Proportionality of the measures

Art. 33 VKND specifies in an explicit form of the general administration law principle of proportionality that measures of special regulation are in conformity with the kind of problem that occurs and must be reasonable and justified while taking into consideration the regulatory principles in accordance with Art. 5 (2) KomG.

The suitability of the measure of special regulation to be set to redress the identified competition problem has already been discussed in detail in the earlier sections of this chapter.

Furthermore, in the earlier sections of this chapter the various measures of special regulation available were assessed as to whether they represent the mildest means of intervention still capable of remedying the competition problems determined.

Ultimately when judging the question of the proportionality of the measures in a stricter sense, their reasonableness and/or intervention intensity must be discussed. Especially the selection of historic full cost accounting to determine cost oriented prices for the termination service – instead of an intrusive and costly bottom-up LRAIC model – guarantees this. The other measures to be taken, i.e. the imposition of obligations to guarantee non-discrimination, the preparation of a reference offer and the transparency represent per se minor interventions into the private autonomy of an operator and are accompanied by low implementation costs on the part of the undertaking concerned.

5.11 Summary: Regulatory instruments to be imposed

Proceeding from the competition problems identified in the present market analysis, the available regulatory obligations (measures of special regulation) were examined in order to determine to what extent they are individually or in combination able to counter the identified competition problems. In judging and selecting the obligations, the Office for Communication took particular care to ensure that the regulatory instruments selected are not only suitable and necessary, but that they also represent the respective mildest means in accordance with the principle of proportionality.

When one compares the proposed regulatory instruments with the identified competition problems (see Table 5-2 for TLI), it becomes clears that at least one regulatory instrument is intended for each competition problem.

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[67] It should be mentioned here that from a theoretical perspective there are measures which have a certain potential to eliminate the underlying market failure and hence the monopoly position in connection with the call termination. An obligation for the undertaking worth mentioning here is to switchover the charging principle (calling party pays principle to a receiving party pays principle, such as bill and keep). In the opinion of the Office such an obligation would be impractical and significantly more intervention intensive than those suggested here and its overall impacts on the sector are highly doubtful and/or not even enforceable in an isolated national approach. Hence the aspect mentioned above is to be regarded as theoretical.

Actual/potential competition problem	Regulatory instruments
Denial of access	Access obligation
Excessive prices	Price control Accounting separation Transparency obligation
Price discrimination/margin squeeze	Price control Accounting separation
Non-price related aspects (delays, bundling, unjustified conditions)	Access obligation Non-discrimination obligation Transparency obligation

Table 5-2: Allocation of the regulatory instruments to the competition problems for TLI

Table 5-2 schematically shows the fundamental relationships between the competition problems and obligations for TLI; for a more detailed analysis please refer to the information provided above.

The competition problem of excessive prices is dealt with in the first place by the price control (in the form of cost orientation in accordance with the historic full costs supported by benchmarking). The accounting separation is an important auxiliary instrument in order to allocate the costs correctly to the fields of business and without which a quick assessment of the compliance with the cost orientation would not be possible. The transparency obligation guarantees that the required information is available.

The denial of access competition problem is countered by the obligation of access regarding which TLI termination services are to be made available via both a direct as well as an indirect interconnection.

The dangers of internal and external price discrimination and/or a margin squeeze are effectively countered by the price control obligation and supported additionally by the accounting separation obligation instrument.

The access obligation in conjunction with the non-discrimination obligation prevents competition problems which are not price related in nature, such as delays, bundling or unjustified conditions. The transparency obligation reduces the transaction costs.

Hence the Office for Communication regards it as necessary and reasonable in order to eliminate the competition problems determined on the operator-specific fixed network termination market of Telecom Liechtenstein AG to impose the following measures of special regulation on it:

- **Access to network facilities and network functions (Art. 37 VKND):** Grant access (direct or indirect interconnection) to the public telephone network at a fixed location for the termination of voice calls;
- **Price control and cost accounting for the access (Art. 38 VKND):** The obligation that the call termination rates are oriented to the costs of an efficient operator based on historic full cost accounting and supported by international benchmarking of the termination rates;
- **Obligation of transparency (Art. 35 VKND):** Duty to publish and update a Reference Interconnection Offer on the website of the operator;
- **Obligation of non-discrimination (Art. 34 VKND):** Internal and external non-discrimination duty in relation to the price and quality of the interconnection;
- **Accounting separation (Art. 36 VKND).**

The obligations proposed by the Office for Communication deal in an effective and proportionate manner with all of the identified competition problems on the operator-specific termination market of TLI. They are sufficient from today's perspective to prevent any abuse of market power by this termination network operator at a fixed location. No further regulatory instruments (in the sense of Art. 43 VKND) are required.