OFFICE FOR COMMUNICATIONS
PRINCIPALITY OF LIECHTENSTEIN

Analysis
of the mobile termination markets
in Liechtenstein

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Wholesale service markets for call termination
in individual mobile communications networks (M7)

Final version

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1 Introduction

1.1 Legal basis

By virtue of Art. 20 of the Law concerning Electronic Communication (KomG)[1] the Office for Communication (hereunder termed the "AK") 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 AK is to apply such measures of special regulation (under Art. 23 et seq. KomG) as are needed in order to remove or mitigate the competition problems that have been determined to exist. This procedure is termed market analysis.

The AK has defined the scope of the service and/or product markets that are to be investigated in the context of the market analysis 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.[2]

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

The following market analysis investigates in the first place the question of whether self-sustaining competition exists in an economic sense on the wholesale service market for "call termination in individual mobile communications networks" (mobile termination markets) or, as the case may be, whether self-sustaining competition would prevail in an economic sense without regulation. Such factors and competition problems as may stand in the way of such self-sustaining competition are identified. The presence of economic market power will be investigated in this connection; in particular the criteria of Art. 31(1) to (3) VKND are considered according to their relevance for the market in question. Proceeding from the determination of providers having significant market power and the identification of relevant problems for competition on the mobile termination markets, the necessary measures of special regulation will be assessed that are suited to redressing the problems for competition that have been determined.

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

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

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	Market analysis in its broad sense	Step	Description
		1	Collection and analysis of the necessary data on the market and from undertakings.
		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 1-1: Overview of the overall process of special regulation

The above overview presents the process of special regulation as a whole. Market analysis in its broad sense here[3] 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 consultation

To the extent that the AK 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 such parties the opportunity to make their position known within a reasonable period. The AK is for this purpose empowered in particular to hold public consultations (Art. 46 KomG).

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

The consultation procedure in accordance with Art. 24(1) and Art. 46(1) KomG for the purpose of the market analysis is a non-adversarial administrative procedure sui generis. It serves to assess the conditions for competition and the promotion of transparency by means of early and public discussion of the measures planned by the AK. A differentiation is to be drawn between the consultation procedure of the subject matter and the adversarial special regulation procedure subsequent to same in accordance with Art. 23(1) KomG, in the context of which the AK imposes individual concrete *"obligations by imposition (measures of special regulation)"* on an undertaking with significant market power.

For this purpose the AK published on 23 November 2007 under Art. 24(1) in conjunction with Art. 46(1) KomG and Art. 24(1) RKV[4] its first official analysis[5] of the operator-specific wholesale markets for "Call termination in individual public mobile communications networks". Interested parties were invited to submit comments on the analysis and in particular on the measures of special regulation proposed in it in the context of a public consultation. As it concerned the first such consultation exercise in the context of the officially initiated market analysis, the market players concerned were informed in writing on 23 November 2007 about the uniform location for electronic publications on the website of the AK in compliance with Art. 10 and Art. 24(3) RKV.

The following undertakings submitted comments by the end of the consultation period on 25 January 2008: Mobilkom (Liechtenstein) AG, Orange (Liechtenstein) AG, Swisscom (Schweiz) AG, Telecom Liechtenstein AG, United Mobile Liechtenstein AG and MTtel AG. The AK evaluated the comments submitted in the document "Evaluation of comments related to the national consultation" on 27 March 2008[6] and took these into consideration in a revised second draft of the market analysis in August 2008 to the extent that these were relevant in the opinion of the AK and/or entailed consequences.

The second draft[7] of the market analysis was sent out from 26 August to 12 September 2008 in a new national consultation exercise, over the course of which further comments from Mobilkom (Liechtenstein) AG, Orange (Liechtenstein) AG, Swisscom (Schweiz) AG and United Mobile AG were received. The AK processed the relevant comments in the document "Evaluation of the comments related to the 2nd consultation on the analysis of the mobile termination markets (M7)". The special question of the correct geographic definition of the mobile termination markets, which was criticised in detail by a consultation participant, was discussed separately by the AK in the document "On the geographical market definition of the mobile termination markets (M7)" dated 27 March 2009.[8]

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4 Ordinance of 3 April 2007 on the tasks and powers of the Regulatory Authority in the area of electronic communications (RKV), LGBL. 2007 No. 68.

5 http://www.llv.li/pdf-llv-ak-lie_mobilterminierungsmaerkte_m16_konsultation_2007-11.pdf

6 http://www.llv.li/pdf-llv-ak-auswertung_stellungnahmen_nationale_konsultation_notifikation.pdf

7 http://www.llv.li/pdf-llv-ak-lie_marktanalyse_mobilterminierungsmaerkte_m16_2_fassung.pdf

8 http://www.llv.li/pdf-llv-ak-geogr_marktabgrenzung_m7_ak_stellungnahme.pdf

United Mobile AG was invited separately by writing in January 2009 to comment by 6 February 2009, however it did not make any (additional) use of this further to its comment already previously submitted on 11 September 2008. The evaluation of the comments related to the second consultation do not refer to the specific contentions of United Mobile AG on the issue of the special regulation of its operations because it had discontinued its operations in the meantime and the Court of First Instance in Liechtenstein had commenced bankruptcy proceedings over the assets of United Mobile AG by decision dated 11 August 2009.

Due to the length of time which passed from when the comments were submitted in the context of the second consultation as well as the updating of the analysis respectively of the planned special measures which was required in the meantime, the AK prepared a third revised draft of the market analysis and conducted a new national consultation related to same from 28 September to 3 November 2010. Comments were received from Alpcom AG, Mobilkom (Liechtenstein) AG and Swisscom (Schweiz) AG within the deadline provided in same. For procedural reasons respectively for purposes of clarity, the AK evaluated the submitted comments in the separate document "Evaluation of comments related to the third consultation on the analysis of the mobile termination markets (M7)" dated 31 December 2010, which was also published on the website[9] of the AK.

All comments are, in so far as they are not subject to confidentiality, published on the AK's website.

The comments were taken into consideration when preparing the present final version of the market analysis in so far as they were in the AK's view of importance and/or entailed consequences. In accordance with Art. 47(1) KomG the *"participation in a public consultation [...] does not constitute any legal claims above and beyond it".*

1.4 EEA-wide consultation

If the AK intends to adopt measures of special regulation which are likely to have effects on trade between EEA States, the AK 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[10,11] (Art. 24(2)

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

10 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).

11 For the details of the notification procedure according to Art. 7 of the Framework Directive see also: EFTA Surveillance Authority Recommendation of 2 December 2009 on notifications, time limits and consultations provided for in Article 7 of the Act referred to at point 5cl of Annex XI to the Agreement on the European Economic Area (Directive 2002/2|/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services), as adapted by Protocol I thereto (Case No: 65615, Event No: 514868). Currently not available in German. Published in English at: http://www.eftasurv.int/media/internal-market/recommendation.pdf.)

KomG). 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 the applicable 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 AK can adopt the national 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 AK from bringing the planned measures into force.

With regard to the structure and design of the concrete measures of special regulation per se, i.e. 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 AK 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 AK are accessible via the electronic portal[12] of the EFTA Surveillance Authority. All public documents related to the national consultations are viewable on the AK's website.[13]

1.5 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 possesses a position of significant market power.[14]

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

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[12] https://eea.eftasurv.int/portal/

[13] http://www.ak.llv.li/

[14] Cf. Section 4.1.1 as well as the 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. Also called "SMP Guidelines" hereunder.

self-sustaining. Accordingly in the market analysis, the conditions for competition are to be assessed as if no ex ante regulations affecting this market exist (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.

1.6 Composition of the market analysis

The market analysis is composed as follows: The first three chapters provide an introduction to the subject matter under investigation. In Chapter 2 the most essential developments in the Liechtenstein mobile communications sector are presented. The aim is to examine the mobile communications sector itself and the importance of the termination markets under investigation here. Chapter 3 is dedicated to the markets under investigation. Commencing with the definition of the relevant markets from a material and geographical point of view, the products and services contained in them as well as the regulatory situation to date are presented. The analysis of competition itself is to be found in Chapters 4, 5 and 6. In Chapter 4, all aspects for the assessment of relevant market power indicators are examined. Chapter 5 focuses on market failure and (potential) competition problems on mobile termination markets. In Chapter 6 the overall evaluation is conducted as to whether competition prevails on the markets under investigation, self-sustaining competition exists without regulation or which competition problems and factors are in conflict with this as the case may be. Finally, Chapter 7 discusses the regulatory measures that are required for remedying the competition problems that have been determined and formulates the concrete measures of special regulation.

1.7 Time frame

Art. 21(2) KomG lays down that the conditions for competition in the defined markets are to be reviewed regularly by the AK. The time frame for the present market analysis amounts to two to three years. The AK will continue to keep the markets concerned under further observation during this period and, if necessary, initiate a fresh market analysis.

1.8 Sources of data

The essential data that have provided the basis for the following market analysis were collected by the AK by means of an annual questionnaire to operators over the years from 2004 to 2009. 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 necessary due to a rapid change in market conditions or by other special reasons.

To supplement the data gathered in the context of the annual questionnaires to operators, data obtained under the previous legal framework have been used as necessary. No further reference is 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 are only referred to specifically as necessary. Additionally, the AK keeps the markets in question, like other relevant markets, under constant observation. Hence the present analysis also relies on the AK's further current information and data.

1.9 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 respectively 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 and consultation of a competition authority in the sense of the second sentence of Art. 16(1) of the Framework Directive 2002/21/EC[15] is not possible in the case of the present market analysis in Liechtenstein.

1.10 Terms used

As the subject matter of this market analysis is not only call termination in networks of mobile communications network operators but also "mobile virtual network operators", a

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15 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).

clear differentiation is required between various types of operators and providers.[16] Accordingly, the following terminology is utilised in the present market analysis:

- A mobile radio network operator or a mobile network operator – MNO – is understood hereunder to mean a communications network operator which offers mobile communications services, operates its own radio access network as well as a core network and has been allocated rights of use of frequencies. A "mobile virtual network operator" does not come within this term.
- A mobile operator or mobile communications operator is understood hereunder to mean a communications network operator which offers mobile communications services and operates at least its own mobile communications core network which permits it to exercise complete control over the customer relationship. A mobile virtual network operator – MVNO – comes within this term.
- Mobile service providers, or service providers – SP –, are providers of mobile communications services in their own name and on their own account related to wholesale service products (access and airtime as a rule) of a host mobile network operator without however gaining complete control over the customer relation.
- An operator is understood hereunder to mean a communications network operator. This term is applied (undifferentiated) in the market analysis to all kinds of communications network operators. MVNOs come within this term just like fixed network operators.
- A mobile provider is understood to mean hereunder all mobile communications operators, MVNOs and mobile service providers[17].

1.11 The term mobile virtual network operator (MVNO)

Mobile virtual network operators – MVNOs – occur in a range of different forms. The one aspect they have in common is that they provide mobile services without having a frequency spectrum allocated to them or a communications radio access network at their disposal. Instead, MVNOs conclude access agreements with one or more hosting-MNOs which permit them to co-use their national communications radio access network, their international roaming partner networks and – depending on the agreement – further components of the core network or other systems as required.

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16 In accordance with Art. 3(1)(2) KomG the term "provider" is the generic term for the "service provider" and "operator" terms. A service provider is any party which offers an electronic communications service commercially to third parties; an operator is any party which provides networks and/or the accompanying facilities commercially to third parties or has a corresponding power at its disposal.

17 This also includes for instance mobile virtual network enablers (MVNEs), enhanced service providers (ESPs) and further kinds of mobile service providers.

In the opinion of the AK, the term MVNO is often used to sweepingly in practice.[18] Hence in the context of the present procedure, only those providers of mobile communications services will be regarded as genuine MVNOs which have sufficient own components of a mobile core network at their disposal so as to permit them to control their customers and/or their SIM cards and the voice call routing and which can structure their own products and their prices without restriction. This includes especially the option to structure the termination prices in their network. MVNOs are differentiated from the mobile service providers in that the latter do not enjoy complete control over the customer relations especially and – which is decisive for the present analysis – are not able to control the rates for the termination of voice calls in their networks respectively to their own subscribers. For this purpose control is required among others over the switching equipment in which the corresponding mobile call number areas are implemented.

Only those MVNOs which fulfil the above criteria are for the purpose of this procedure regarded as relevant providers of mobile termination services at least to the extent that – similarly to the mobile network operator – they possess a monopoly over the termination of calls to their customers and set the termination rates autonomously[19].

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[18] Cf. especially the extraordinary number of 12 licensed and/or registered MVNOs (as of 23.12.2010) in relation to the size of Liechtenstein and the structure of their actual operations and/or services offered.

[19] No further discussion will be provided here on the relationship of an MVNO termination price and the grid access rate charged by the hosting-MNO as an input factor.

2 The Liechtenstein mobile communications sector

2.1 Providers of mobile services

Up to 1998 the telecommunications in Liechtenstein were determined by the PTT Treaty of 1978 concluded between Liechtenstein and Switzerland. The Schweizerische Post-, Telefon- und Telegrafenbetriebe company (subsequently called "Swisscom AG") has already provided NMT mobile communications services (Natel C) on the basis of this state treaty since the end of the 1980s[20] and GSM mobile communications services from about 1993 in Liechtenstein.

The current GSM network from Swisscom (Schweiz) AG in Liechtenstein based on their Liechtenstein license (hereunder called "Swisscom FL") is not operated as an independent network. Rather it represents an extension of the Swiss network onto the territory of Liechtenstein utilising the Liechtenstein Mobile Country Code (MCC) 295 at the air interface on domestic base transceiver stations (BTS) as well as the usage of Liechtenstein mobile telephone numbers. Liechtenstein customers with Liechtenstein telephone numbers are allocated a subscriber identity module (SIM) with an IMSI[21] subscriber identification on the basis of the Liechtenstein MCC 295.

Due to the topography and the limited geographical area of Liechtenstein, a significant part of the territory of Liechtenstein is co-supplied by base transceiver stations from neighbouring Switzerland with Swiss preferential frequencies. This has – together with the fact that prior to 1998 Swisscom AG provided mobile communications services in Liechtenstein under the PTT Treaty – led to a situation whereby the majority of the domestic mobile communications users are currently customers of Swiss providers, accounting for approximately 65% of all Liechtenstein mobile communications subscriptions.[22] The high amount of the subscribers at Swiss providers with Swiss telephone numbers is also explained by the fact that up to April 1999, the date when Liechtenstein's own independent country code and national numbering plan was introduced, Liechtenstein was part of the Swiss numbering space. When the Liechtenstein country code was introduced, the existing customers could choose to retain their current Swiss number and remain a "Swiss" customer of Swisscom AG on the basis of their Swiss mobile communications license (hereunder called "Swisscom CH"). A majority of the customers availed of this instead of becoming customers of Swisscom FL and being allocated a new Liechtenstein mobile telephone number.

Including Swisscom FL, there are currently a total of four mobile network operators (MNOs) in Liechtenstein – possessing corresponding rights of use of frequencies – operat-

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20 Already since the end of the 1970s the Schweizerische Post-, Telefon- und Telegrafenbetriebe company has operated analogue mobile communications networks (Natel A and B) in (neighbouring) Switzerland.

21 International Mobile Subscriber Identity.

22 Cf. the details provided in this regard in Section 2.2.

ing on the market: Swisscom FL, Mobilkom (Liechtenstein) AG (hereunder called "Mobilkom FL"), Orange Liechtenstein AG (hereunder called "Orange FL") and Alpcom AG (hereunder called "Alpcom"). Following the liberalisation of the Liechtenstein telecommunications sector and the public tendering for the corresponding GSM frequencies in 2000, three of the four active MNOs commenced new operations in Liechtenstein. Swisscom AG was already operating in Liechtenstein due to the pre-existing PTT Treaty, however following its termination it was issued a new license and operates independently in Liechtenstein as "Telecom FL AG"[23], a Liechtenstein subsidiary of Swisscom AG.

Since 2007 Mobilkom FL and Orange FL (via Telecom Liechtenstein AG which acts as a service provider on its network) have also provided UMTS services commercially. Alpcom AG (formerly Tele2) owns the frequency resources to offer UMTS, however it does not use them at present. Swisscom FL first applied for and received UMTS frequency resources in 2010. The commercial UMTS network operations commenced at the end of December 2010.

In addition to the four MNOs, under the previous regulatory framework prior to the coming into force of the KomG in June 2006 there were five[24] virtual mobile network operators (MVNOs) issued with licenses and, as per the current situation, seven further undertakings have notified the AK about the commencement of MVNO operations. Of this total of 12 licensed and/or registered undertakings, none of them however fulfil the MVNO criteria laid down in Section 1.11. Hence for the purpose of the present market analysis, none of these undertakings is currently qualified as an MVNO that constitutes its own termination market.

The following listing provides an overview of the currently licensed and/or registered mobile providers as well as their classification for the purpose of the present market analysis.

Provider	**License issued / registered as**	**Mobile telephone number resources allocated (nat./int./none)[25]**	**Classification:[26] Provider operating as (MNO, MVNO, SP)**	**Own termination market**
Mobilkom (Liechtenstein) AG	2000 (GSM)	Nat./Int.	MNO	Yes

[23] Telecom FL AG was issued a mobile communications license in Liechtenstein on 22.02.2000 under RA 2000/0552. Subsequently this license was transferred in the context of the sale of Telecom FL AG to Swisscom (Schweiz) AG on 08.11.2005 and newly set under RA 2005/2637-3817. Telecom FL AG itself was removed from the company register on 27.02.2008 after the current Telecom Liechtenstein AG had already assumed their universal succession.

[24] United Mobile AG also possessed a MVNO license under the old legislation framework until its bankruptcy in 2009.

[25] If a provider does not have mobile telephone number resources allocated to it, it can also not occupy its own mobile termination market.

[26] In accordance with the terminology in Section 1.10 and the MVNO definition in Section 1.11.

	2006 (UMTS)			
Alpcom AG (formerly Tele2 AG)[27]	2000 (GSM) 2002 (UMTS)	Nat.	MNO	Yes
Swisscom (Schweiz) AG[28]	2000 (GSM) 2010 (UMTS)	Nat.	MNO	Yes
Orange (Liechtenstein) AG	2000 (GSM) 2001 (UMTS)	Nat.	MNO	Yes
First Mobile AG	2004 (MVNO license)	Nat./Int.	Operating as SP, not MVNO	Yes
Telecom Liechtenstein AG[29]	2005 (MVNO license)	Nat.	Operating as SP, not MVNO	No
United Mobile AG	2005 (MVNO license)	None	(Bankrupt)	No
Coast Media GmbH	2005 (MVNO license)	None	Operating as SP, not MVNO	No
EMC (European Mobile Communication) AG	2005 (MVNO license)	None	(Bankrupt)	No
TelCo AG	2006 (MVNO license)	None	All telephone numbers returned. Currently not operating	No
MTtel AG	2006 (Registered MVNO)	None	Operating as SP, not MVNO	No
AMBAVOX International Response Service Est.	2006 (Registered MVNO)	Int.	(In liquidation)	No
IP Communications GmbH	2006 (Registered MVNO)	None	Operating as SP, not MVNO	No

27 The former Tele2 AG was, following several ownership and/or name changes, most recently renamed Alpcom AG on 3.8.2010.

28 Swisscom (Schweiz) AG assumed in 2005 (in the context of its sale) the mobile communications license originally issued to its Liechtenstein subsidiary Telecom FL AG in 2000.

29 Legal successor to the former Telecom FL AG, except in the mobile communications license area (cf. footnote 28).

White Label Mobile AG[30]	2008 (Registered MVNO)	Int.	Currently not yet operating as MVNO	No
Mach Connectivity GmbH	2006 (Registered MVNO)	None	Operating as SP, not MVNO	No
A.T.C. Avant Telecom Consulting AG	2008 (Registered MVNO)	None	Currently not operating	No
EUinternetworking B.V.	2009 (Registered MVNO)	Int.	Currently not operating	No
CUBIC AG	2009 (Registered MVNO)	Int.	Operating as SP, not MVNO	No
Top Connect OÜ /CSC Telecom	2009 (Registered MVNO)	Int.	Currently not operating	No
Datamobile AG	2010 (Registered MVNO)	Int.	Operating as SP, not MVNO	No

Table 1: Licensed/registered providers of mobile communications services in Liechtenstein as of 23.12.2010

While the following providers have allocated national and/or international mobile telephone numbers at their disposal, in accordance with the level of information[31] available to the AK they currently (still) do not provide "mobile communications services" in the meaning of Art. 3(1) No. 56 KomG, i.e. *"communications services between mobile and fixed radio stations"*: First Mobile AG, White Label Mobile AG, EUinternetworking B.V., CUBIC AG, Top Connect OÜ/CSC Telecom and Datamobile AG. Consequently these undertakings do not currently constitute their own mobile termination markets relevant for the present market analysis. To the extent that they are currently operating commercially in this area at all, they are to be classified as mobile service providers.

Despite being registered as an MVNO respectively a mobile service provider, the following do not have any allocated telephone numbering resources for national or international mobile communications services at their disposal and consequently cannot (currently) constitute their own mobile termination market relevant for the present market analysis: Coast Media GmbH, TelCo AG, MTtel AG, IP Communications GmbH, Mach Connectivity GmbH and A.T.C. Avant Telecom Consulting AG.

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30 Formerly REDtone TravelFON AG.

31 None of these providers reported any operations in this area in the context of collecting data on the mobile communications area for 2004 to 2009 or provide mobile communications services in a form other than in accordance with the information available to the AK.

The MVNO mobile communications provider United Mobile AG licensed in 2005 completely ceased operations in mid 2009 and has been bankrupt since 11.08.2009. Hence this provider and/or its details in previous procedures no longer have to be taken into consideration in the context of the present market analysis. Likewise the bankrupt EMC (European Mobile Communication) AG as well as AMBAVOX International Response Service Est., which is in liquidation, no longer have to be taken into consideration.

Telecom Liechtenstein AG, which emerged from the merger between the former LTN Liechtenstein Telenet AG and Telecom FL AG on 1 January 2008, has provided mobile services in its own name based on an agreement with Orange FL. As per the AK's level of knowledge, at present however Telecom Liechtenstein AG does not have sufficient infrastructure in the mobile communications core network at its disposal which would permit it to implement its mobile telephone numbering ranges by itself and to control the SIM cards and/or the routing of its customers' voice calls and thus conclude independent interconnection agreements.[32] Consequently in the opinion of the AK, Telecom Liechtenstein AG is to be currently classified as an independent provider of mobile services (service provider) and not as an MVNO. Hence Telecom Liechtenstein AG does not constitute its own market for mobile termination and for this reason is currently not to be included anymore in the further analysis of the mobile termination markets.

The numbering resources for mobile communications services allocated to Telecom Liechtenstein AG are implemented in Orange FL’s systems, which also provides the interconnection for the termination of calls to these numbers. Hence this termination service and the corresponding traffic is to be included in the termination market of Orange FL and is subject to the same regulatory consequences because Orange FL possesses a de facto termination monopoly for calls to these numbers, concludes interconnection agreements and sets the termination rates vis-à-vis other network operators.

Consequently the providers named above either do not provide any services to be regarded as mobile communications, do not have any mobile communications telephone numbering ranges of their own at their disposal or an MVNO contract with a hosting-mobile network operator or do not have sufficient core network infrastructure at their disposal which would permit them to implement their own mobile telephone numbering ranges by themselves and to control the SIM cards and the routing of their customers' voice calls. Because of this they are not in a position to conclude independent interconnection agreements for the purpose of call termination to their telephone numbering ranges. As a result these providers do not provide any mobile termination services and are

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[32] Telecom Liechtenstein AG has allocated numbering resources in the mobile telephone numbering range at its disposal and thus could provide a tariff structure for these numbers different to that of Orange FL if required. However because it does not have its own interconnection agreements this has to occur – due to the lack of the core network components required for same – in the context of the interconnection agreements of the host-network, Orange FL. In this case, however, the rate setting would have to be attributed to Orange FL which for its part is subject to rates regulation in the mobile termination market in accordance with the present market analysis.

excluded from the following analysis of the Liechtenstein mobile termination markets as potential subjects of regulation.

In the event that one of the above providers, which have been excluded from the present market analysis, or a provider which has not operated on the market to date commences operations in future as a mobile communications provider that constitutes its own termination market (especially in the form of a MVNO), this will be acknowledged by the AK in the context of a separate and/or additional market analysis procedure with all the related regulatory consequences.

2.2 Market development

2.2.1 Subscriber connections and penetration rate

At the beginning of 2010 there were 35,632 activated mobile subscriber connections[33] (SIM cards) in Liechtenstein. This corresponds to a penetration rate of over 99%.

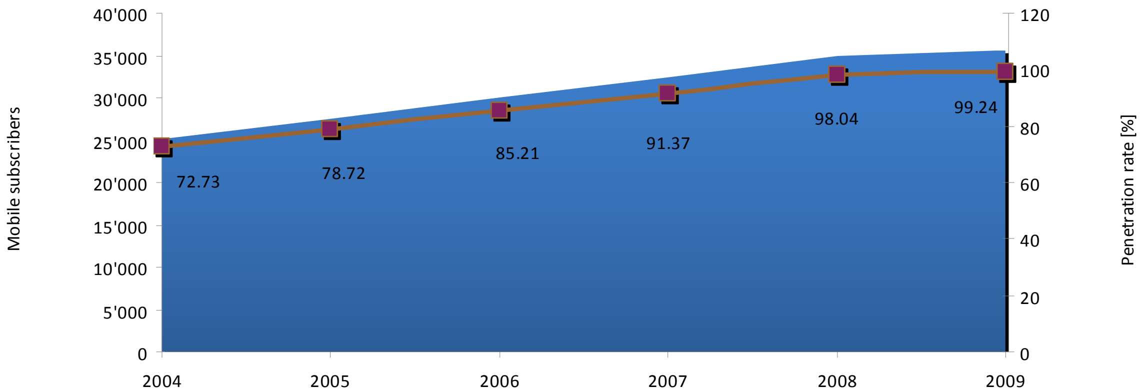

Figure 2-1: Subscriber connections and penetration rate (all Liechtenstein customers with Liechtenstein and Swiss operators)

This relatively low[34] penetration in an international comparison is explained on the one hand by the fact that not all Liechtenstein customers of the neighbouring Swiss and Aus-

---

[33] This number of subscribers only takes into account the direct customers of Swisscom CH, Orange CH and Sunrise with its registered office in Liechtenstein but with Swiss number resources, but not the Liechtenstein customers at the other Swiss mobile communications providers or Liechtenstein customers at Austrian mobile communications providers. "Swisscom CH" is understood to mean the operations of Swisscom (Schweiz) AG under the mobile communications licenses issued to it in Switzerland. By contrast the term "Swisscom FL" is understood in this market analysis to mean the operations of the same (Swiss) undertaking based on its Liechtenstein mobile communications license.

[34] By way of comparison: In accordance with the Staff Working Document on the 15th Report of the European Commission on the state of the single European electronic communications market SEC(2010) 630, part 1, page 10, an average penetration of mobile communications services of 121.9% prevailed in the EU in October 2009. In accordance with the Staff Working Document on the

trian mobile providers are included in the statistics.[35] Furthermore in a European comparison Liechtenstein has a very low share of prepaid customers.[36] In a European comparison it can be said that in exactly those countries in which the prepaid cards are highly prevalent, as a rule they also enjoy very high penetration rates.[37]

If one only takes into consideration the mobile connections of Liechtenstein customers at Liechtenstein providers utilising Liechtenstein numbering resources, a significantly lower penetration rate of almost 35% results with a total of 12,521 connections.

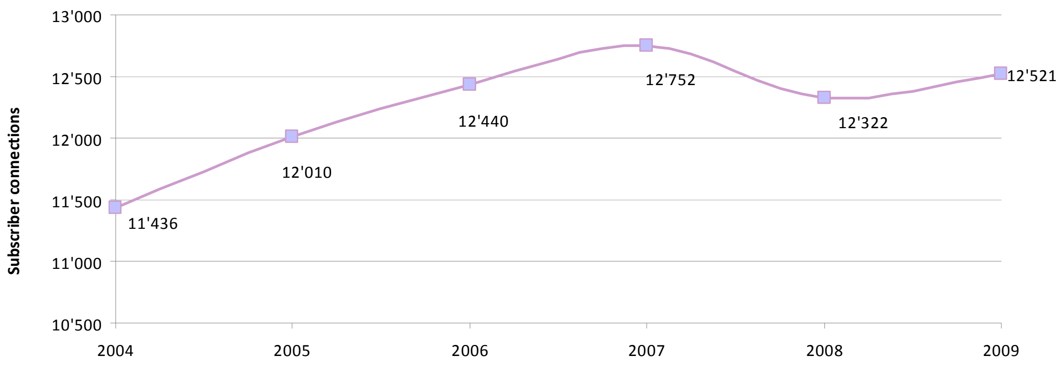

Figure 2-2: Development of the mobile subscribers with Liechtenstein providers

The decline in the number of subscribers in 2008 can be traced back to the powerful collapse in the number of subscribers at the provider Tele2 (now Alpcom) which was mainly compensated for by switching to Swiss mobile communications providers.

It is obvious that the above calculation of the subscriber numbers, which solely takes into account the mobile communications subscribers of the four Liechtenstein mobile communications operators, does not reflect the reality in Liechtenstein as provided in the details in the previous section on the development of the Liechtenstein market and on the cross-border supply from the neighbouring countries, i.e. Switzerland. For this reason the AK is of the opinion that the approach taken in Figure 2-1 including the Liechtenstein customers at Swiss providers represents the correct one in order to convey a picture of the subscrib-

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15th Report, SEC(2010) 630, part 2, page 12, the front runners are Lithuania at 147% and Italy and Portugal each at 146%. France is last with a penetration rate of 90%. The market penetration rate in Switzerland at the end of 2008 was 115.5% (Eidgenössische Kommunikationskommission, Fernmeldestatistik 2008, page 49).

35 Data on the Swiss mobile communications operators Swisscom CH, Orange SA and TDC Switzerland AG (Sunrise) are only available to a limited extent, with none available whatsoever for Tele2, In&Phone and the various service providers.

36 The share of prepaid customers with Liechtenstein providers amounts to less than 4%. Only Alpcom currently offers prepaid products. Due to the non-availability of corresponding figures for foreign mobile communications providers, the share of their prepaid customers in Liechtenstein cannot be determined. By comparison, the EU average as of October 2009 was 55.3% (Staff Working Document on the 15th Report, part 2, page 16). The share of the customers without subscriptions in Switzerland amounted on 31.12.2008 to 43% (Eidgenössische Kommunikationskommission, Fernmeldestatistik 2008, pages 46 and 49).

37 Cf. Staff Working Document on the 15th Report, part 2, page 12.

ers numbers and market penetration rate that is closer to reality, even if this is accompanied by a certain remaining degree of unclarity. Unfortunately due to the restriction on the supervisory competencies of the AK to Liechtenstein, it is not possible to collect the corresponding data from the mobile communications providers in the neighbouring countries (more) reliably. Hence the above market share calculation will subsequently be used in each case.

2.2.2 Market shares

The relationship between Liechtenstein mobile subscribers at domestic and at Swiss mobile provider is as follows:

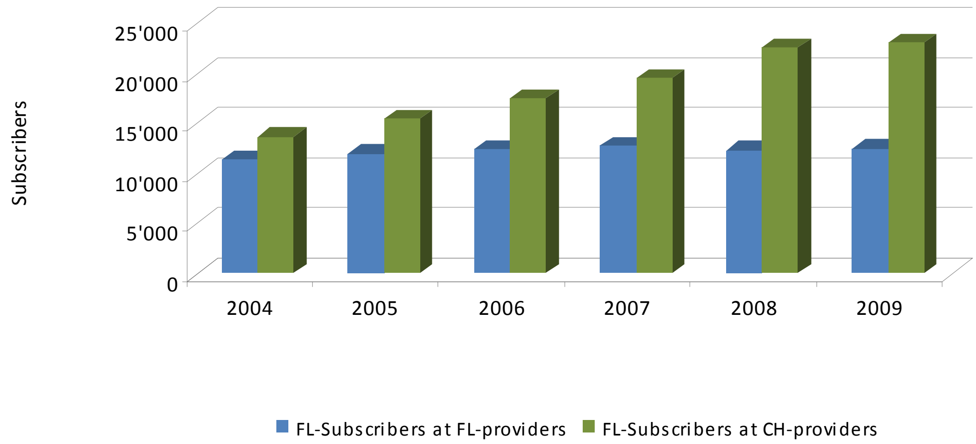

Figure 2-3: Liechtenstein mobile subscribers at domestic and Swiss mobile providers

The number of Liechtenstein customers at Swiss providers amounts to 65%, or almost double the number of those customers (35%) at Liechtenstein providers. This trend has continued unbroken and even accelerated over the last few years: While the number of Liechtenstein customers at domestic operators only grew by almost 2% on average each year from 2004 to 2009, the number increased at Swiss providers by 11% annually over the same time period. Hence the aggregated growth of Liechtenstein customers at domestic providers was moderate overall at 9.5% in the time period mentioned, while the number of Liechtenstein customers at Swiss providers has demonstrated powerful growth at above 68%. Thus the relative growth in customers at Swiss providers was many times larger.

It is clear from this that the Liechtenstein mobile providers are in direct competition[38] with the Swiss mobile providers for Liechtenstein retail customers on the retail customer market for access and call set-up (Market No. 15 of the old Recommendation).

The distribution of the market shares on the retail customer market measured in subscribers was as follows at the beginning of 2010:

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38 Cf. the description of the competition situation in Section 2.1 in this respect as well.

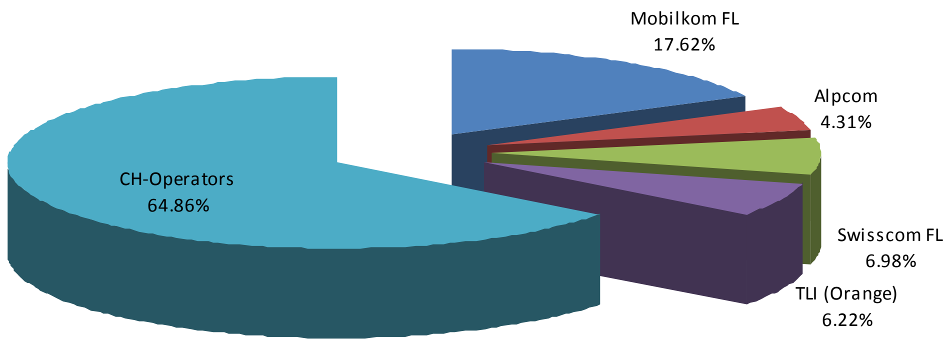

Figure 2-4: Market shares of mobile providers on the Liechtenstein retail customer market as of 1.1.2010[39]

On the one hand as presented in Figure 2-1, the number of the Liechtenstein customers at the Swiss providers has grown far more powerfully over the last few years than at the domestic providers, while on the other hand a significant shift in the market share has also occurred in the same time period between the domestic providers and the Swiss providers. In this respect Alpcom and Swisscom FL especially have suffered powerful declines in subscribers, while Mobilkom FL and Telecom Liechtenstein have been able to record growth in their market shares. Alpcom, Telecom Liechtenstein and Swisscom FL currently have comparable market shares of 4.3% to 7%, while Mobilkom FL enjoys a market share of 17.6%. Orange FL currently has no retail customer products of its own in Liechtenstein; however the full service provider Telecom Liechtenstein AG, which is independent from it, does offer services under its own name on its network.

The development in the market shares of the mobile communications providers over the course of time is as follows:

[39] The customer numbers of the Swiss operators are – due to the confidentiality undertaking availed of by these in the context of the voluntary provision of these data to the AK – only reflected in an aggregated form.

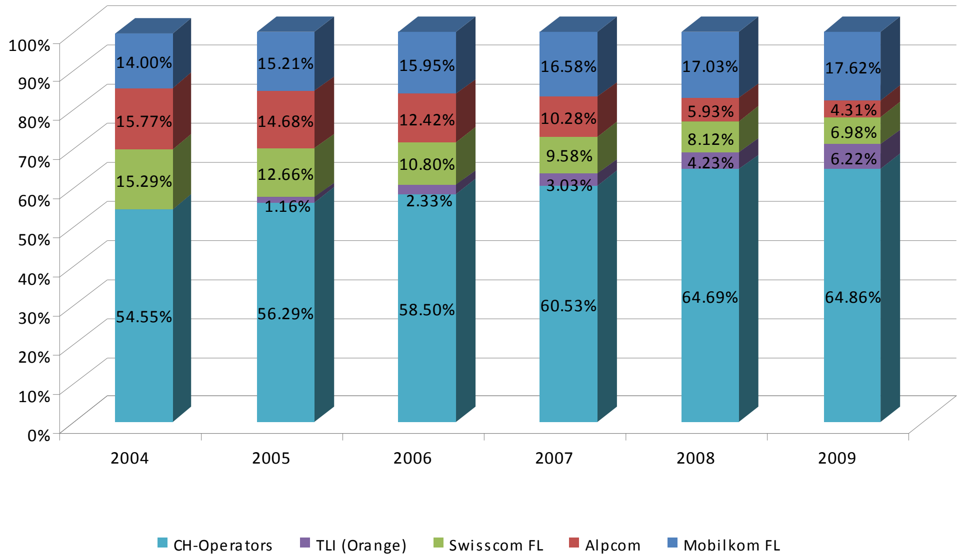

Figure 2-5: Representation of the development of the market shares of the mobile providers from 2004 to 2009

2.2.3 Development in sales

The development in the sales earned domestically by the domestic mobile communications providers is as follows:

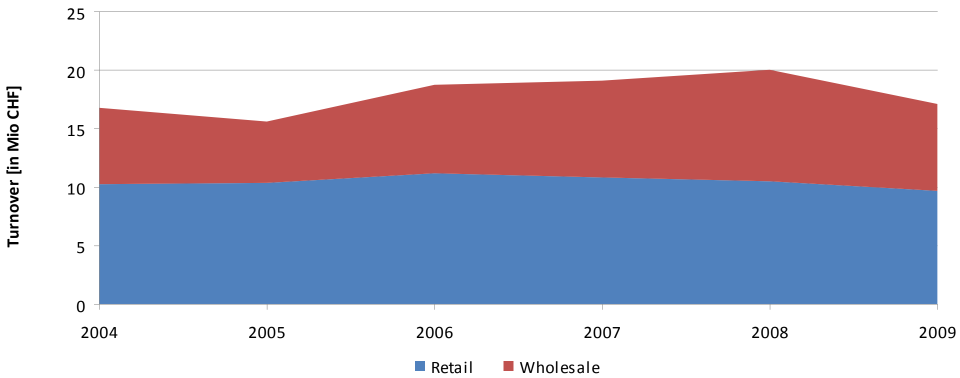

Figure 2-6: Development in sales, mobile communications[40, 41]

[40] The sales figures reflect – to the extent that they are separable – the sales of the Liechtenstein operators generated domestically.

[41] For reasons of comparability and consistency, the income and the traffic numbers are reported without those from United Mobile AG as it has ceased operations once more in the meantime.

In 2009, CHF 9.7 million (56.8%) of the total sales of CHF 17 million in the mobile communications market were earned on the retail customer market. CHF 7.3 million (43.4%) of the sales were earned on the wholesale market. On examining the sales more closely, it can be seen that 13.3% of the total sales comes from the gross sales[42] from the termination of externally generated traffic in the mobile networks. Relative to the sales on the wholesale market, this share amounts to 30.9%.

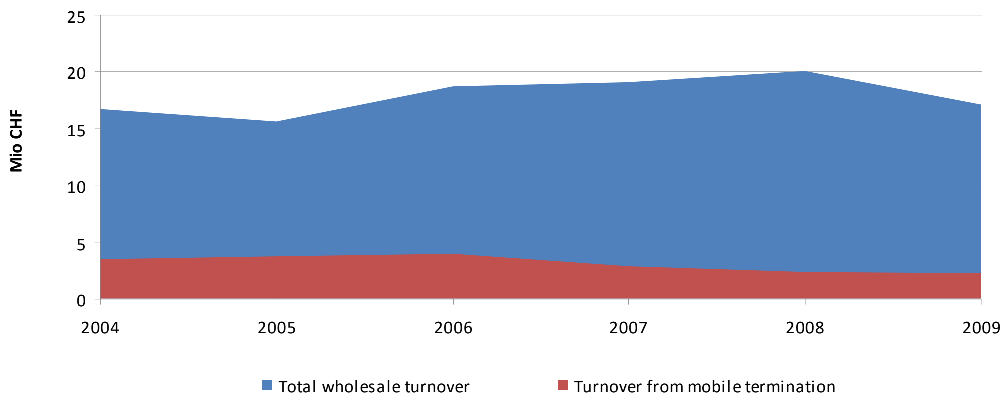

Figure 2-7: Share of the gross mobile termination sales in the total sales

42 Calculated from the total of the externally originated mobile termination traffic in the network of each domestic mobile communications operator multiplied by the respective applicable mobile termination rate.

The following figure shows the development of the aggregated mobile termination traffic of all mobile operators. The terminated traffic from 2004 to 2009 decreased overall by 11% to 9,978,260 minutes. 26.2% of the terminated traffic came from on-net traffic[43], 22.6% from the national fixed network and 31% from abroad (including Switzerland and in particular the Swiss mobile communications networks).

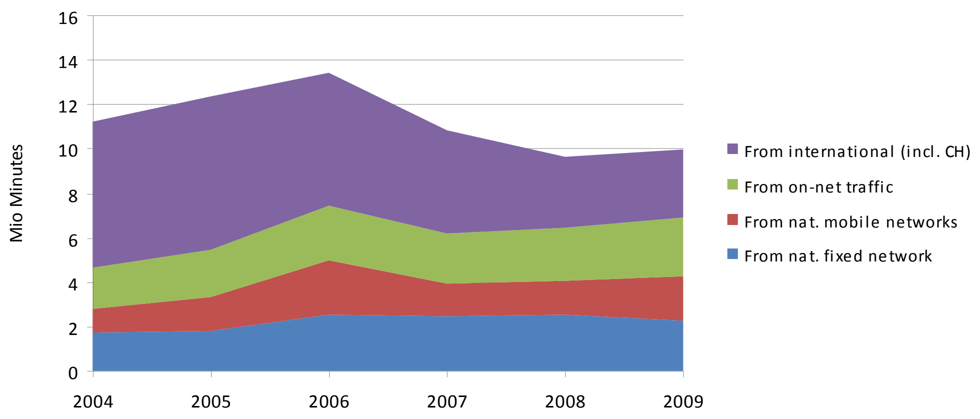

Figure 2-8: Development and composition of the mobile termination traffic from 2004 to 2009

Thus while the complete terminated mobile traffic of the Liechtenstein operators has declined despite the slight increase in the number of subscribers, the share of the on-net traffic increased by approximately a quarter (from 16.6% in 2004). The traffic between the national mobile communications networks of the various providers has doubled since 2004[44] while the traffic from the national fixed network also increased, whereby in this respect however a decrease was noted yet again in the last two years under report. The share of the traffic transferred from abroad for termination has dropped continuously from 58.3% in 2004 to 31% most recently in 2009.

[43] On-net traffic is that in which both the caller (A-subscriber) as well as the party called (B-subscriber) are customers of the same mobile operator and both of which are in their home network at the point in time of the call.

[44] Due to the lack of direct interconnection agreements between the mobile communications operators and the practice of also conducting interconnection traffic via foreign transit network operators, the traffic between the national mobile networks may be reported at a lower level than corresponds to reality.

3 The market under investigation

3.1 Preliminary remarks on the market definition

In accordance with the Guidelines (hereunder also called the "SMP Guidelines") of the EFTA Surveillance Authority on market definition and the assessment of significant market power[45], 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. Those 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.[46]

The EFTA Surveillance Authority in its Recommendation on Relevant Markets[47] has identified in accordance with Art. 15 of the Framework Directive 2002/21/EC[48] 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. Hence the AK 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.[49]

The AK has defined the service respectively product markets that are to be investigated in accordance with Art. 21(1) KomG in the context of the market analysis. This was done taking into consideration the 2008 Recommendation on Relevant Markets by the EFTA Surveillance Authority.[50]

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45 Guidelines of the EFTA Surveillance Authority of 14 July 2004 on market analysis and the assessment of significant market power under the common 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.

46 The SSNIP test examines whether the consumer as a reaction to a 5 to 10% increase in the price of a good by a hypothetical monopolist (HM) increasingly demands a substitute product instead so that the price increase is no longer profitable for the HM due to the induced reduction in the volume caused by the elasticity of the demand.

47 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.

48 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).

49 Cf. comments of the EFTA Surveillance Authority of 6 September 2005 on the submission of the first Norwegian decision on mobile termination markets, Section 3.2.

50 The announcement of the market definition by the Government is no longer required in accordance with the current version of Art. 21(1) KomG in force. The last *announcement of 3 February 2009 on the determination of relevant material and geographical communications markets (market definition), LGBl. 2009 No. 69,* was repealed *by announcement on 31 August 2010 concerning the repealing of the announcement on the determination of relevant material and geographical communications markets, LGBl. 2010 No. 255*. The concrete market definition now results from the AK in the context of the respective market analysis itself.

3.2 Definition of the relevant product market

Consumers use mobile telephones for various purposes, and especially for voice calls and the sending of short message service texts (SMS). Rather than using different providers for these purposes, for reasons of convenience and in order to minimise the transaction costs, they prefer to use just one telephone[51] and one SIM card to do so. For this reason customers buy bundled services from the same mobile communications provider which permit them to process respectively use voice calls, SMS texts, international roaming (both active and passive) and data services.[52]

In accordance with the EFTA Surveillance Authority's Recommendation on Relevant Markets, the AK has defined the materially relevant market for the present procedure in accordance with Art. 21(1) KomG as the wholesale service market for "call termination in individual mobile communications networks" (hereunder also called "mobile termination").

The market covers the termination of voice calls in an individual mobile network. The termination of SMS texts is not part of the market.[53]

Mobile termination represents a wholesale service consisting of calls being terminated via an interconnection-capable gateway-MSC to a selected mobile telephone subscriber connection.[54]

The demand for termination on the part of a communications network operator on the wholesale level is based on the demand of the subscribers on the retail level: Every subscriber of a communications network operator requires call termination as a wholesale service in order to execute a call to another subscriber – regardless of whether this party is connected to the same or to a different communications network operator.

Mobile telephone network operators provide within each internal network connection a termination service to themselves (self supply) even in the case where the terminating traffic is not routed to the network termination point via a gateway-MSC 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 their own communications service provider or to a third party.

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[51] Mobile telephones (terminal devices) which permit the parallel usage of more than one SIM card are only found very rarely and are not offered on the mass market.

[52] For the sake of clarity, it should be pointed out here that there is no "termination of data calls" in the network of a mobile communications provider.

[53] While both services are as a rule offered respectively demanded on the retail customer market as a bundle, they do not represent sufficient substitutes: SMS text messages may serve as a partial substitute for very short calls especially, but they are not capable of replacing the immediacy and possibilities of a normal voice call.

[54] Cf. also in this regard the further clarifications of the term mobile termination in Section 3.3.

As this wholesale service cannot be provided by another provider other that the one to whose network the subscriber being called is connected and the termination rate is already not sufficiently taken into account in the selection of the network due to the calling party pays principle (CPP), these concern operator-specific call termination markets.[55] In other words, the respective network operator has – in accordance with the current level of technology – a call termination monopoly in its network. Furthermore, all operators are obliged[56] to guarantee end-to-end connectivity and interconnection.

Viewed correctly, a call to a certain subscriber identified by a call number can generally not be substituted by a call to another subscriber, for which reason strictly speaking the termination of a call to each individual subscriber represents an own market. However because on the one hand an operator does not and/or cannot differentiate between individual subscribers in the context of interconnecting and on the other hand a market analysis would be impossible to conduct on this basis, for practical reasons[57] – and because the assertion made applies to all subscribers equally (due to the homogeneity of the competitive conditions) – they are combined into a conclusive aggregate, i.e. a single termination market per licensed mobile communications operator.[58] This aggregate is defined by a uniform permit (license) to provide the services to these subscribers as well as the unity of the utilised telephone numbering area (cf. homogeneity criteria) under which the termination of calls to these subscribers occurs and the termination service of other requesting operators is offered on the whole service market.

As a result the termination of mobile calls in GSM and UMTS networks are treated in the same way. From the viewpoint of the caller and the called subscriber respetively their network operator, there is no difference in the processing of a voice call via the one or the other technology or network. The above substitution investigations as well as the details on the termination monopoly are equally applicable to both networks and technologies. In the wholesale service markets derived from this, the termination service for the terminating of calls on GSM and UMTS networks is supplied and demanded without any differentiation at the same conditions.

Hence the relevant material market for the present market analysis coincides with Market No 7 of the EFTA Surveillance Authority's Recommendation on Relevant Markets and the Recommendation on Relevant Markets of the European Commission.[59] From the AK's per-

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55 Cf. Explanatory Memorandum (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 42 et al.

56 Cf. especially Art. 44 (1) and Art. 46 (1) (a) VKND.

57 A market analysis in which each mobile subscriber constitutes a separate market would be completely impractical and not feasible in terms of its application; hence an aggregation based on homogeneity criteria is indispensable.

58 Cf. in this regard Explanatory Memorandum *(*Commission Staff Working Document*)* to Commission Recommendation C(2003)497), 11.2.2003, page 32.

59 The European Commission describes the underlying material product markets in its explanatory details on the Recommendation of Relevant Markets, Explanatory Memorandum (Commission Staff Working Document SEC2007/1483), pages 41 to 44.

spective, there are no indications that the relevant market does not fulfil the criteria for possible ex ante regulation in Liechtenstein or will have to be defined differently in terms of its material dimension due to national circumstances.

3.3 Definition of the "mobile termination" service

Call termination in mobile communications networks is an interconnection service and serves to secure the mutual connectivity by subscribers in their own network and beyond network boundaries. When a subscriber calls a subscriber of another communications network operator, this call (an off-net call) is transferred either directly (direct 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 terminated from there to the called subscriber (cf. following figure). For this service the mobile communications network operator charges – to the extent that it concerns a source network charged voice call – a rate, the so-called termination rate.

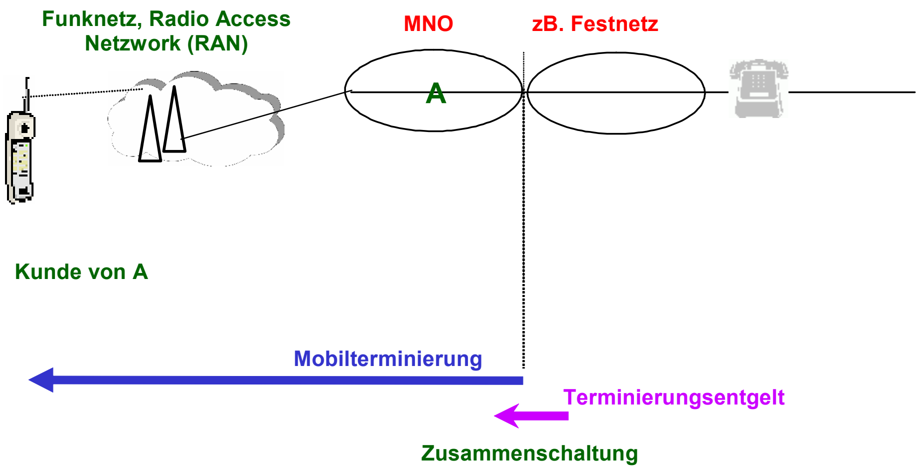

Figure 3-1: Standard case of the interconnection and mobile termination

The above figure illustrates the standard case of the call termination in which the called subscriber is located in the home network of his operator and the call is actually terminated via its own radio access network. Apart from this however, the call can also be terminated in a voice messaging centre or in a (foreign) network of a different operator to the called subscriber into which said party happens to be roaming.[60] Hence in the above cases the call termination can end in the gateway-MSC of the home network operator in question for the purpose of the present analysis of the mobile termination market. The transfer of the call for termination occurs there in line with the calling party pays principle (CPP) and the termination rate is levied. The termination monopoly of the termination

60 Alternatively the call can also be terminated via the internet to an IP terminal device (cf. for instance the "FL1 over IP" product from Mobilkom FL).

network operator exists at this point. A potential roaming service between the home network operator and the called subscriber is charged as a separate service (passive roaming) and is not borne by the calling subscriber in accordance with the CPP principle and thus is not to be included in the market in question.

Thus from the viewpoint of the calling subscriber respectively their operator demanding the termination service on the wholesale market it is irrelevant where or how the call is actually terminated to the called subscriber: The handover for termination of a mobile call occurs at the interconnection point and in fact the transferring operator has no influence whatsoever on whether the call ends in the own radio access network of the operator accepting the call or at another one of the points mentioned as an alternative above. Hence for the market definition, ultimately it cannot be constitutive whether the termination of a call to a subscriber identified by a certain (Liechtenstein) mobile telephone number actually ends in the own radio access network of the mobile operator forming the relevant market.

The relevant services on the termination market cover both the transferred traffic originating on an external network (off-net) from other operators for termination at the termination mobile network operator via an interconnection-capable gateway-MSC, the own services provided (self-supply) in the context of terminating internal network calls (on-net) as well as the traffic assumed for third parties such as service providers and resellers especially for termination at the gateway-MSC of the host-network.

MVNOs in the meaning of the definition in Section 1.11 which have sufficient components of a mobile core network of their own at their disposal (among others control over the switching facilities in which the corresponding mobile telephone numbering ranges are implemented) and in turn can themselves conclude interconnection agreements and are able to set the rates for the termination of calls in their networks each constitute their own mobile termination market.

In contrast to a fixed network, there is no differentiation in mobile communications networks between differing termination services (local, national, etc.). The termination service is – because it is demanded by network operators and not by retail customers – a wholesale service for which the requesting network operator pays a rate (the termination rate) to the provider.

The demand for termination on the wholesale level is derived from the demand by the subscribers on the retail level: Every subscriber of a network operator requires call termination as a wholesale service to conduct a call to another subscriber – regardless of whether this party is connected to the same or to a different communications network operator.

The source network operator demanding 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 tariffs. 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 other European countries too – applied by all operators. The CPP principle is the reason for the occurrence of external effects.[61] On the one hand negative effects are already caused solely by the fact that a benefit accrues to the called party without a (monetary) consideration having to be provided for this benefit (call externality). On the other hand – and this is fundamentally more important in this context – the respective subscriber, who through his choice of the mobile communications operator selects the (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 expanded on in more detail in the context of the competition analysis.

3.4 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.

<table>
<tr><th colspan="2">Service</th><th>Description</th><th>Currently provided in Liechtenstein</th></tr>
<tr><td rowspan="2">IC call termination[62]</td><td>Termination to an own retail customer</td><td>Termination of calls via an interconnection-capable gateway-MSC to the selected mobile telephone</td><td>✓</td></tr>
<tr><td>Termination for service providers and resellers</td><td>Interconnection service termination provided for the termination of calls to customers of service providers and resellers (which for their part have no independent interconnection partners on the wholesale level)</td><td>✓</td></tr>
<tr><td colspan="2">Network-internal call termination</td><td>Termination service that occurs in the context of an internal network voice call</td><td>✓</td></tr>
</table>

Table 2: Services of the termination markets

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

[62] Interconnection.

3.5 Definition of the relevant geographic market

3.5.1 The basis for the definition of the relevant geographic market

The geographic scope of the relevant market is in accordance with Art. 21(1) KomG that geographic area in which the "call termination in individual mobile communications networks" interconnection service is supplied and demanded under sufficiently similar respectively homogeneous conditions of competition. Areas in which the conditions of competition are heterogeneous, i.e. in which there are significantly different conditions, are not regarded as a uniform market.

As per the SMP Guidelines[63] the definition of the relevant geographic dimension of the market to be investigated is based on an investigation of the substitution relationships on the supply and the demand sides.

Paragraph 60 of the SMP Guidelines refers to the current practice:

> *"60. In the electronic communications sector, the geographical scope of the relevant market has traditionally been determined by reference to two main criteria:*
>
> *a) the area covered by a network; and*
>
> *b) the existence of legal and other regulatory instruments."*

Thus in accordance with the current practice the network and the existence of legal and regulatory instruments are reference points for the definition of the geographic market. With respect to the network, this normally corresponds in accordance with the guidelines to the area in which an operator may operate. Furthermore, reference to the license is made as a starting point of where operations may be. The extent of the network is a consequence of the license, i.e. of the right to be allowed to operate.

3.5.2 The geographic dimension of the demand and supply side substitutability

The central criterion for the definition of the geographic market is the substitutability of the service in question on the demand and supply sides. A generally recognised procedure for this purpose is the SSNIP test. In the present mobile termination markets, both the wholesale service as well as the retail customer levels are to be included in the considerations. The (lack) of substitutability on the product level was already presented in Section 3.2: No operator other than the one to which the called subscriber is connected can terminate the call (termination monopoly). Taking this as a basis, the geographic aspects of the substitutability are investigated hereunder.

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[63] Cf. SMP Guidelines Para. 57 to 60.

3.5.2.1 On the wholesale service level (geographically relevant market)

Since, due to the monopoly character of the termination service, no other provider can provide a corresponding substitutive service (and a consumer can also not avoid it) the potential for a price increase extends at least to the network of the operator and its autonomous scope to structure same.

Consequently considerations about the homogeneity of the conditions of competition must also be investigated. In the context of the national consultations, the question of the definition of the geographic market was also raised especially with regard to Swisscom (Schweiz) AG as it operates a mobile radio access network both domestically as well as in neighbouring Switzerland and, as per the level of knowledge available to the AK, utilises the same components of the core network to a large extent.[64] However Swisscom (Schweiz) AG carries out its operations in Liechtenstein and those in Switzerland under two different licenses, each of which is solely applicable to the respective area (cf. the differentiation between "Swisscom FL" and "Swisscom CH" in Section 2.1 above). A geographic market definition on the basis of the demarcation line drawn through these two licenses corresponds to the European practice on the definition of a geographic market in Paragraph 60 of the SMP Guidelines. The right of Swisscom (Schweiz) AG to operate in one or the other area is based on different legal and regulatory framework conditions. Under the license issued to it (already mentioned above under the name "Swisscom FL") in Liechtenstein and the regulatory framework conditions applicable domestically, it is entitled and obliged to use the Liechtenstein MNC 295 and the radio frequencies allocated under preferential terms in Liechtenstein as well as Liechtenstein telephone numbering resources at the air interface for example of its base stations (BTS) located in Liechtenstein.[65]

With regard to the setting of the termination rate by Swisscom FL, this has occurred for some time now in lockstep with the rates in Switzerland. Up to mid 2005 however it did differentiate between the termination rate for Liechtenstein and Swiss subscribers. Swisscom FL continues to have the fundamental option at its disposal to differentiate the rates for the termination service at all times.[66] Even if Swisscom FL were not to operate an independent and distinguishable network in Liechtenstein, as was incorrectly claimed in the opinion of the AK in the context of the consultations by a consultation party, it would still certainly have, via its interconnection contracts and due to the fact that calls to Liechtenstein subscribers are terminated in an independently administered numbering space, the option to differentiate its termination prices correspondingly – and thus also to differenti-

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64 In addition this subject was also raised with respect to Orange FL. However from the viewpoint of the AK, this is distinctly different to Swisscom (Schweiz) AG due to the fact that Orange FL not only operates an independent radio access network in Liechtenstein but also a core network.

65 This obligation is applicable without prejudice to the fact that many Liechtensteiners stock up in Switzerland on the Swiss products of Swisscom CH.

66 The (at all times terminable) agreement with LTN Liechtenstein TeleNet AG dated 5 November 2007 also does not change the facts of this fundamental finding.

ate the exercising of its market power in the national Liechtenstein call termination market.

However a geographic market definition which would cover the complete mobile network of Swisscom (Schweiz) AG in Liechtenstein and Switzerland, as demanded by a party to the consultations, is also not capable of convincing due to a further reason: In spite of the circumstance that virtual mobile network operators (MVNOs) do not have a radio access network at their disposal (something which is largely available to Swisscom FL) yet for that interconnection contracts, they would be subject in all countries to the applicable EEA legal framework and classified in those which have this form of mobile communications operation as a market dominant undertaking on the separate termination market constituted by them. This approach is also taken by the AK in the present market analysis. Hence the market domination presupposes neither the existence of an own physical radio access network nor is this decisive or constitutive for defining the present market, as already detailed above in Section 3.3; it is far more the case that market power can be reasoned by the fact of the necessity of the interconnection and the potential for discrimination in this respect. The latter exists beyond doubt with respect to Swisscom FL and Orange FL as they can by implication set autonomous and/or differentiated termination rates for their independent Liechtenstein mobile numbering ranges (something which they have actually done as well – cf. Orange FL – and/or did in the past – cf. Swisscom FL).

Ultimately within the context of the definition of the relevant market, not only the current situation has to be considered but also an *ex ante* perspective has to be adopted: It is clear that Swisscom FL – even if the same termination rates are currently charged for Swisscom CH – would have the option at all times to set the charging of these rates independently from those in Switzerland.[67] Ultimately however the issue of the exploitation of market power – with corresponding incentives – may not be left to the decision-making scope of a (potential) undertaking with significant market power (whereby the latter is an issue of the market power analysis and not of the market definition).

Secondly – something which is central to the present issue – the question of the homogeneity of the conditions of competition has to be assessed. Beyond doubt it is a fact that the conditions of competition between Switzerland and Liechtenstein are different, so that no transnational market could also be defined covering both countries even if the legal requirements were to exist for that purpose (which is not the case as will be shown hereunder). In this respect the competitive factors for mobile communications in Switzerland differ fundamentally (size of the market, number of operators, market shares, regulation, etc.), however this circumstance – in light of the monopoly character of the termination service – can only contribute little to the question of the homogeneity of the conditions of competition. It is however of fundamental decisive importance that there are different legal framework conditions and requirements in place for the provision of mobile

[67] Cf. footnote 66.

communications services to Liechtenstein customers in Liechtenstein by Swisscom (Schweiz) AG due to its Liechtenstein license (i.e. "Swisscom FL" in the terminology utilised in the context of the present analysis). Thus there is a separate telephone numbering range for these customers which is administered by the AK, there is the obligation to use the Liechtenstein MNC (mobile network code), the operators utilise frequencies[68] allocated exclusively for the provision of mobile communications services, the conditions and requirements for interconnection are different, etc. Ultimately different legal bases and regulatory framework conditions are applicable to the operations of Swisscom FL in Liechtenstein – as a member of the European Economic Area – than those in Switzerland which is not a member of either the EEA or the EU.

This alone shows than one cannot speak of homogeneity in the conditions of competition between Switzerland and Liechtenstein, for which reason also applying the "one network argument" as was asserted in the context of the consultation is to be rebutted as without merit. In other words, the supply and demand conditions on the wholesale level differ distinctly and appreciably, for which reason a national definition of the relevant market is indicated and a transnational definition as proposed in the consultation exercise is not to be considered.

3.5.2.2 On the retail customer level (relevant geographic market)

The details on the product market definition have already clearly shown that no disciplining influence by retail customers on the hypothetical monopolist may be assumed. As this finding is applicable regardless of the geography, no reference points for the geographic market definition result from this either. At most, the fact that the called parties are situated (generally) in the network of Swisscom FL in Liechtenstein indicates a national market definition. But because their influence is negligible (with other products also available for the calling customer in the event of a corresponding interest in low termination rates), this also does not provide any fundamental support for the issue of the geographic market definition.

3.5.2.3 Conclusion on substitutability

The following unique aspects of the market in question form the basis for the investigation: As call termination is only supplied and/or demanded by network operators and not by retail customers, it concerns a wholesale service or product respectively market. Due to the existing de facto termination monopoly and the operator-specific mobile termination markets resulting from this, it is only the mobile operator to which the called subscriber is

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68 The fact that in the case of Swisscom FL, due to pre-existing preferential frequency agreements with the neighbouring states and until their new setting, the same preferential frequencies as in Switzerland are used does not detract from this finding, as the frequencies in Liechtenstein may still also be used at preferential conditions (especially at the Liechtenstein-Austrian border and 15km beyond).

connected that can supply termination. Hence there are no substitution options on the supply side on the wholesale level.

Even if one considers the geographic dimension of the demand, there is not alternative option to terminate the call than via the direct or indirect interconnection with the operator in question. The consumers of mobile termination services on this wholesale service market are domestic and foreign operators of fixed and mobile electronic communications networks (with or without their own connected subscribers) which want to have calls terminated in the mobile network of the called party by means of either a direct or an indirect interconnection. The demand on this wholesale market is directly derived from the demand on the underlying retail market.

3.5.3 The issue of the definition of a transnational market

It was criticised in the context of the consultation exercise that the AK, in violation of the related provision of the law concerning electronic communication (KomG), neglected to define a transnational geographic market for Liechtenstein-Switzerland mobile termination services. The AK details hereunder as to why the definition of such a market is not to be considered in the present case for both legal and material reasons.

Article 2(b) of the Framework Directive 2002/21/EC defines in the version applicable[69] pursuant to the Agreement on the European Economic Area (EEA Agreement) the term *"transnational markets"* as *"markets identified in accordance with Article 15(4) covering the Community* (i.e. territories of the contracting parties) *or a substantial part thereof"*.

In accordance with the Decision of 21 September 2004 of the EEA Joint Committee No. 11/2004, LGBl. 2004 No. 2002, Article 15(4) of the Framework Directive 2002/21/EC is to be supplemented by the following subparagraph among others: *"After consultation with national regulatory authorities the EFTA Surveillance Authority may adopt a Decision identifying transnational markets between two or more EFTA States."*

Article 2(b) of the Framework Directive defines the term *"transnational markets"* additionally in such a way that this can solely cover the *"Community"* (i.e. territories of the contracting parties to the EEA Agreement).

Switzerland is not a contracting party to the EEA Agreement. Hence, not only is it not subject to EEA law, the EFTA Surveillance Authority or the European Commission also does not have the legal competency to set transnational markets that cover the territory (or a part thereof) of a non-EEA Agreement state. In other words, the EEA Agreement does not

[69] Decision of the EEA Joint Committee No. 11/2004 of 6 February 2004, LGBl. 2004 No. 2002; Protocol 1 on horizontal adaptations to the Agreement dated 2 May 1992 on the European Economic Area (EEA Agreement), LGBl. 1995 No. 68.

contain any provision that provides for or permits a transnational market that also includes the Swiss Confederation.[70]

Consequently the applicable EEA and national legal framework must be properly interpreted to the effect that it neither provides for nor permits the definition of a transnational market by the EFTA Surveillance Authority that covers a non-EEA state. Against this background, the non-performance of the definition of a mobile call termination market that covers Liechtenstein and Switzerland and/or parts thereof – the existence of which the AK also does not regard as a given for the material reasons already stated in Section 3.5 and further detailed below – does not represent a breach of Art. 15(4) of the Framework Directive and/or Art. 21(3) 3 KomG. For the same reason no obligation on the part of the AK can be construed from this either that points towards the definition of such a market on the part of the EFTA Surveillance Authority, especially because the EEA Agreement does not provide any legal basis for same.

In its commentary dated 30 November 2007 in case GI/2007/0723, the notification of the analysis of the mobile termination markets in Gibraltar, the European Commission describes the actual conditions underlying the geographic market definition as follows: *"The Commission notes that the Spanish MNOs' signals cover much of the territory of Gibraltar and therefore they are in a position to provide services in this area without the need to roam on the Gibtelecom network."* Furthermore it results from the market analysis of the Regulatory Authority concerned that on the one hand numerous residents of Gibraltar have SIM cards from Spanish operators at their disposal and on the other hand that Spanish cross-border commuters or visitors regularly stay in Gibraltar without roaming, i.e. during their stay their mobile terminal devices continue to remain logged into the Spanish home networks – due to the good cross-border coverage. Hence the prevailing conditions and cross-border coverage in Gibraltar are fundamentally comparable with those in Liechtenstein. In spite of this the European Commission has neither required nor criticised – although it has explicitly noted the above finding in its written commentary – that in the context of defining the geographic market the Regulatory Authority concerned has to also include the Spanish mobile operators in the market definition or to even have to define a transnational Gibraltar/Spain (and/or the neighbouring Spanish regions) market. Hence it can be said that in other cases of this nature, the European Commission has protected the position of the Regulatory Authorities with respect to the definition of national markets. Thus the definition of the relevant geographic market of the operator-specific mobile termination markets in Liechtenstein is consistent with the prevailing practice in the EU respectively the EEA.

Paragraph 60 of the SMP Guidelines names as the relevant criteria in accordance with the applicable European practice and case law for the geographic market definition to be, in

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70 Likewise the bilateral treaties concluded between Switzerland and the European Union do not provide for this, nor do they contain a statutory and/or international agreement basis for same.

accordance with paragraph (a), the definition of an area in which an operator is permitted to operate as well as, in accordance with paragraph (b), the existing statutory and other regulatory instruments. Hence it is to be expressly found that the approach selected by the AK in the context of the analysis of the mobile termination markets and already discussed in the context of Section 3.5 of the present market analysis is uniformly consistent with the practice as named. Thus the finding ascertained in the market analysis that, due to the operator-specific definition of the mobile termination markets and the restriction on the applicability of the licenses and/or permits for the use of the frequencies to the Liechtenstein national territory, the geographic dimension of these markets is not to be defined more widely than that of the national territory of Liechtenstein, is completely consistent with the applicable EEA legal practice. Likewise the application of this criterion is also consistent with the finding that the Swiss mobile communications operators are not to be also included in the market definition as they are not subject to the regulatory powers of the AK. Thus when the criteria for the applicable scope of the licenses and the valid statutory and regulatory instruments in accordance with paragraph 60 of the SMP Guidelines are applied to the conditions in Liechtenstein, this results in a purely national geographic definition of the operator-specific mobile termination markets. The AK sees no indication that conditions of a different nature exist in Liechtenstein which would exclude the application of the criteria as named. Hence the AK has rightly based the present market analysis on same.

3.5.4 Geographic market definition ultimately without any material effects on the results of the market analysis and/or special regulation

In its numerous comments – on which it expended significant resources – in the consultation procedure conducted in the context of the present market analysis, Mobilkom FL has insisted that the "Swiss market presence of Swisscom (Schweiz) AG in Liechtenstein" (i.e. the Swiss +41 79 telephone numbering range) is to be regulated in the same way as that which the AK plans in relation to its "Liechtenstein market presence" (+423 77 telephone numbering range). Doing so, in addition to the pure affirmation as such of the opinion it expressed, Mobilkom FL regrettably refrained – against the background of its otherwise eloquent and detailed submission – from presenting to what extent its own de facto and legal position as a subject of regulation would change on the mobile termination market occupied by it as a result of this (or even in general terms about the position of one of its competitors on their respective termination market).

At this point it is worth recalling yet again that the presently defined material markets concern operator-specific mobile termination markets. The consequence of this on the one hand is that Mobilkom FL is by definition the sole provider of the termination service, and thus is and remains a monopolist, on the termination market it occupies regardless of the regulation of the respective mobile termination markets of the other mobile operators – specifically those of Swisscom (Schweiz) AG at which the submissions by Mobilkom FL are obviously directed. Consequently the problems of competition (and specifically that of excessive termination prices) arising on this market are also to be assigned in their totality to it and this needs to be redressed by special regulation of this operator-specific market precisely.

In other words it makes no difference whatsoever in the context of this special regulation for the legal and de facto position of Mobilkom FL on the termination market it occupies whether the AK – as planned – only regulates the "Liechtenstein market presence" of Swisscom (Schweiz) AG or – as demanded by Mobilkom FL – its "Swiss market presence" together in a joint transnational market (or even fences in and regulates the Swiss operations in a separate market). One and the same result occurs uniformly in all cases: Swisscom (Schweiz) AG is – in the same way as Mobilkom FL is on its own mobile termination market – to be regarded as having significant market power and to be regulated.

Also with respect to the concrete regulatory conditions to be imposed, specifically the setting of a price cap for the termination rate applied, no difference occurs whatsoever in the result for Mobilkom FL or for Swisscom (Schweiz) AG under the scenarios as named, whereby the price regulation is in fact to be undertaken uniformly, i.e. symmetrically, in line with the established European regulatory practice (cf. Section 8.2 in this respect). This also elucidates – to reiterate once more – that through an adjustment of the geographic market definition as postulated by Mobilkom FL, a de facto differing regulatory situation does not result either for Mobilkom FL itself or for Swisscom (Schweiz) AG – and that neither for its Liechtenstein (Swisscom FL), Swiss (Swisscom CH) nor a combined "market presence". This is already true because the uniform application of the price upper limits (cf. Section 8.7) leads to the result that the termination rates actually applied by Swisscom (Schweiz) AG both in Switzerland (+41 79 telephone numbers) as well as in Liechtenstein (+423 77 telephone numbers) are below those which should be applied in the context of the uniform price caps.

Against the background of the above clarifications that, neither through the observation or non-observation of the position represented by Mobilkom FL on the geographic definition of the mobile termination market of Swisscom (Schweiz) AG, different regulatory consequences result with respect to the amount of the termination rates of Mobilkom FL or of Swisscom (Schweiz) AG, the question arises of which intentions exactly Mobilkom FL is pursing with its insistence on this point. How can an undertaking which acts rationally and in an economically minded manner reconcile, in the sense of a cost-benefit analysis, the significant expenditures in terms of time, personnel and finances involved for its position propagated in its representations (to date) with the ultimate goals being pursued? Regrettably Mobilkom FL has not responded to this question in the details it has provided to date.

Hence the AK is permitted to speculate hereunder on the aims that an undertaking which acts rationally and in an economically minded manner could be pursuing as the case may be in a comparable situation from an objective viewpoint: In the first place, the time delays caused by this can certainly be named which, in view of the calculations provided in this regard in the last evaluation[71] of the comments, have easily lead to additional monthly income due the postponement of the coming into force of the planned regulatory measures that, even on deduction of the expenditures required to represent the position, is definitely profitable.

Furthermore – even if the position represented by Mobilkom FL with respect to the definition of a transnational market and its further consequences really were accurate, which the AK disputes – this would, as shown in detail by the AK in the context of its comment[72] on the geographic definition of the market dated 27 March 2009, progress from the legal grounds mentioned there to a situation in which the AK, for want of the legal basis for the definition of a transnational market that includes Switzerland, a non-EEA Agreement state, would be placed in a position in which it could de facto not conduct the market survey and not adopt special regulations. In other words, the AK would be placed in a situation in which it could not carry out its regulatory tasks and the excessive mobile terminating prices would continue to the detriment of all operators and ultimately of the retail customers.

3.5.5 Conclusion on the relevant geographic market

Based on the details provided above, the relevant geographic market is to be defined as the whole national territory of Liechtenstein for the present analysis. This is in accordance with the small size[73] of the national territory due to the prevailing homogeneous supply and demand conditions in it as well as the restriction on the licenses and entitlement to use the frequencies of the mobile communications operator on the sovereign territory of Liechtenstein.[74]

Due to the prevailing de facto termination monopoly and the individual operators' mobile termination markets following from same, there are no supply-side substitution possibilities. There is no alternative way to convey calls other than by direct or indirect interconnection with the operator in question.

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71 Evaluation of the comments on the 3rd Consultation, Section 3.1.5.

72 Comment on the geographic market definition of the mobile termination market (M7) dated 27 March 2009, page 3 et seq.

73 The small size of the national territory which has been criticised partly in the consultation as a relevant criterion for the definition of the market is, in the opinion of the AK, most certainly a relevant criterion to the extent that the argument can be made with it that due to the small scale of the relationships, no regional, urban-rural or other variations exist for the supply and demand and thus the conditions for competition are homogenous nationally.

74 In this way the European Commission in its comment on the subject in case PL/2008/0855 of 23.12.2008, page 2, has expressly protected a geographic market definition that is not based on the actual technical range of the underlying radio access network.

Although, as has been elaborated above, a tight de facto linkage of the mobile communications markets in Liechtenstein and Switzerland and specifically direct competition on the retail customer level exists, the call termination markets are still not to be understood as more than that of the national territory of Liechtenstein. This is already so because the mobile termination markets are defined operator-specific and the licenses and/or permits for frequency and telephone number usage extend only across the national territory of Liechtenstein.[75] Hence there is even less reason to include the Swiss mobile communications operators in the market definition especially because they are not subject to the regulatory powers of the AK anyway. This definition also excludes the presence of a transnational market, as was shown in the preceding discussion.

3.6 Providers of mobile termination services

As listed in Section 2.1, the following four mobile network operators in Liechtenstein currently provide mobile termination services in their networks: Mobilkom FL, Orange FL, Swisscom FL, Alpcom.

One unique aspect of the Liechtenstein mobile termination market worth mentioning is that none of the mobile operators have a direct interconnection with another mobile operator at their disposal. Hence all interconnection traffic is terminated via Telecom Liechtenstein AG as a transit network operator or via another transit network operator abroad (e.g. via the group/the parent company).[76]

3.7 Demanders of mobile termination services

The demanders of mobile termination services are both domestic as well as foreign fixed network and other mobile network operators with connected subscribers as well as interexchange network operators.[77]

3.8 No special regulation to date of the mobile termination markets

The operator-specific mobile termination markets are currently not subject to any special regulatory obligations. The setting of the interconnection rates with the mobile communications operators occurs on a private autonomous level. Thus the call termination in individual mobile communications networks has not been subject to any special regulation to date.

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[75] This conclusion does not detract from the fact that due to an intergovernmental agreement preferential frequencies may be used by the operators on the national border in such a way that they can co-supply the Rhine Valley on the other side in Switzerland due to the existing topography. In any case the base stations have to be located on Liechtenstein territory.

[76] Among others this also leads to a situation in which the effective termination costs in another mobile network increase by 5 centimes per minute in transit costs which Telecom Liechtenstein AG as the interexchange network operator charges.

[77] VoIP (Voice Over Internet Protocol) providers are also increasingly demanding call termination in mobile networks.

4 Market power

4.1 Undertakings with significant market power

4.1.1 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, i.e. 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 AK 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;

j) The degree of product diversification;

k) Access to capital;

l) Control over infrastructure not easily duplicated;

m) 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[78] 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."*[79] 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 closely related markets 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).

4.1.2 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 links between them – are active on a market whose character displays incentives for coordinated behaviour (Art. 31 (2) VKND).

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

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78 Cf. SMP Guidelines, Para. 19 and 113.

79 Cf. SMP Guidelines, Para. 71 and 72.

4.2 Relevance of SMP indicators

The markets for call termination in individual public mobile telephone networks are monopoly markets 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 discipline the exercising of the market power resulting from this monopoly position. This has a range of consequences for the present market analysis: Firstly the operator-specific markets are only to be assessed with regard to the existence of single market dominance. As each mobile operator which newly enters the mobile communications sector as such constitutes a new operator-specific call termination market, the existence of joint market dominance on the call termination markets is inconceivable.[80] On the other hand, the assessment of single market dominance is reduced to very few SMP criteria due to the market definition. It is explained hereunder why several of the SMP criteria which are usually assessed provide no or very limited information about the state of competition on the operator-specific termination markets 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 as per the (market) definition infinitely high and **potential competition** does not exist and is excluded. The termination service of a new provider has no impacts on the structure of the existing (monopoly) termination markets and constitutes its own market in turn. For these reasons further analysis of the barriers to market entry are superfluous for the termination markets. 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) which are analysed in more detail in Chapter 5 (**Unique structural aspects and problems of competition**).
- The markets for call termination in individual mobile telephone networks are monopoly markets 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 – are in the **absolute scales** of the respective operator-specific termination markets. A presentation of the volume and the development of the termination market is provided in Section 4.4 on the **Development and Sizes of the Termination Markets.**
- 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**

[80] This needs to be differentiated from the issue of whether for example interconnection rates (could be or) are applied as a collusion instrument for the retail customer market or in order to strengthen the mobile communications sector overall relative to the fixed network sector. More details are provided in this regard in Section 5.4.

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. Consequently these criteria are also not further analysed.

- 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 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 an economic sense), the more inelastic the individual demand function ("residual demand") is.[81] On a market with more than one products it is true that ceteris paribus the more substitutes there are on this market and the more homogeneous these substitutes are 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 mobile call termination on the wholesale service level concerns a demand derived directly from the retail customers' demand for voice calls in mobile networks and the elasticity on the wholesale service level is – as already detailed – lower, or at least not higher than the elasticity of the retail customer demand for calls in mobile networks. Consequently with the usual elasticity of the retail customer demand for telecommunications markets it can be ruled out that the demand for mobile call termination is sufficiently elastic to restrict a monopoly provider of termination services in its price setting behaviour.

On resistant monopoly markets, 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 monopoly markets. For this reason the **demand-side bargaining power** is ultimately the key criterion for assessing market power on the operator-specific termination markets. Hence it is investigated in detail in Section 4.5.

[81] 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 "Lerner 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.

4.3 Market players and market shares

Market shares are regarded especially in case law as an essential indicator of market power.[82] 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 a threshold of 50% – leaving extraordinary circumstances to one side – the existence of market power can be taken as proven.[83]

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.[84]

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[85] of an undertaking. If for instance there are high economies of scale, then ceteris paribus a

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

[83] Cf. Para. 76 of the SMP Guidelines.

[84] 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.

[85] 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 when 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 Section 3.2 the present markets for mobile call termination are defined in each case in an operator-specific manner. The logical consequence of this is that each of the mobile communications operators enjoys a 100% market share in its respective mobile network. Hence any further analysis of the market shares is superfluous.

4.4 Development and Sizes of the Termination Markets

The following overviews provide information on the absolute and relative sizes (measured in call minutes) of the individual mobile communications termination markets.[86]

Year	Mobilkom FL[87]	Orange FL	Swisscom FL	Alpcom
2004	4,270,500	3,150,000	2,984,242	796,218
2005	5,081,600	3,504,694	2,789,112	989,380
2006	5,871,000	4,016,036	2,612,798	890,369
2007	5,938,911	734,206	3,140,679	1,030,602
2008	4,435,086	1,183,071	3,097,608	933,168
2009	4,832,133	1,763,565	2,689,456	693,106

Table 3: Development of the termination markets of the mobile network operators (total minutes)

Year	Mobilkom FL	Orange FL	Swisscom FL	Alpcom
2004	38.13%	28.12%	26.64%	7.11%
2005	41.10%	28.34%	22.56%	8.00%
2006	43.85%	29.99%	19.51%	6.65%
2007	54.76%	6.77%	28.96%	9.50%
2008	45.96%	12.26%	32.10%	9.67%
2009	48.43%	17.67%	26.95%	6.95%

Table 4: Relative shares of the respective termination minutes in the total mobile termination traffic

86 The development of the complete mobile termination minutes is provided in Section 2.2.3.

87 As United Mobile AG has ceased its operations in the meantime and in order to secure the comparability and consistency of the data, the termination traffic generated in the previous years by its operations at Mobilkom FL is not reported.

The individual termination markets do not correlate with the market shares on the retail customer market. However in any case the differences in sizes do not permit any conclusion in relation to the market power (cf. the details provided in this regard in the next two sections). Each mobile network operator is a monopoly provider on its individual termination market and has a constant market share of 100%.

4.5 Countervailing buying power

The degree of the countervailing buying power is detailed in Art. 31(1)(c) VKND[88] (as well as in the SMP Guidelines of 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.[89]

The question about the existence and the extent of countervailing buying power must be considered especially in highly concentrated markets and is particularly relevant for markets in which the provider possesses a monopoly.[90] Hence the question to be examined here takes the monopoly of the mobile termination as its starting point and investigates whether there is or can be a disciplining effect on the buying side over the respective termination network operator that makes it impossible for the operator to exploit its monopoly on the scope of the price setting and behave independently from its customers. In an extreme case, the price setting scope of the monopolist can be reduced to such an extent due to the countervailing buying power that it is impossible for the monopolist to raise its price above the (fictive) competitive level. Hence the assessment of the countervailing buying power becomes a key question for judging the market power of the monopolist overall.

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 buying power because key customers (with high demand volumes) are more likely to be in a position to articulate their potential threat 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 (be-

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

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

90 The reason for this can be seen in the fact that with a very low market concentration (many small providers with insignificant shares) it is more likely to be assumed that the individual provider is a price taker, i.e. that it has no or little price setting scope at its disposal.

cause it significantly underscores its credibility) is the existence of alternatives (so-called outside options): By means of the credible threat to purchase the product from another provider, produce it oneself, or do without the consumption, significant pressure can be exerted on the provider.[91] A second central element is the benefit of and/or losses from temporary or permanent disagreements (conflict point). The costs of extended negotiations do not have to be evenly allocated, just like the losses 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 compensatory buying power can occur as the case may be. The extent to which the countervailing buying power of individual customers (or groups of customers) ultimately leads to a situation whereby the monopolist can exploit its 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 discrimination) the monopolist manages to not let a solution found for key customers become a general one.

4.5.1 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 mobile operators. 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 equipped with mobile communications terminal devices.

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 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 rates 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 in question nor its own mobile 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 very low for such a solution.

As it is not possible to reduce the termination rates solely for the employees of the major undertaking in question, it must be weighed up on the part of the provider whether a general reduction in the termination rates for all subscribers would be cheaper as the case may be than losing the undertaking with all its mobile service requirements. Even in the

[91] 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 mobile termination area, the barriers to market entry are certainly absolute, so that there are no alternatives to the termination service demanded: It cannot be bought from another provider, nor can it be produced by the buyer himself.

case of extremely large clients this question is purely hypothetical, because the general revenue reductions from call termination will always exceed by a large factor the asset- and liability-side income linked to the undertaking.

Hence it is shown that it is not even possible for very large undertakings or organisations (which potentially have bargaining power vis-à-vis the mobile operator) to enforce lower call termination rates for calls from third parties from other networks because the net balance is in any case negative for the mobile operator, the passing on of a reduction in the call termination costs by other operators cannot be sufficiently guaranteed and other products are available at significantly lower follow-up costs in order to achieve the effect desired by the undertaking (the customer). In the scenarios in which the buyer's interest in low termination rates is potentially greatest – the cases which focus on the undertaking's internal communications from different mobile networks – the option of having cheaper internal network voice calls comes to the fore. For calls from fixed networks, products are offered as required on the part of the mobile operator which either substitute external fixed network voice calls with on-net calls (e.g. SIM-gateways) or else the customer is given the option of becoming a subscriber of the fixed network arm of the mobile undertaking concerned and as such be able to enjoy a lower (external, implicit) termination rate as required.

Thus it is demonstrated that even if it were assumed that an undertaking's threat to switchover the operator can as required be made credible (something which must 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 from other networks. In each case it is cheaper, more rational and more effective for the buyer as well as for the mobile operator concerned to find other solutions that result in undermining the countervailing buying power of retail customers (in relation to the termination service). Not only is this applicable to a single (major) client, an analogous conclusion may also be argued for an aggregation of the buying power without having to address the difficulties and transaction costs linked to this here. 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 mobile operator to exert its market power resulting from the call termination monopoly can be ruled out.

4.5.2 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 it has a very large volume of voice calls combined – has hardly any possibility to exert direct demand-side bargaining power vis-à-vis the mobile 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 its own provider (which actually sets the retail customer rates), the caller would also de facto not enjoy any noteworthy bargaining power because he has no alternative to the call into the network of the termination network operator – it is highly difficult for him to be able to substitute the call with a call to another mobile operator (cf. the details in this regard in Chapter 5). In addition the termination network operator in question does not have the option to give a selective reduction in the rates for certain called customers, but rather it must reduce its rates in general for all terminated voice calls. Under no account is this economical for it.

Hence any pressure to have a reduction in the termination rates for calls into a specific mobile 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 (mobile) networks and is on the wholesale service level 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.

4.5.3 On the wholesale service level

The buyers have potentially more bargaining power on the wholesale service levels as they bundle the demand (of the retail customers) for mobile termination services and (at least major buyers) negotiate with the providers about the interconnection conditions.

4.5.3.1 Demand structure

Bargaining power is more likely to be a given when a large part of the volume demanded is concentrated among a few customers. In this case customers with strong demand enjoy more effective threat potential – because it is linked to potentially higher income losses for the provider – with which they are more likely to be in a position to enforce their price expectations against the monopolist. Figure 2.8 (on page 26 above) also provides in addition to the development, the distribution of the termination traffic based on differing sources of traffic (kinds of networks).

In the presentation mentioned of the sources of terminated mobile traffic at the end of 2009 the high 31% share of the traffic that comes from interconnection partners in Switzerland and otherwise abroad is conspicuous. The national fixed network, from which in other countries the main share of the terminated mobile traffic comes as a rule, accounts for a moderate amount in Liechtenstein at 22.6%. Likewise the traffic that the national mobile communications operators generate among each other is also not considered to be very high at 20.2%. The total on-net traffic of the mobile communications operators amounts to 26.2% of the aggregated mobile termination traffic. However as presented in the above figure, it can also be maintained that the composition of the sources of the mobile termination traffic has clearly shifted over the last few years. In this way the share of the foreign traffic was more powerfully marked in each case in the past than today.

Several reasons can be listed by way of explanation for this high imbalance: On the one hand on a completely general level the close social and business linkage with Switzerland as well as Liechtenstein's powerful international focus, while on the other hand the high share of Liechtenstein subscribers at Swiss mobile communications providers as well (whose traffic to Liechtenstein appears as international traffic).[92] In addition significant asymmetries in the traffic occur due to the fact that several major Liechtenstein-based industrial and service operations process traffic via gateways in Switzerland or at other locations and as a result only the incoming traffic appears in the Liechtenstein statistics.

In order to investigate the bargaining power on the wholesale service levels, a differentiation must be made between interexchange network operators and network operators with connected subscribers. While network operators with connected subscribers buy and sell (two-way access) termination services to the same extent, pure interexchange network operators occur solely as buyers (one-way access). This has – as will be provided in more detail later – an influence on the bargaining power.

It summary it can be said that

- The largest buyers of mobile termination services in Liechtenstein are interconnection partners from abroad;
- Only 22.6% of the total demand comes from the fixed network of Telecom Liechtenstein AG;
- The traffic which the national mobile communications operators generate among each other is not very high at 20.2%.

Hence it is also evident that on the one hand that potentially excessive mobile termination rates are financed to a good extent from abroad[93] and on the other hand that the countervailing buying power of the domestic interconnection partners is to be considered as low in general.

4.5.3.2 The bargaining power of interexchange network operators

The bargaining situation between interexchange network operators (INOs) and mobile operators is characterised on the one hand by the fact that the INOs themselves do not offer any call termination services (one-way access) and on the other hand there is no (or only very limited) competition between INOs and mobile operators. Thus the mobile operator has no noteworthy foreclosure incentives and will try to maximise the profit from the termination service, i.e. enforce the monopoly price.[94] By contrast, the INO has as a rule an incentive to negotiate low call termination rates (in an ideal case cost-based rates) be-

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92 On the other hand however there is also an increasingly higher share of the termination traffic which is processed at these foreign mobile communications networks which does not appear in the Liechtenstein statistics.

93 However a significant share of the apparently foreign-originated traffic is in reality to be allocated to Liechtenstein subscribers at foreign providers.

94 Cf. the details provided in Chapter 5 in this regard as well.

cause that would give it a competitive advantage over the competitors (otherwise it would simply roll-over the excessive mobile network termination rates onto its retail customers).

In this bargaining situation, practically all of the negotiation advantages are on the part of mobile operators. Apart from conflict points (interconnection negotiations collapse), the INO has no alternatives (outside options) and the denial of the interconnection puts it in a worse position overall – even in cases of interconnection with a very small operator – than buying the termination service at the monopoly price because its customers cannot reach a (significant depending on the circumstances) part of the subscribers. The consequences would extend from significant decreases in sales through to the loss of its business basis (in the case of a larger mobile operator). Hence the threat to refuse the interconnection in the event of no reduction in the termination rates has little credibility. In comparison to this the negative consequences of not concluding an interconnection agreement (conflict point) are negligible for the mobile operator: The customers of the INO remain reachable for it due to the interconnection agreement with the origination network operator. Thus the interexchange network operator does not have any buying power that could restrict the provider of mobile termination services with regard to its price setting behaviour.

4.5.3.3 The bargaining power of fixed network operators with connected subscribers

Not only does a fixed network operator with connected subscribers buy mobile termination services it also itself sells termination services to mobile communications operators (two-way access). As fixed network operators are not (or only to a limited extent) competing with mobile operators, 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 anyway.

The question is whether negotiations (in the absence of regulation) between mobile communications operators and fixed network operators with their own subscribers 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 it concerns a major operator with a critical mass of subscribers, non-agreement (or delays in the negotiations) is also not an option. 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 partner (instead of ending the interconnection). Unlike the interexchange network operator, the subscriber network operator can however threaten the mobile operator to charge high termination rates (monopoly prices rationally speaking) for its part if the mobile operator does not reduce the termination rates. However this threat is only credible if the fixed network operator for its part would not also have the incentive anyway to set the price at the level of its monopoly price. But because the mobile operator must assume that in this case it is also rational for the fixed network operator to set the monopoly price, such a threat has little credibility.[95] At the most 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 to a "logical focal point" (namely the respective monopoly price). Both sides simply lack the alternatives to enforce buying power.

The negotiation situation (in the absence of regulation) is also to be assessed somewhat differently as the case may be between a major fixed network operator (with many connected subscribers) and a small mobile operator and/or new entrant. In this case the fixed network operator would have alternatives in order to lend force to its demand interests in that it threatens the mobile operator with refusal and/or delay of the interconnection and/or or to invoice for its part (prohibitively) high termination rates. However such a strategy is only credible when the losses linked to same for the fixed network operator and/or the profit from lower mobile termination rates (which can be kept within limits for operators with few subscribers) exceed the potential losses (due to the non-connectivity of mobile subscribers). At most this question is not purely hypothetical for very small mobile operator and/or new entrants (without any subscribers so far), especially if one considers the size relations on the Liechtenstein telecommunications markets. Apart from the fact that the non-connectivity of subscribers would also cause a significant image problem for Telecom Liechtenstein AG, especially Telecom Liechtenstein AG itself does not have bargaining power at its disposal, because the interconnection conditions with Telecom Liechtenstein AG are regulated (as a necessary precondition for competition on fixed network retail customer markets).

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95 Likewise there is a lack of credibility to the threat to respond to a non-reduction in the mobile termination rates with excessive (i.e. above the costs) retail customer rates for calls in the network of the mobile operators: Firstly the fixed network operator would have to possess market power here over the retail customer market, otherwise it would not be in a position to put such a rate on the market. However if it does have price setting scope, it will use this in any case (regardless of the termination price level). Secondly an additional mark-up on the monopoly price can also be linked to significant disadvantages for the fixed network operator.

4.5.3.4 The bargaining power of mobile operators

The focus of the negotiations between two mobile communications operators – because the providers compete with each other – are the impacts on the individual competitive positions of the undertakings. If it concerns established mobile operators (with a critical number of subscribers) both negotiating partners have – like in the case of fixed network operators with own subscribers – 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 interests are primarily dependent on how the advantages and disadvantages of different termination rates are distributed. With similar network sizes (similar costs) and symmetric traffic, under certain circumstances both operators are indifferent in relation to the height of the termination rate.[96] In such cases negotiations can lead to cost efficient, reciprocal mobile-to-mobile termination rates, however they could also result in excessive (reciprocal) termination rates.[97]

In any case the profit neutrality is violated with powerfully asymmetric traffic. In this case the operator with the positive traffic balance (net inflow) has an incentive to set the termination rate above the costs as this would generate an access surplus[98] from call termination for it – rationally speaking the access surplus of maximised monopoly prices. Not only would this permit it to earn higher marginal returns, such a price policy would also strengthen its competitive position in relation to the competitors on the retail customer market: Firstly the competitor with the net outflow – with prices above costs – has an access deficit (prices at the level of the costs would neutralise the access deficit). Secondly the raise-each-others-cost effect at competitors with a net outflow would be clearly higher than with symmetric traffic. Thirdly due to the higher overall margin from the termination services, the operator would have a higher "budget" at its disposal for competing for subscribers on the retail customer market (cf. Chapter 5 in this respect). Thus the operator with the positive balance has little interest in deviating from a monopoly price. Hence a negotiating solution with reciprocal rates in line with the costs can be excluded. By contrast with that, the operator with the negative traffic balance would at most have an interest in (reciprocal) cost efficient rates. However analogously to the fixed network operator with connected subscribers, it has no bargaining power to enforce this.

The negotiating situation – with an absence of regulation – between a large established and a smaller mobile operator (with a relatively small customer base) is to be evaluated differently yet again. 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. This makes the threat to

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96 Cf. Chapter 5 in this regard.

97 The option to utilise termination rates as a collusion instrument is discussed in detail in Chapter 5.

98 Defined as profit on the basis of the relationship of prices to costs. This is to be differentiated from the balance on incoming and outgoing payments.

refuse/delay the interconnection or invoice prohibitively high prices a credible one. Hence the established operator is in a position to exert price pressure on the call termination rates of the small operator and to 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 however loses its bargaining power vis-à-vis the small operator.

In addition to the abstract discussion above on possible countervailing buying power between the mobile communications operators, the actual market conditions also argue against the existence of countervailing buying power: None of the Liechtenstein mobile communications operators have a direct interconnection agreement with another domestic mobile communications operator at their disposal. The interconnection only occurs indirectly via Telecom Liechtenstein AG with which all mobile operators maintain a direct interconnection, but also to a significant extent via associated companies and/or the respective parent company abroad. As presented in Figure 2.8, a large share of the terminated mobile traffic flows occur via foreign interconnection partners.

4.5.3.5 Legal obligations and regulations

A fundamental precondition for the formation of countervailing buying power is that the buyer has an effective and credible threat potential at his disposal. A threat is only credible when the buyer is also in a position to implement this in the event that the provider does not concede to the demands. Due to the lack of on option for switching over to an alternative provider or the buyer producing the termination service for himself, all that remains for the buyer is the refusal of the interconnection as one of the few instruments to enforce demand-side interests. 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[99], 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), which can regulate 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.

[99] For the legal definition of an "interconnection" see Art. 3(1) item 27 KomG and Art. 45 VKND.

4.5.3.6 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 buying power. However this is not available to a buyer of termination services on the wholesale service level due to the de facto termination monopoly, which limits his negotiating power very significantly. As the analysis shows – in a green field scenario – potentially only major operators with their own subscribers (especially large mobile communications operators) have a credible threat potential at their disposal in relation to very small mobile operators and/or new entrants in order to enforce their demand-side interests. This is reasoned on the basis of the threat to refuse or to delay interconnection or to charge prohibitively high prices. However the potential for buying power is limited to a very short time period of the market entry. As soon as an operator has a corresponding subscriber base at its disposal, the refusal of interconnection with same is no longer rational and thus a threat lacks credibility. However this is not to be expected, especially because this analysis abstracts from possible regulatory obligations. The threat to refuse interconnection is only then credible when there are no obligations in connection with interconnection (which in turn can be causes for other competition problems such as foreclosure). However especially with major buyers, such as Telecom Liechtenstein AG for instance, statutory obligations which restrict the buying power are relevant. Hence as a result it can be maintained that demand-side bargaining power is not able to exert a sufficiently disciplining impact on the price setting scope linked to mobile termination monopolies.

5 Unique structural aspects and competition problems

5.1 Introduction

The rates for termination in mobile telephone networks in Liechtenstein have not been subject to any special regulation to date. Hereunder, on the one hand current as well as potential competition problems on the mobile termination markets 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 mobile termination service – i.e. in accordance with the green field approach). In this respect three (potential) competition problems especially are to be subjected to closer investigation:

- Allocative distortions due to excessive termination rates (excessive pricing) for cross-network calls to mobile networks (fixed-to-mobile and mobile-to-mobile).
- Exclusion strategies in relation to competitors by refusal/delay of interconnection or by charging excessive termination rates (margin squeeze).
- Mobile termination rates as an instrument for collusion: In the sense that reciprocal termination rates are agreed that are suitable for curbing competition on the retail customer level.

The incentive structures are different in mobile-to-mobile interconnection than in fixed-to-mobile interconnection, for which reason both are being investigated separately.[100]

5.2 The causes of market failures

The mobile termination service is characterised by two unique structural aspects:

- The termination service to a specific mobile terminal device (subscriber) is in any case – so long as the contractual relationship is maintained – a monopoly service and cannot be provided by any operator other that the one (to which the subscriber has subscribed) that issues/activates the SIM card.[101]
- The total costs of a voice call to a mobile communications subscriber (origination, transit and termination) are borne by the calling party. No costs arise to the called party (in the home network). This rate system which is termed the calling party

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[100] The following analysis is fundamentally based on scientific knowledge related to interconnection (two-way access). A more detailed source reference can be found in the AK's first consultation document on the analysis of the present market from November 2007, which can be seen on the AK's website. Please refer to this.

[101] The effectiveness of potential substitutes (SMS, email, fixed network calls, etc.) was not examined more closely here because the relevant market is already defined by means of substitution considerations in accordance with the Recommendation of the EFTA Surveillance Authority on relevant markets are used as an initial basis for the investigation. There are no grounds for assuming that the same substitution investigations should lead to different results in a national context.

pays principle (CPP) is responsible for the following externality: The called party decides via which network voice calls are terminated to him (and thus also what the call termination costs), however the costs are borne by the calling party.[102]

Due to these unique structural aspects, the provider of mobile termination services is not sufficiently restricted with respect to its price setting behaviour by either the caller or the called party and has (monopoly) price setting scope. The caller and/or his mobile communications provider cannot replace the voice call (to a specific subscriber) by a call to another mobile communications operator with lower termination rates. Hence no substitution from one mobile network operator to another one can occur. Consequently the provider of termination services is confronted by a relatively inelastic (residual) demand. In any case this is not higher than the elasticity of the retail customer demand for calls in mobile networks.[103] It is true that the called party could potentially exercise more price pressure because he would have in the context of the subscription decision the choice between operators with differing high termination rates. There may also be part of the mobile communications subscribers (which is potentially not even negligible) for which the costs of connectivity represents a decision criterion for the selecting the network, however the criterion of being reached cheaply plays a very subordinate role in comparison to other criteria, and especially to the costs which have to be actively borne. Hence this decision criterion is not reflected in a high undertaking-specific elasticity of demand for subscriptions. This is also true especially because the costs of being called is one of many competition parameters interacting with each other and a reduction in the termination rate must be compensated for at least partly by an increase in the rates which the subscribers themselves have to bear. One only needs to imagine the decision situation of a potential buyer of a mobile subscription who has the choice between one provider with a lower termination rate while the other one offers an equivalently lower rate to be paid by customers themselves (on-net rate, off-net rate, basic fee or terminal device subsidies). It is obvious that only a few subscribers would decide on the first operator. In addition, there is the possibility for closed user groups – which are ultimately responsible for the price sensitivity with respect to the costs of "being called" – to avoid high rates for off-net calls and replace these by cheaper on-net calls.

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102 It will not be examined more closely here to what extent the called parties internalise (e.g. within families) these external effects when selecting a network. The question is already answered by the market definition.

103 But in fact the elasticity is lower on the wholesale service level than the corresponding elasticity on the retail customer level. Because the change in quantities is equal to that of the retail customer level – the ratio of the retail customer demand to the termination is 1:1 –, yet the relative price change on the wholesale service level is larger, the relevant elasticity on the wholesale service level is in any case lower than on the retail customer level. This effect is even strengthened by the fact that several operators offer uniform/averaged rates for calls in their mobile networks and do not roll-over the prices completely to the respective off-net rate (cf. the details in this respect in Section 5.3).

5.3 Fixed-to-mobile interconnection

The framework conditions for pricing in connection with the fixed-to-mobile termination service may be characterised as follows:

- Currently there are only limited substitution relationships between fixed network and mobile network calls. Consequently there is only limited direct competition between pure mobile and pure fixed network operators (specific exceptions are discussed explicitly in connection with the mobile-to-fixed network convergence in Section 5.6).
- In addition, the fixed network termination services are subject to a price regulation.[104] This limits fixed network termination operators (especially the largest fixed network operators) with respect to their options to react to increases/non-reductions in mobile termination rates (e.g. by increasing the fixed network termination rates for their own part).

Hence foreclosure or collusion strategies become less relevant and the most fundamental incentive for price setting results from the calculus of maximising the margins of the termination service. A profit maximising mobile operator will set the termination rate at the height of the monopoly price, and that regardless of how competitive the mobile communications retail customer market is.[105] If the mobile communications retail customer market were not competitive, the excessive mobile termination rates would be reflected in corresponding excess profits on the part of the mobile operator. This is not so with a competitive mobile communications retail customer market as is the case with the one in Liechtenstein in accordance with the Analysis of the market for access and calls in mobile networks (M15 old). In this case the margins earned (at least partly) in competition for retail customers (subsidisation of terminal devices, on-net calls, etc.) are distorted by excessive mobile termination rates. The economic logic behind this is as follows:

- A mobile communications operator which can raise the termination rate (slightly) above the costs of the termination increases the profitability per subscriber without however – due to the calling-party-pays principle – running the risk of losing subscribers to its competitors.
- With an increasing marginal return per subscriber, the competition – in the event that the retail customer market is competitive – also increases for the subscribers (the trade off of a price change between the marginal return per subscriber and the sales volume shifts). The consequence of this in turn is that the rates of rele-

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[104] And this will remain so for the foreseeable future due to the asymmetric competition situation on the fixed network wholesale service markets. Cf. in this respect the Analysis of the market for call termination on fixed networks (M3) conducted by the AK.

[105] The monopoly price is determined by the usual trade off with a price increase: An increase in the marginal return (income minus costs) and a decrease in the volume sold. The trade off is ultimately determined by the elasticity of the retail customer demand forming the basis for same.

vance for the called party (basic rate, on-net calls, costs of the terminal device) are reduced (or the marketing costs are expanded).

- This forces the competitors to react in a similar manner. The process ends at the point where the marginal return from the termination rates is at a maximum, i.e. at the monopoly price of the residual demand (= market demand on the wholesale service level).

As the elasticity of the residual demand on the wholesale service level is not higher than the elasticity of the complete market demand for calls in mobile networks, a price level arises that is at least as high as the monopoly price for calls in mobile networks (hereunder called "monopoly price"). Under certain preconditions mobile operators – especially smaller ones – even have an incentive to set rates above the "monopoly price": That is to say if the fixed network operators for their part do not reflect differences in the terminations rates in the retail customer rate structures and/or the retail customers do not (or are not able to) react in a price sensitive manner in relation to calls in differently "expensive" mobile networks. In these cases the retail customers (fixed network subscribers) make their volume decision on the basis of a (perceived) "average price for calls in mobile networks". Through this however, the connection is broken between a termination rate and a volume demanded. If a mobile operator were to lower its termination rate under such preconditions, the consequence of this would be that the competitors would profit from the price reduction without they themselves having to change their prices. The is because the total demand for calls in mobile networks increases slightly due to the reduction in the ("perceived") average rate and the competitors profit from this expansion in the volume without they themselves even having to change their rates. This "negative externality" creates an incentive to set prices that are even above the (fictive) "monopoly price". The lower the market share of an operator is, theoretically the greater is this free rider potential and/or the more smaller providers of mobile termination services there are, the higher the overall price level is for calls in mobile networks.[106]

Because the mobile termination rates have a direct influence on the costs structure of a fixed network operator, excessive termination rates lead to excessive prices for voice calls from fixed networks to mobile networks. A fundamental aspect in this respect is that the allocative distortions linked to this (public welfare losses due to lower volume and too high prices) also occur if the competition on the mobile communications retail customer market is intensive and the margins – as detailed above – are distorted in the competition for retail customers. Even if the mobile communications subscribers profit from these subsidies (from fixed network subscribers), the positive effect linked to this is lower than the negative public welfare effects caused by the allocative distortions of calls from the fixed network to a mobile network. Hence it is to be expected that under aspects of public wel-

[106] For larger network operators this incentive is lower due to the above average influence of their own termination rates on the (perceived) "average price".

fare economics the optimal (benchmark) price for mobile termination is lower (even when network externalities and Ramsey pricing[107] are taken into account) than the termination rate that a (profit maximising) mobile operator would set.[108] For the sake of completeness it should also be mentioned that these public welfare losses could be additionally intensified by a lack of competition (or of regulation) on the fixed network retail customer market.[109]

Conclusion: A (profit maximising) mobile operator will, regardless of its network size, set the termination rates for voice calls from the fixed network at least at the level of the "monopoly price" for calls to mobile networks. As a result allocative distortions occur. Allocative distortions cause public welfare losses (primarily for retail customers) because a market result with too high prices (for off-net calls to mobile networks) and too low volumes arises. The margins (from the termination) are at least partly distorted in the competition for retail customers (subsidisation of terminal devices and retail customer rates, etc.). Thus the central competition problem is not only the (total earned) excess profits of mobile operators, but also the market distortions (public welfare losses) in connection with voice calls from fixed to mobile networks and the subsidisation by fixed network subscribers of mobile communications subscribers.

5.4 Mobil-to-mobile interconnection

Unlike with fixed-to-mobile interconnection, the interconnection partners with mobile-to-mobile interconnection are direct competitors on the (mobile communications) retail customer market. This changes the undertakings' incentive structure to the extent that

(a) Termination rates could be applied as a collusion instrument for the retail customer market;

(b) Termination rates could be applied as an instrument for foreclosure strategies in relation to smaller mobile operators and those new on the market;

(c) Under certain preconditions efficient termination rates could be negotiated between operators.

To (a): Because the termination rates reciprocally increase the (perceived average marginal) costs, they could be utilised as an instrument for stabilising a collusive market result on the retail customer market and thus represent an additional reason for regulatory in-

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107 Ramsey pricing means that the overhead costs in a multi-product case are added in an inverse proportionality to the respective elasticity of the products. Such rates are termed "2nd best" because prices at marginal costs (1st best) are not possible under the assumption of profitability (revenues cover all costs) when there are significant overhead or fixed costs.

108 Even if the operator itself allocated its overhead costs in accordance wit the "Ramsey principle", the result does not (necessarily) have to correspond to the "2nd best" result. The reason for this is that the elasticities of the undertaking-specific demand functions are not (or do not have to be) aligned with the elasticities of the complete market demand for the relevant products. This is not the case especially in the relevant connection here.

109 In this case the problem of the double addition of monopoly margins known as double-marginalization in the theory of economies arises.

tervention. The theoretical literature shows however that this is only possible under very limited preconditions. For instance when the operators charge linear rates (without any differentiation in the basic rates and traffic-dependent rates). Under these preconditions, a high mutually agreed reciprocal termination rate stabilises the "collusive" market price on the retail customer market. The "collusive" effect arise through the fact that a reduction in the retail customer prices not only results in an increase in market shares, but also leads to a net outflow of termination minutes. The net outflow of termination minutes, in the event that the termination rates are above the costs, causes an access deficit[110] with the termination. The danger of an access deficit caused by a reduction in the retail customer prices reduces the incentives for competition.

This "collusive" effect disappears when multi-stage rates are charged on the retail customer level. In this case the mobile operators have a competition instrument (basic rates, terminal device subsidies, etc.) at hand that is decoupled from the termination that permits them to undercut the competitors on the retail level without at the same time having to accept – the profit reducing – access deficit (from termination services). As the influence on the profit decreases, the termination rates lose their strategic importance. In an extreme case of complete profit neutrality, the operators become indifferent with respect to the height of the termination rates.[111] In addition to the basic rates, lower rates for on-net calls are also an instrument independent from the termination (and the termination rate of the competitors) for competition on the retail customer market and thus can have a similar effect. However the spread between on-net and off-net rates can – due to rate inducing network externalities – intensify the competition for market size (being in a large network permits the subscribers to conduct more cheaper on-net calls) to such an extent that the operators de facto prefer mobile termination rates below the costs (to curb the competition), which however in turn would lead to inefficiently high active rates. Asymmetries between operators (in their costs, market shares, traffic distributions, etc.) can also abrogate the profit neutrality.

A collusion caused by excessive termination rates is very improbable for the Liechtenstein mobile communications market. On the one hand price models are applied that frustrate the collusive effect of termination rates – one must only think here about the in parts significant terminal device subsidisations – and on the other hand the present competitive situation on the retail customer market and the serious differences in interests between individual mobile operators with respect to the height of the termination rates tend to argue against it.

To (b): On a mature competitive market with established operators which all have a corresponding customer base at their disposal, in a normal case both interconnection partners

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110 Defined as profit on the basis of the relationship of prices to costs. This is to be differentiated from the balance on incoming and outgoing payments.

111 The anti-collusive effect (profit neutrality) of non-linear retail customer rates is a reasonably robust result on a market with mature competition.

have, due to the existence of network externalities, an interest in opening up access for its customers to the respective other network. Hence it is to be assumed that interconnection is guaranteed also in the absence of regulation (and/or the threat of regulation). Interconnection by major established operators with "smaller" operators and especially new entrants to the market (e.g. MVNOs) is to be evaluated differently.[112] It is obvious that for large operators and/or in relation to new market entrants, the advantages of non-cooperation (lower competition on the retails customer level) outweigh their potential disadvantages (some few subscribers are not reachable). In this regard in addition to non-pricing mechanisms (refusal and/or delay strategies with interconnection, unjustified conditions, inferior product quality, etc.), (prohibitively) high access prices and/or the application of a margin squeeze can play a central role – especially when there is an obligation to interconnect, yet the prices can be freely set: Firstly termination rates determine the costs for off-net calls, which represents a significant competitive disadvantage for a small operator and/or a new market entrant that must process almost 100% of the calls as off-net calls. The raise-each-others-cost effect of excessive termination rates leads to a situation whereby a small operator – in cases of excessive termination rates – has to expect significantly higher marginal costs than a large established operator with a large share of internal network calls. This is secondly in addition to the discrimination (subsidised by excessive termination rates) between on-net and off-net calls. "Price induced" network externalities are created by cheaper on-net than off-net rates which make the network of a smaller operator unattractive because it is more attractive for their retail customers in terms of the price to be a subscriber at a large network.[113] One only has to imagine the situation of a subscriber at a small operator that has to process almost 100% of the calls as expensive external network calls. Thirdly a new markets entrant in the launch phase is forced (not least due to the marked economies of scale in mobile communications) to offer more attractive rates in order to expand its market share. This (as a rule) induces a net outflow of termination minutes, which in turns means that the operator is confronted with an access deficit in cases of excessive termination rates. Fourthly it cannot be assumed that in an environment free from regulation reciprocal termination rates would arise. Fundamentally every undertaking has an incentive to set its own termination rates as high as possible while at the same time to purchase termination at the lowest possible prices. In an unregulated environment, a major operator would be able to enforce higher rates vis-à-vis a smaller operator and/or a new entrant due to its bargaining power which would have the result that the costs and demand disadvantages detailed above would be even more intensive. Unregulated termination rates are a perfect vehicle to hinder and

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[112] The overwhelming share of the theoretical work on two-way access is based (among others) on two assumptions: (1) A market with mature competition is assumed (market entries and strategies to partition off the market do not appear). (2) It is (almost always) assumed that the termination rates are reciprocal (by regulatory effect). Hence a fundamental competition problem and reason for regulatory intervention of interconnection fees is not included, i.e. foreclosure strategies vis-à-vis new market entrants.

[113] Cf. Section 5.5 in this respect.

prevent the market entrance of competitors and in order to leverage market power onto the retail level.

To (c): As detailed above, under certain circumstances the mobile operators are indifferent in relation to the height of the mutual (reciprocal) terminates rates. This then tends to be the case when the competition is mature, the undertakings are quite symmetric (e.g. in their costs) and of a similar size (have no foreclosure incentive), the traffic between them is symmetric and the incentives for collusion are low. In such cases negotiations can (but do not necessarily have to) lead to efficient termination rates. However in this case the operators (due to the profit neutrality of the termination rates) are also not likely to have any objections to a (reciprocal) termination rate set by regulation as the case may be. However it must also be mentioned in this respect that even if the mobile operator in a mobile-to-mobile context would not have any objections to termination rates in line with the costs, this is very improbable in practice because (possible) arbitrage dealings powerfully limit the potential for price differences between mobile-to-mobile and fixed-to-mobile termination rates. In the case of doubt in order to secure the margins from excessive fixed-to-mobile termination rates, the mobile network operator would align the mobile-to-mobile termination rates to the fixed-to-mobile termination rates.

Conclusion: The incentive to charge excessive termination rates is not so clearly a given with mobile-to-mobile interconnection as it is for interconnection between fixed and mobile networks. The most fundamental competition problem (excessive termination rates as a vehicle for collusion) has – for a mature competitive market – no noteworthy significance due to the tariff system applied in Liechtenstein. However termination rates as a foreclosure instrument (by applying a margin squeeze) can be utilised against small operators and especially against market entrants. With respect to the small operators which are already operating on the market, this problem decreases in importance with an increasing gain of market share, however it remains relevant for potential new future market entrants (e.g. MVNOs). For large established operators which are reasonably symmetric, the reciprocally charged termination rates lose their strategic significance for the retail customer competition. Hence in a pure mobile-to-mobile context it is certainly conceivable that established mobile operators would agree – in an unregulated environment – cost efficient termination rates. However this finding is more theoretical in nature: The potential for price differences between mobile-to-mobile and fixed-to-mobile termination rates is relatively limited due to arbitrage possibilities. Hence mobile operators would (or would have to) align their mobile-to-mobile termination rates – with unrestricted pricing – in practice to the (regulated) fixed-to-mobile termination rates. Furthermore the cumulative preconditions for reciprocal price setting named in the previous paragraph are not a given in Liechtenstein.

5.5 Price discrimination on-net/off-net calls

Telecommunications networks are characterised by distinct network externalities. The more subscribers a network has, the more interesting it is for the users. These network effects are (partially) neutralised by interconnection; regardless of which operator a user decides on, he can still reach every subscriber. Without network interconnection, presumably only one network would survive over the long-term. In this sense, interconnection is a necessary precondition in order to guarantee long-term sustainable competition.

Through price discrimination between on-net and off-net calls, network externalities are (partially) reactivated. Cheaper on-net than off-net rates cause "price induced" network externalities (so-called tariff-mediated network externalities) which make the network of a smaller operator less attractive because it is more attractive for the retail customers in terms of the price to be a subscriber at a large network. The price discrimination between on-net and off-net calls is primarily an instrument of competition; price differences (to the extent that they can be observed) cannot be explained either by differences in costs or by Ramsey pricing.[114] Under the aspects of public welfare economics, the differentiation in on-net and off-net calls has no immediate uses.[115]

In order to compensate for demand-side disadvantages due to price induced network externalities, a small operator would have to put together a corresponding rate package (e.g. especially low on-net rates). However this is all the more impossible to do the higher the costs are for external network calls – i.e. the termination rates of the other mobile operators; small operators and new market entrants especially are, due to a high share of external network calls, affected by the raise-each-others-cost effect of excessive termination rates. Thus they are exposed to the danger of a margin squeeze. Excessive termination rates in connection with on-net and off-net price discrimination is an instrument for leveraging market power from the wholesale level to the mobile communications retail market (cf. Section 5.4 in this respect). The margin squeeze is obvious when the termination rates which a mobile operator charges itself for internal network calls (= implicit termination rates[116]) are set in relation to the termination rates that other operators have to pay. The more clearly the gap is between the implicit termination rates of internal network tariffs and the external termination rates, the greater is the potential for leveraging. In this regard the leveraging of market power is not only limited to the mobile communications retail market. To the extent that there are overlaps in the business areas between fixed network and mobile network operators, the leveraging of market power to the fixed network markets (and/or convergent markets) can also result from this, in that voice calls

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[114] It is inexplicable as to why the demand-side elasticity for off-net and on-net calls should differ to such an extent. Cf. footnotes 107 and 108 also.

[115] To that extent it can however provide a use since the lower on-net tariffs can be destabilising for collusion (cf. Section 5.4 in this respect).

[116] The price at which the mobile operator offers the termination service to itself. The calculation of the implicit termination rates occurs on the basis of the net retail customer rate of an on-net call with the costs of origination deducted from this.

to fixed networks are substituted by internal network voice calls (e.g. SIM-gateways, VPNs, mobile branch exchange equipment) and in that the specially constructed tariffs for on-net calls have the effect that groups which process a large volume of traffic among themselves switchover unanimously to one mobile operator.

There is a direct interrelation between the termination rates and the on-net/off-net price discrimination: The higher the termination rates are that are charged to other operators, the greater is the potential for the gap between internal network and external network calls (and/or between implicit and external termination rates).[117] Inversely, the closer the termination rates are to the costs, the lower is the potential for on-net/off-net discrimination and the closer are the implicit termination rates to the externally charged termination rates.[118]

	External termination	Implicit termination[119]	Ratio of external to implicit termination
Mobilkom FL	CHF 0.35	Incl. / CHF 0.075[120]	5 to ∞
Orange FL / Telecom Liechtenstein	CHF 0.35	Incl. / CHF 0.20[121]	1.75 to ∞
Swisscom FL	CHF 0.14	CHF 0.004[122]	35
Alpcom	CHF 0.35	CHF 0.025	14

Table 5: Implicit vs. external termination rates

The above table solely serves the purpose of illustration and does no raise any claims to exact mathematical correctness.[123] Despite these limitations it is clear that on-net voice calls in relation to the termination rate raised by the respective operator for external calls are consistently cheaper on a massive scale. There are already a range of retail customer products with which on-net calls are completely free of charge or a uniform price is charged per hour. Thus it can be ascertained in summary that the Liechtenstein mobile

117 Not only that together with the termination rates the tariffs for external network calls drop and these approach the on-net tariffs, the cross-subsidisation potential for on-net tariffs is also reduced.

118 Fundamentally the relation between external and implicit termination rates should be close to 1 because the termination service is identical in both cases.

119 The calculation of the implicit termination rate occurred on the basis of the net retail customer rate, with the share of termination assumed for simplification purposes to be 50% (on-net voice calls consisting of termination and origination). The basis for the calculation is the simple average of the published post-paid tariffs.

120 At "FL1 SMART+" and "FL1 FREESTYLE+ an internal network voice call costs CHF 0.15 per minute after the free minutes are used up, while with all other tariffs these voice calls are included in the basic rate.

121 At "LIMO family", "LIMO flat" and "LIMO iPhone" the on-net voice calls are included in the basic rate in accordance with the fair use principle.

122 With the "Liberty" products the uniform per hour price is allocated to the minutes.

123 Cf. especially the problem of flat rates and free monthly minute credits.

operators are cross-subsidising their on-net voice calls to a massive extent. As per the assessment of the AK, the costs of this cross-subsidisation are covered among others by the excessive termination rates.

5.6 Mobile-fixed network convergence

Even if fixed network and mobile network markets are currently separate markets, in fact there are several overlapping business areas which are relevant to the present competition analysis:

- There is a demand for complementary mobile and fixed network services; an operator which offers both services in a package has an advantage over providers which only offer one of the two services.
- The fact that both services are assigned to separate markets does not mean that there is no substitution relationship at all between fixed and mobile networks. The declining number[124] of fixed network connections indicates among others that there is a certain substitution.[125]

Against this background, excessive fixed-to-mobile mobile termination rates have, in addition to the allocative distortions described above, a range of further negative effects:

- Excessive fixed-to-mobile mobile termination rates strengthen/accelerate the substitution of fixed network services by mobile network services. The subsidisation of mobile communications retail customer prices through excessive fixed-to-mobile mobile termination rates changes the price relations between fixed network services and mobile network services. The consequence of this is that fixed network services are substituted – to an extent dependent on the marginal rate of the substitution – by mobile communications services which have become cheaper relatively speaking.[126] Price induced network externalities, which are caused by marked discrimination between implicit termination rates for on-net calls and those for off-net calls, intensify this effect even more (Cf. Section 5.5).
- The potential for cross-subsidisation by means of excessive mobile termination rates can be and is used by mobile communications operators in order to design specific products which permit them to penetrate into the core business areas of fixed network operators.[127]

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124 Cf. in this respect the Analysis of the market for access to the public telephone network at a fixed location (M1).

125 Which of course does not have to be sufficient for a definition of both services in one and the same markets. The SSNIP test is decisive in this respect.

126 The substitution effect is always negative for the service which has become more expensive relatively speaking. But in any case the substitution effect could be compensated for by the income effect, which however is not to be expected.

127 Thus for mobile operators excessive mobile termination rates are also a vehicle to leverage market power onto convergent markets.

- In those areas where fixed and mobile network operators are in direct competition with each other, such as for instance with complementary fixed network and mobile communications services (virtual private networks, etc.), the competition opportunities (level playing field) of fixed network operators in relation to mobile communications operators are significantly worsened due to excessive mobile termination rates.

5.7 Current and potential problems of competition

Hence in the case of non-regulation of the termination rates, the following current and/or potential problems of competition are to be expected:

- Allocative market distortions due to too high termination rates for calls from fixed to mobile networks. Subsidisation of mobile communications subscribers by fixed network callers **(competition problem C1)**.
- Allocative market distortions due to too high termination rates for calls between mobile networks as well as the price discrimination of on-net and off-net calls (distorted price structures) **(competition problem C2)**.
- *Foreclosure* strategies vis-à-vis smaller mobile communications operators and especially new market entrants (e.g. MVNOs). These can occur both through non-pricing tactics such as refusal and/or delay strategies with interconnection, unjustified conditions, or inferior quality as well as through pricing tactics such as excessive termination rates, powerful price discrimination of on-net and off-net calls (application of a margin squeeze). Hence there is the danger in this connection of the leveraging of market power onto the retail level. This competition problem is relevant especially in connection with the market entry of new providers **(competition problem C3)**.
- *Distortions of competition* to the advantage of mobile operators and the disadvantage of fixed network operators where business areas overlap (fixed-mobile convergence, increase in the substitution between fixed and mobile networks). The danger results from this of market power leveraging onto fixed network markets and convergent markets and/or the danger of foreclosure strategies vis-à-vis fixed network operators **(competition problem C4)**.

The allocative competition distortions due to too high termination rates for calls from (domestic and foreign) fixed and mobile networks to the domestic mobile networks represents in the opinion of the AK the most important competition problems.

6 Overall assessment: No effective competition

Hence no (self-sustaining) competition prevails from an economic perspective on the operator-specific markets for termination in the mobile telephone networks of Mobilkom FL, Orange FL, Swisscom FL and Alpcom and consequently these operators are – in the meaning of the theory of equivalence – to be described as undertakings with significant market power in the meaning of Art. 22(1) KomG due to the following considerations:

- The markets for termination in mobile telephone networks of each of the operators named concern resistant monopoly markets in which the **barriers to entry** are insurmountable, **potential competition** is excluded and the respective **market share** remains constant at 100%. This is true for both the GSM and the UMTS networks of these operators (and both are treated uniformly hereunder).
- The analysis of competition in Chapter 5 shows that with unrestricted price setting, each of operators named has clear incentives to set the mobile termination rates above the (fictive) competition level, i.e. to charge **excessive rates**. This is true especially for fixed-to-mobile interconnection, but also in general for mobile-to-mobile interconnection. The only factor that could if necessary discipline their monopoly market power is the **demand-side bargaining power.** This could as required have an effect on the wholesale level or on the retail level. Buying power presupposes that a buyer has a credible threat potential at his disposal, i.e. that he represents a sufficiently large demand volume combined and has credible alternatives (outside options) at hand in order to enforce his demand-side interests.
- The detailed analysis of the **countervailing buying power on the wholesale level** has however shown that only large operators with their own subscribers (and especially large mobile communications operators) theoretically have a credible threat potential at their disposal to enforce demand-side interests against very small mobile operators and/or mobile operators newly entering the market, i.e. to refuse or to delay interconnection or to charge prohibitively high prices. However this analysis abstracts from the applicable regulatory obligations for interconnection and end-to-end connectivity. In addition however the actual market conditions argue against the existence of countervailing buying power: None of the Liechtenstein mobile communications operators have a direct interconnection agreement with another domestic mobile communications operator at their disposal.
- The analysis of the **countervailing buying power on the retail level** has shown that the party called would have – in relation to buying power – the most fundamental option at hand to enforce demand-side interests, i.e. to switchover to another network operator with lower termination rates. However the analysis also makes it clear that it is not even possible for very large undertakings and/or organisations

(which potentially have bargaining power vis-à-vis the mobile operator at their disposal) to enforce lower termination rates because the net balance of such a reduction is negative in any case for the mobile operator due to a lack of differentiability in the termination rates, the passing on of a reduction in the termination costs by the origination network operator cannot be sufficiently guaranteed and it is cheaper, more rational and more effective for the buyer as well as for the mobile operator concerned to find alternative solutions that evade this (e.g. on-net tariffs, freephone numbers, mobile branch exchange systems, etc.). The caller on the retail customer level in turn has no alternatives in this respect (he cannot substitute the voice call to a specific subscriber with a different call to a different network) and the termination network operator cannot and will not negotiate with him about termination rates. The result of this means that the retail customers also have no countervailing buying power at their disposal.

- An **international price comparison** of the termination rates in Europe (cf. Section 8.4 hereunder) shows that the termination rates of Mobilkom FL, Orange FL and Alpcom, which are currently set in the absence of regulation, are higher by a large factor than the average European level and consequently in consideration of the competition problems shown it can be assumed that they are also clearly higher than the long-term costs for the efficient provision of the termination service. Recently the price level of Swisscom FL has continued to approach the current European average level. Hence it must be assumed that the Liechtenstein mobile operators are using their market power to set excessive termination prices, the majority of which are clearly above the cost efficient level.
- Due to the market structure (monopoly market with insurmountable barriers to entry) both the analysis of 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 such as 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 is superfluous as well as of that applicable to the (potential) substitution with (potential) competitors such as the demand- and supply-side elasticities as well as the degree of product differentiation.

The reason for the monopoly position and the cause of the market failure are especially two unique structural aspects of the termination service:

(1) The termination service to a specific mobile terminal device (subscriber) is a monopoly service and cannot be provided by any operator other that the one (to which the subscriber has subscribed) that has activated the SIM card.

(2) The total costs of a voice call to a mobile communications subscriber (origination, transit and termination) are borne by the calling party. No costs arise to the called party (in the home network). This rate system which is termed the calling party pays principle (CPP) is responsible for the following externality: The called party decides via which network voice calls are terminated to him (and thus also what the termination costs), however the costs are borne by the calling party. Due to these unique structural aspects, the provider of termination services is confronted by a residual demand whose elasticity is lower, but in any case not higher than the demand-side elasticity of the complete market demand for calls to mobile networks on the retail customer level. For this reason a rational provider of termination services will set the price at least at the height of the "monopoly price" for calls to mobile networks.

Exactly this excessive "monopoly price level" is to be expected for interconnection with the mobile operators; the price setting is focused on the calculus of maximising the profits from interconnection. The excessive prices especially for fixed-to-mobile calls but also for calls from foreign and domestic mobile networks result in public welfare losses in the form of allocative distortions – a market result with too low volumes at too high prices. The public welfare economics losses induced by this are also empirically determined by the European Commission explicitly[128] by referring to a powerfully negative correlation between high mobile termination rates and reduced voice call volumes: Higher termination prices lead to higher retail customer voice call prices and lower call volumes. A subsidisation of mobile communications subscribers by fixed network customers occurs additionally to the extent that the excessive margins are distorted in mobile communications retail customer competition.

For interconnection with other mobile operators, two different factors are the focus of the calculus: Collusion and exclusion. Collusion has no noteworthy importance due to the tariff systems applied in Liechtenstein. However interconnection as a foreclosure instrument (refusing and delaying interconnection, the setting of prohibitively high prices, on-net/off-net discrimination) has a potential importance in relation to small operators or new operators entering the market.

To the extent that there are overlapping areas between the business models of the fixed network and mobile operators (fixed-mobile convergence), unregulated termination rates are suitable for causing competition distortions between fixed and mobile networks. The subsidisation of mobile communications retail customer prices through excessive fixed-to-mobile mobile termination rates strengthen/accelerate the substitution of fixed network services by mobile network services. This is intensified even more by a marked on-net/off-net price discrimination as well as by specific product bundling which allow mobile operators to penetrate into the core business area of the fixed network operators.

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[128] Cf. Staff Working Document on the 14th Report, SEC(2009)376, vol. 1, page 19 et seq.

Hence in the absence of regulation, the following current and/or potential competition problems are to be expected:

- Allocative market distortions due to too high termination rates for calls from fixed to mobile networks. Subsidisation of mobile communications subscribers by fixed network callers.
- Allocative market distortions due to too high termination rates for calls between mobile networks as well as the price discrimination of on-net and off-net calls (distorted price structures).
- *Foreclosure* strategies vis-à-vis small mobile communications operators and especially new market entrants (e.g. MVNOs). These can occur both through non-pricing tactics such as refusal and/or delay strategies with interconnection, unjustified conditions or inferior quality as well as through pricing tactics such as excessive termination rates, powerful price discrimination of on-net and off-net calls (application of a margin squeeze). Hence there is the danger in this connection of the leveraging of market power onto the retail level. This competition problem is relevant especially in connection with the market entry of new providers.
- *Distortions of competition* to the advantage of mobile operators and the disadvantage of fixed network operators where their business areas overlap (fixed-mobile convergence, increase in the substitution between fixed and mobile networks). The danger results from this of market power leveraging onto fixed network markets and convergent markets and/or the danger of foreclosure strategies vis-à-vis fixed network operators.

In the absence of regulation the AK expects the problems of competition described above in connection with the mobile termination services in the networks of the mobile operators named, whereby the problem of too high termination rates represents the most fundamental one to be redressed by measures of special regulation.

7 Regulatory instruments

7.1 Regulatory instruments under the KomG

In accordance with Art. 20 KomG, the AK 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);
- Rate 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 application 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 *retail markets* 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.

7.2 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 AK 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[129] and Art. 17(2) of the Universal Service Directive 2002/22/EC[130]), 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 Art. 10 and 11 of the Authorisation Directive 2002/20/EC[131]), the ERG[132] 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:[133]

(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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129 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).

130 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).

131 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).

132 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; Liechtenstein Compendium of EEA Law ("EWR-Rechtssammlung"):* Annex. *XI – 5ci.01).* The ERG was replaced by *Regulation (EC) No 1211/2009 of the European Parliament and of the Council of 25 November 2009 establishing the Body of European Regulators for Electronic Communications (BEREC and the Office*, *OJ L 337, 18.12.2009, page 1; not yet incorporated into the EEA Agreement)* by the BEREC. The AK and the EFTA Surveillance Authority have a permanent seat in the BEREC and/or previously in the ERG.

133 ERG Remedies 2006, pages 51 to 67.

7.3 Selection and assessment of the regulatory options

7.3.1 Selection of regulatory options

As a result, the regulatory instruments available 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 or reducing 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 5 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 the retail customers must be prevented)* which is effective here: The operator-specific call termination markets are – and will also remain so with the market entry of a further mobile communications provider – resistant monopoly markets, so that the cardinal objective in imposing regulatory instruments on these markets cannot be to promote competition on the termination markets themselves, 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.

All four of the competition problems identified Section 5.7 are closely related to excessive termination rates. Especially the C1 and C2 allocative distortions are a direct result of excessive prices. Hence a regulatory instrument is primarily then "effective" when it can influence the price sufficiently. Only when it can be guaranteed that the price for termination is close to the costs of the efficient provision of the service, allocative distortions no longer occur and the C1 and C2 competition problems can be regarded as eliminated.

The C3 and C4 competition problems (foreclosure strategies and/or the leveraging of market power) have both a "pricing" and a "non-pricing" component. The leveraging of marker power can for instance occur through the application of a margin squeeze. Eliminating this problem does not necessarily mean setting cost oriented rates. The relation of the wholesale service prices to the retail customer prices is central to it. This can be directed either against direct competitors (small operators and especially new market entrants) on the mobile communications markets (C3 competition problem) or against fixed network operators (C4 competition problem).

In addition to the price, there is a range of other instruments available to the market dominant undertaking to restrict the competition and leverage market power. It can for instance provide its termination product in worse quality to its competitors on downstream market, refuse access to certain necessary information, deny and/or delay interconnection or set unreasonable contractual conditions and thus increase the cost of its competitors (raise rival's cost). Especially when a cost oriented access price is set, it can be assumed that the undertaking with significant market power will try to increase its profits and/or competitive advantages through such "non-pricing" forms of behaviour.[134] This is relevant in connection with the C3 foreclosure problem. Consequently when assessing the regulatory instruments, a differentiation will be made between "pricing" and "non-pricing" aspects of the identified competition problems.

7.3.2 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.[135] 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 to evade 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.[136] Furthermore the transparency obligation can be utilised to support the Regulatory Authority when monitoring (possible) anti-competitive behaviour. The most fundamental economic argument against the imposition of an obligation of transparency is derived from the theory of oligopolies. With increasing horizontal market transparency, the tendency to collude also increases on oligopoly markets: As a rule collusive behaviour is only possible when the undertakings involved have sufficient market information about the market be-

[134] Cf. ERG Remedies 2006, pages 70 to 72.

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

[136] Cf. ERG Remedies 2006 in this regard as well, page 42 et seq.

haviour (and especially about the price setting behaviour) of the competitors. However because the present market is a monopoly market and not an oligopoly market, these considerations play almost no role.

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 and 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. However this is not the case with the mobile 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).[137]

Against this background, the transparency obligation is primarily to be seen as an auxiliary instrument for other obligations. In this respect the support provided by the obligation of non-discrimination is relevant especially in the present connection. In order to design such an obligation effectively, it is necessary that the buyers can acquire sufficient information in a simple way (such as via a homepage for instance) about any factors which could be used potentially for discrimination.[138] In this regard in the telecommunications regulation area the instrument which has become established is the obligation to publish a reference offer. This instrument is laid down in Art. 34(3) VKND as a possible obligation in connection with the non-discrimination rule and thus it is also discussed in the section on the obligation of non-discrimination (Section 7.3.5).

A reference offer for services which are repeatedly demanded (such as the termination interconnection service) is sensible there especially because (a large share of the) transaction costs can be eliminated in the context of interconnection negotiations. Furthermore operators which newly enter the market can inform themselves simply and quickly about the current situation with respect to interconnection (with individual operators). Potential delaying tactics from undertakings with significant market power are thus prevented as effectively as the possibility to completely prevent market entries.

Contracts primarily represent the basis for interconnections – corresponding to the primacy of private autonomy; in the event that an operator of a public communications network seeks interconnection, as a rule already existing draft contracts are exchanged which subsequently represent the basis for the interconnection negotiations. From the AK's perspective, the obligation to publish a Reference Interconnection Offer (RIO) which contains the fundamental legal, technical and commercial conditions does not represent a dispro-

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137 It is doubtful that there are very many competition problems which could be eliminated solely by an obligation of transparency. Cf. ERG Remedies 2006 in this regard as well, page 42 et seq.

138 Cf. ERG Remedies 2006 in this regard as well, page 42.

portionate intervention into the operator's sphere because these contracts are – against the background of the existing interconnection and interoperability obligations – already available and a functioning practice for dealing with interconnection contracts and negotiations that has been a given for years.

Conclusion: The transparency obligation alone is not suitable to eliminate the identified competition problems. The instrument serves at most as an auxiliary instrument in combination with other obligations such as for instance the non-discrimination obligation in order to design these instruments more effectively.

7.3.3 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.[139] Accounting separation alone as well as in conjunction with the transparency obligation is not suitable to redress the identified competition problems. 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 a market dominant undertaking on its operator-specific termination market, 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 other instruments such as the non-discrimination obligation (see below) or the price control (to collect data on costs).

Conclusion: The accounting separation instrument alone and/or in conjunction with the transparency obligation is not suitable to eliminate the identified competition problems. In view of the fact that furthermore an obligation for cost orientation of the termination rates should be achieved supported by a benchmarking procedure and not supported for instance by the establishment of a cost accounting system, the imposition of an accounting separation system is not indicated.

7.3.4 Access to network facilities and network functions

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 (technical interfaces, collocation, etc.). The access obligation is an effective instrument in order to stop the general refusal of inter-

139 Cf. ERG Remedies 2006 in this regard as well.

connection and/or to prevent non-pricing anti-competitive practices and thus should (against the background of the C3 foreclosure problems and those of C4 as the case may be) be imposed especially in relation to smaller operators and new market entrants.

Due to the economic importance alone of interconnection (guaranteeing the any-to-any connectivity) the obligation is considered proportionate. In the interconnection area especially of telecommunications networks the gains in efficiency through interoperability[140] are clearly predominant – not least due to the existence of network externalities.[141] While it is true that with the existence of high network effects, as is the case in the telecommunications area, as a rule it can be assumed that all operators are interested in opening up access to the respective other network for their customers, however non-compatibility (denial of interconnection) can also be applied as an instrument to restrict competition in relation to smaller operators and those newly entering the market (e.g. MVNOs). The danger of foreclosure strategies – the most extreme form of which is the denial of access – in relation to new entrants was also identified in the competition analysis as a potential problem (C3 competition problem). Such foreclosure strategies do not have to be limited to the denial of interconnection, they can also occur in the form of delaying tactics, inferior quality of the wholesale service product, denial of access to access to information and source systems, etc. As already detailed at the beginning, the market dominant undertaking has an (economic) incentive for "non-pricing" anti-competitive practices when it is subject to an access price regulation (access obligation and price regulation). In this case the market dominant undertaking will try to negatively influence the market position and/or the costs of (potential) competitors on downstream markets by means of "non-pricing" strategies. For this reason the provisions of Art. 37 VKND provide that the Regulatory Authority can impose specific access obligations that serve to specify the wholesale service product in a sufficiently "useable" manner for the buyer in order to prevent non-pricing tactics in this way.[142] The most fundamental economic argument against an access obligation is to be seen in connection with efficiency gains from exclusive contracts for goods with high transaction costs (e.g. asset specificity). But especially this is not the case with interconnection for the reasons named above so that an access obligation in the form of an interconnection obligation is to be assessed in any case as proportionate.

However an interconnection obligation on the basis of Art. 37 VNKD is restricted to "non-pricing" aspects. Hence however – analogously to the transparency obligation – this obligation alone or in conjunction with the obligations named above (transparency; accounting separation) is not suitable to eliminate all identified competition problems.

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140 The gains in efficiency include in addition to the (direct) usage of demand-side economies of scale (network externalities), the (indirect) usage of economies of scale on the supplier side (e.g. terminal device production), a reduction in substitutions and switchover costs, a reduction in transaction costs and an intensification of the actual and potential competition.

141 Network effects exist when the usage for the individual retail customer increases with the size of the network (number of subscribers). The usage of a telecommunications network with one subscriber is zero practically.

142 Cf. ERG Remedies 2006, page 89 et seq. on the "non-pricing" aspects.

The interconnection obligation concerns both direct as well as indirect interconnection. The concrete form (direct or indirect as required) is determined by the demand of the interconnection partner.

Conclusion: Against the background of the economic importance of interconnection (efficiency gains due to the any-to-any connectivity) and in view of the fact that large established operators have an incentive to practice foreclosure strategies (denial, delays, etc.) vis-à-vis new market entrants, an interconnection obligation is in any case to be considered proportionate.

As the general interconnection obligation of Art. 26 KomG and Art. 44 et seq. VKND fundamentally concerns every operator of a public communications network, the further consideration of the proportionality of this obligation is of less relevance: It can be assumed that a general legal stipulation directed at a wide target group is fundamentally proportionate and in the public interest.

7.3.5 The obligation of non-discrimination

The obligation of non-discrimination in accordance with Art. 34 VKND serves to prevent discrimination between different buyers of a service. A differentiation must be made in the current context between:

- Discrimination in relation to the price parameter (price discrimination);
- Discrimination in relation to a parameter other than the price (quality discrimination).

7.3.5.1 Quality discrimination

As already detailed in Section 7.3.4 on the access obligation, the market dominant undertaking has – especially when an access price regulation exists – an (economic) incentive for "non-pricing" anti-competitive (discriminatory) practices (C3 and C4 competition problems). The obligation of non-discrimination is an obligation that is suitable for dealing with a range of such "non-pricing" competition problems and especially different forms of quality discrimination. It can be guaranteed with this obligation that the market dominant undertaking offers the wholesale service product to all buyers at the same quality as to itself. Furthermore an obligation can be imposed to publish a reference offer in accordance with Art. 34(3) VKND in order to put in a concrete form and/or render the access obligation operative. This is sensible especially with relatively complex products because without such a reference offer, significant transaction costs – for smaller buyers especially – can arise in the context of the interconnection negotiations.

Against this background, to secure the effectiveness of the regulation, fundamentally an obligation of non-discrimination (with both an internal and external non-discrimination rule) supported by an obligation to publish a reference offer (via a homepage for instance) should be imposed. In addition to the effective elimination of discriminatory practices, the benefit of such an obligation also lies in the reduction in transaction costs (especially for smaller buyers). As there can also be efficiency gains[143] in connection with discrimination, such an obligation also has potential disadvantages which have to be taken into consideration is assessing the appropriateness. However as a rule such an assessment can – especially with new and unique circumstances – only be conducted in concrete single cases, so than generality is to be placed before specificity here (Cf. Principle 1 in this respect). In order that it is guaranteed that in the case of an application (e.g. dispute settlement) the principle of proportionality is followed, it seems purposeful in any case to limit the obligation to the extent that the potential market dominant undertaking can deviate from the obligation of non-discrimination when

- the circumstances justify this[144] or
- a different treatment has no material impacts on the competition.

7.3.5.2 Price discrimination

In addition to the "non-pricing" dimension of the non-discrimination obligation, its application in relation to the price parameter has also to be assessed. In connection with the price discrimination a differentiation has to be made between the following cases:

(a) The market dominant mobile operator discriminates between different fixed network operators;

(b) The market dominant mobile operator discriminates between different mobile operators;

(c) The market dominant mobile operator discriminates between fixed network and mobile operators;

(d) The market dominant mobile operator discriminates between itself and other buyers of the service (fixed network operator and mobile operator).

In the cases of (a) and (b) a price discrimination can lead to a distortion in competition on the (downstream) retail markets. This is especially relevant in case (a), because the incentive for such a price discrimination is a given especially in connection with associated companies and strategic partnerships. Because the market dominant undertaking is, due to the specific regulatory situation in Liechtenstein (civil law contracts and no direct setting of the termination rates), fundamentally in a position to practice (external) price discrimination, an "external non-discrimination rule" should be imposed that effectively guarantees that the potentially market dominant undertaking grants the same conditions with the same beginning in terms of their applicability to its interconnection partners and does not evade this obligation by means of cleverly drafted contracts.

143 E.g. when heterogeneous preferences by the retail customers are satisfied through price differentiation.

144 In the reverse case it is true that non-discrimination means that under the same kinds of circumstances equivalent conditions are to be offered.

Analogously to the quality discrimination, price discrimination also has potential efficiency advantages (e.g. in connection with bulk discounts). Hence it is purposeful – analogously to the quality discrimination – to limit the factual elements of the discrimination (same kinds of circumstances; material impacts on the competition). However the external (price) non-discrimination rule alone – cases (a) to (c) – and/or in conjunction with measures examined above (access obligation; transparency obligation; accounting separation obligation) is not suitable to eliminate the allocative distortions (cf. C1 and C2 competition problems), because the price setting scope of the market dominant undertaking is not restricted by such an obligation. Such an obligation merely ensures that all buyers purchase the service at the same (excessive depending on the circumstances) price and thus equal opportunities (a level playing field) are guaranteed for the competition on the respective retail customer markets.

An "internal/external non-discrimination rule" in accordance with case (d) potentially has more influence on the height of the (external) termination rates and thus is a possible alternative to price controls/cost orientation in accordance with Art. 38 VKND; an obligation on the market dominant undertaking to offer the service to all external buyers at the same price as its own retail arm. In this respect there would be two possible starting points for determining the internal transfer price:

- An obligation of accounting separation;
- The application of a margin squeeze test on the basis of the retail customer prices.

The internal transfer prices could be made transparent through the accounting separation obligation which could then also be imposed for external transactions with the help of the non-discrimination obligation. However such an approach is problematic for several reasons: Firstly at most it would be able to eliminate the C3 and C4 competition problems – which are discrimination problems in essence – but under no circumstances the (more important) allocative distortions due to excessive rates (C1 and C2 competition problems). This is so because the regulated undertaking has a certain scope in relation to the allocation of costs and revenues to the relevant business areas and – because there is an economic incentive – there is the danger that excessive transfer prices are reported.[145] Secondly it cannot be assumed that the accounting separation obligation is sufficient in order to make the information for determining the price transparent in the required degree of detail (on the product level). Thirdly the question arises in general in this connection of what a non-discriminatory internal transfer price of a vertically integrated undertaking can be. From a theoretical perspective that can really only be the (marginal) costs, so that fourthly – in this context – an accounting separation scheme stipulated by the Regulatory Authority that would be suitable in connection with the non-discrimination rule to effec-

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[145] Because there is no non cross-subsidisation rule due to there being effective competition as the case may be on the mobile communications retail market, the retail rates also do not have to cover the costs, so that excessive internal (sham) wholesale service prices would have no regulatory consequences.

tively deal with all competition problems would be an overreaction, because as a result this instrument would amount to a price control (in the meaning of cost oriented rates) in accordance with Art. 38 VKND and this obligation would assume its meaning.[146] Against this background, the non-discrimination obligation in connection with the accounting separation is to be assessed as either an insufficiently effective instrument to eliminate the identified competition problems or the obligation is interpreted in such a wide and overreaching manner that it is ultimately equivalent to the rate control in accordance with Art. 38 VKND.

Furthermore the application of the (internal/external) non-discrimination rule as an instrument to prevent a margin squeeze has to be examined. This form of implicitly determining the rate is a suitable instrument in order to prevent the leveraging of market power onto other markets by practising a margin squeeze (C3 and C4 competition problems). One example would be the routing of geographic telephone numbers to mobile terminal devices. The mobile operator could set the retail customer price for this service in proportion to the mobile termination rate in such a way that the fixed network operator is exposed to a margin squeeze. Thus the mobile operator is in a position to leverage market power from the termination market onto the fixed network market and/or onto fixed-mobile convergence services (C4 competition problem). This can be prevented by the imposition of a non-discrimination obligation. In concrete terms the mobile operator would be obliged to offer its "fixed network arm" the termination service at the same conditions as an external fixed network operator with the additional requirement that the mobile operator is in a position to offer a cost covering retail customer price on the basis of this internal transfer price. Again it is purposeful to limit the obligation to those cases in which discrimination practices are materially unjustified and these have negative impacts on the competition.

However this instrument is not suitable to eliminate the other competition problems and especially the C1 and C2 allocative distortions. On the one hand such a non-discrimination obligations raises several problems in terms of its implementation. If for instance – which would be obvious – the price of on-net calls were selected as a connecting factor for the non-discrimination obligation (internal transfer price = 0.5 * on-net tariff) there would be the danger of a significant cost coverage shortfall. It is obvious that the on-net tariffs are at a very low level. With complex models the imputed expenditure is at least as high as if one were to determine the costs of the termination directly (in addition to the retail costs, the origination costs and the costs of all relevant wholesale services would also have to be determined). On the other hand there is a completely fundamental argument as to why this obligation is not suitable in order to deal with the C1 and C2 competition problems: The elimination of these competition problems presupposes that the internal transfer

[146] In this case the Regulatory Authority would have to stipulate the calculation of the internal transfer price which as a result would amount to determining the costs of the corresponding service.

price determined in this way corresponds to the costs of the termination. However this cannot be assumed because a range of conditions would have to be fulfilled (e.g. a perfectly competitive retail area, zero profits economically, no cross-subsidisation with other areas). Furthermore the coupling of the termination rates to the retail prices contains the danger that anti-competitive effects are leveraged onto the retail market: The market dominant provider would, with each price decision on the retail market, also have to consider the impacts on the termination rates; in this respect negative effects on the competition on the retail customer market cannot be excluded.

Conclusion: It can be guaranteed by means of a non-discrimination obligation that the (wholesale) service of all buyers is offered at the same conditions. When interpreted in a wider variation, by means of a non-discrimination rule the relation between an external and (an undertaking's) internal service provision can also be regulated. Fundamentally a differentiation is to be made between price discrimination and quality discrimination. A non-discrimination obligation in relation to a non-pricing parameter (quality discrimination) and/or an obligation to publish a Reference Interconnection Offer is an instrument against "non-pricing" anti-competitive strategies of a market dominant undertaking that can then be expected especially when an access price regulation is imposed on this undertaking. Such an obligation is necessary in any case in order to stop possible "non-pricing" anti-competitive strategies. In connection with price discrimination a differentiation is to be made between an external non-discrimination rule (cases (a) to (c)) and an internal *versus* an external non-discrimination rule (case (d)). In cases of (a) and (b) price discrimination can lead to a distortion of competition on the (downstream) retail market, while in the case of (d) price discrimination can lead as a means to leverage market power onto convergent fixed network/mobile network markets (application of a margin squeeze). Against this background, a non-discrimination obligation in relation to the price parameter should initially be limited to the (a) to (c) types (external discrimination). With respect to case (d) (internal/external discrimination) such an obligation should only be applied to cases where market power leveraging is taking place onto fixed network markets and especially fixed-mobile convergence services. A general internal/external non-discrimination rule in connection with mobile communications retail customer services and especially with on-net calls is to be rejected. However the "non-discrimination obligation" instrument alone as indeed together with the obligations examined previously (transparency; accounting separation; access) is not suitable to eliminate competition problems in connection with excessive prices (C1 and C2 problems).

7.3.6 Price control and cost accounting

Art. 38 VKND provides that the AK 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 setting 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 AK 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.

On the basis of this obligation the efficient access price can – with the correct application – be set. Hence the measure is fundamentally suitable to eliminate the allocative inefficiencies (excessive prices) in connection with the C1 and C2 competition problems as well as the discrimination/cross-subsidisation problems in relation to the price (C3 and C4). The determination of the efficient access price guarantees that no excess profits are earned from the access service which could be applied to cross-subsidise other services (and especially on-net tariffs) and/or that the termination service for its own part also does not have to be cross-subsidised. Such an obligation also corresponds – in line with Principle 1 – to the nature of the most fundamental problems of competition identified in the competition analysis, i.e. those of "excessive rates".[147]

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:

(i) Cost oriented rates (cost plus regulation);

(ii) ECPR (efficient component pricing rule);

(iii) Benchmarking (comparative prices).

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 are resistant monopoly markets – and will remain so even if a further mobile communications provider enters the markets. Depending on the cost accounting method that is applied, the setting of cost oriented prices can be very costly and intervention intensive for the undertaking concerned.

The allocative distortions which were determined as competition problems are tightly connected to the 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 to set the termination rates at the height of the competition price – the level at which the

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[147] Cf. ERG Remedies 2006, page 108 et seq. in this respect as well.

public welfare is maximised. The "correct price" from an economic perspective is at the height of the long-term marginal costs of an efficient operator for the provision of the service in addition to a mark-up 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 whereby the macroeconomic public welfare is maximised. Any deviation from this level worsens the retail customers' position.

The best approximation from a cost accounting perspective to this "correct price" are the long run average incremental costs – LRAIC. The LRAIC are the incremental costs of the termination service including a mark-up for overhead costs. In this regard the investments of an efficient operator are to be taken into account as well as a corresponding (i.e. normal market) return for the capital employed while taking into consideration the risks linked to same.

ECPR prices would be proportionate especially when the development of self-sustaining competition is to be expected in the foreseeable future. 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). However this approach is not suitable to bring down excessive access prices to a cost oriented level and thus is primarily relevant for markets on which excessive prices are eliminated in the foreseeable future by the development of self-sustaining competition (Principle 3).[148]

In the context of the third price setting method, benchmarking, the setting of the price occurs on the basis of comparative values. For such a comparison, the prices on national and international markets[149] with comparable services can be utilised. 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 concerned.

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[148] Cf. ERG Remedies 2006, page 78 in this respect.

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

- Or if the results of the survey of costs are for their own part implausible due to the basis for the data 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).[150]
- 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.

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, that inefficient price structures are selected when there are overhead costs (e.g. no Ramsey pricing) and that negative incentive structures can arise for the regulated undertaking (e.g. the danger of gold plating) through the use of this instrument. The result is that losses in efficiency caused by the regulation could be induced by this. Against this background, this instrument is only then regarded as proportionate when there is no other (milder) means that is also suitable to eliminate the identified competition problems and which does not have these problems. In the event that no such instrument is available, the obligation of cost orientation is to be regarded as proportionate. The analysis of the other regulatory instruments has shown that at the most one other instrument, i.e. the internal/external non-discrimination obligation, would be considered as an alternative. However this instrument is – as was detailed in Section 7.3.5.2 – unsuitable and/or to be rejected on a range of grounds. Furthermore it should be noted that the potential problems named above in connection with the regulation of costs (investment risks, efficiency, etc.) are taken into account in the provisions that regulate the rate control (Art. 38 VKND) (but not in the provisions for the other regulatory instruments), so that ultimately these aspects are to be accorded attention in the implementation of the measures rather than by means of a (non-existent) alternative obligation.

The obligations with respect to rate controls and cost accounting contain provisions in connection with the correct setting of the access price, such as for instance the adequate consideration of efficiency, investments and market risk. On the basis of this obligation the efficient access price can – with the correct application – be set. As no other instrument is suitable to eliminate the aspects of the identified competition problems in connection with the price, this instrument fulfils the principle of proportionality.[151] Conse-

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150 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 (such as e.g. MVNOs).

151 In conformity with Art. 33 VKND.

quently in light of the identified competition problems and Principle 2 the setting of cost oriented termination rates is the most adequate[152] measure.

Although in principle[153] the undertakings should negotiate in good faith on a private commercial basis about the access and interconnection conditions, despite this the competition problems identified in the context of the market analysis have to be redressed as quickly and effectively as possible. This is especially so with respect to the problem of the excessive termination rates as already detailed whereby the undertakings involved have no (sufficient) incentives to agree lower termination rates with each other. Hence a pure obligation to introduce cost oriented prices without at the same time setting the rates as well would be inadequate. Likewise the threat of possible later intervention by the AK in the event that no private commercial agreement is reached would unduly protract the redressing of the problem of the excessive prices and not establish the required transparency and legal certainty. Hence the setting of cost oriented rates is the only suitable means to redress the excessive prices on the mobile termination markets.

7.3.7 Benchmarking vs. LRAIC cost accounting system

If an obligation in conformity with Art. 38 VKND is imposed on an undertaking with significant market power to orient its termination rates to the costs of an efficient service provider including a reasonable return on investment, the question arises on the basis of which method the cost orientation of the fees should be set and/or assessed. A range of Regulatory Authorities in the EEA apply cost accounting systems independent from the operators in accordance with the principle of the LRAIC (long run average incremental cost) or approaches related to this. In accordance with these methods, from an economic perspective the efficient price for the access is at the height of the long-term marginal costs of providing the service by a sufficiently efficient operator, whereby mark-ups for fixed costs (especially common costs and overhead costs) are to be taken into consideration: The best approximation from a cost accounting perspective to this "correct price" are the long run average incremental costs – LRAIC. This cost accounting method is also generally supported by the EFTA Surveillance Authority and recommended by the European Commission.[154]

Art. 13(2) of the Access Directive requires from the Regulatory Authorities that measures concerning the cost accounting and rate controls are to be designed in such a way that they serve to promote efficiency and sustainable competition and maximise the interests of the retail consumer. In this connection the Directive explicitly permits prices to be considered which are applicable on comparable markets open to competition.[155] Also the

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152 Cf. ERG Remedies 2006, page 73 et seq. in this respect.

153 Cf. Recitals 5 and 6 as well as Art. 4 of the Access Directive 2002/19/EC.

154 Cf. European Commission Recommendation 2009/396/EC of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU, OJ L 124, 20.5.2009, page 67.

155 This wording also corresponds exactly to Art. 38(2), last sentence, VKND.

European Commission has, against the clear background of this statutory authority – in spite of a manifest preference for LRIC cost accounting systems –, fundamentally accepted the application of benchmarking.[156]

Although LRAIC-based cost accounting systems have a range of benefits, they are also associated with numerous disadvantages. The greatest disadvantages are especially those that accompany the development of such a cost accounting model, very high expenditures in terms of time, personnel and costs for both the operator concerned as well as the Regulatory Authority. Furthermore the method is extremely intrusive for the undertaking concerned. Moreover a significant period of time must be expected when it is applied before the setting of the termination rates. In the special context of the small scale of the relations in Liechtenstein, the disadvantages named above are even more marked and in the opinion of the AK are clearly disproportionate to the size of the markets, the operators, the Regulatory Authority and the advantages in relation to other methods of setting cost oriented prices, i.e. benchmarking.

Art. 38(2), last sentence, VKND provides that the AK can, for setting cost oriented prices, also take into account rates that are applicable on comparable markets open to competition. This comparable international methodology for setting rates is what benchmarking is. The greatest advantages worth naming with applying this methodology are the low intensity of the intervention for the undertaking concerned, the low use of resources linked to this, the quick setting of the termination rates in terms of time as well as its transparency and reliability.

The AK is aware that on 7 May 2009 the European Commission delivered its Recommendation 2009/396/EC on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU. To date the EFTA Surveillance Authority has not adopted such a recommendation of its own, however it also intends over the next few months to direct such a parallel recommendation to the EEA EFTA states. The Commission recommends especially that the national Regulatory Authorities regulate cost efficient call termination rates by 31 December 2012 and introduce an LRIC cost accounting model for this purpose. In the event that there are extraordinary circumstances and especially if there are a lack of resources on the part of the authority concerned, this can however defer the introduction of such a cost accounting system in conformity with Recommendation Point No. 12 until 1 July 2014 and/or, in cases in which is would be objectively disproportionate for these tightly resourced national Regulatory Authorities to apply the recommended cost accounting method after this point in time, to continue applying an alternative method up to the point in time of the assessment of the recommendation. This is under the precondition that the result of the alternative method does not exceed the average rates that were set

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[156] Cf. by way of example the comments letter of the European Commission from18.02.2008 in the notification IE/2008/0746 or from 13.03.2009 in the case EE/2009/0883.

by the national Regulatory Authorities that apply the recommended cost accounting methods of the Commission.

The AK is of the opinion that the resources required for the introduction of an LRIC cost accounting method are not available to the very small AK at present and in the foreseeable future and thus the application of the recommended method would be objectively disproportionate. Hence it intends to avail of this exception clause provided for exactly these cases and, as described in the present market analysis, apply benchmarking as an alternative method until further notice.

For the above reasons in the opinion of the AK it is indicated that international benchmarking is to be applied as the preferred methodology for the setting of cost oriented mobile termination rates in Liechtenstein.

7.3.8 Proportionality

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 suitability of the measures 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. Even if – as presented above – in relation to some of the identified competition problems (and especially the C3 competition problem) in theory a differentiation can be made between small operators and (operators with lower market shares) and large operators (operators with higher market shares), the most fundamental problems are the same in essence so that also the same regulatory instruments are regarded as appropriate. In any case the differences in sizes between the operators in Liechtenstein are not to such an extent that a differentiation seem justified. Hence in relation to the identified market failure no differentiation is indicated in the instruments applied.

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. As detailed in the competition analysis, it can be assumed that also small operators have an incentive to levy excessive termination rates or even to set these higher than their large competitors (free rider problem).[157] Against this background, the same obligation as with a large operator with respect to the height of the rates should be imposed on small operators anyway.

Ultimately when judging the question of the proportionality of the measures in a stricter sense, their reasonableness respectively intervention intensity must be discussed. Espe-

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[157] Cf. Chapter 5.

cially the selection of benchmarking as a price setting mechanism and the taking into consideration of the specific conditions in Liechtenstein guarantees this. The other measures to be taken, i.e. the imposition of obligations to guarantee non-discrimination, the transparency and the access to the mobile networks for the purpose of terminating calls represent per se either minor interventions into the private autonomy of an operator or are a concrete form of statutory obligations that exist independently, such as for instance those to guarantee the end-to-end connectivity.

7.3.9 Other obligations

The Regulatory Authority can also under Art. 43 VKND impose obligations other than those laid down in Art. 34 to 42 VKND with regard to access. These are either obligations on the retail level or obligations not named in KomG for when extraordinary circumstances arise. In such a case the Regulatory Authority must make a corresponding application 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 competition problems identified in the present procedure unequivocally concern problems on the wholesale level. The application of measures on the retail market level would thus be neither economically sensible nor – in light of the new "wholesale service regulation before retail customer regulation" legal framework premise – proportionate.

Hence in the present procedure, only those obligations named in KomG have been examined and no others, because according to the AK 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 identified competition problems and which would be more appropriate.[158]

7.4 Conclusions with regard to regulatory instruments

In the context of the present market analysis four problems of competition have been identified in connection with mobile termination. All four of the competition problems identified – especially the C1 and C2 allocative distortions – are closely related to excessive termination rates. Hence in this case a regulatory instrument is primarily then "effective" when it can influence the price to a sufficient degree. The analysis of the regulatory instruments available clearly shows that only the obligation for rate controls and cost ac-

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[158] 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. Obligations for the undertaking worth mentioning here are to switchover the charging principle (calling party pays principle to a receiving party pays principle, such as bill and keep) or to introduce terminal devices (multiple SIM cards) that support several contractual relationships (separated for termination and origination). In the opinion of the AK these obligations would be impractical and significantly more intervention intensive than those suggested here and their 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.

counting (Art. 38 VKND) is suitable to eliminate these aspects of the identified competition problems.

In consideration of the high expenditure on time and costs for the preparation of a cost accounting system that is independent from the mobile providers, such as for instance a bottom-up LRAIC model, the AK regards it as inappropriate to undertake the cost orientation of the mobile termination prices utilising such a system. The international benchmarking method is more suitable, faster, cheaper and the least intervention intensive for setting cost oriented termination prices.

In order to prevent possible competition distorting effects through price discrimination and the leveraging of market power onto fixed-mobile convergence services, in addition an external price non-discrimination rule is to be imposed.

Hence the AK regards it as necessary and reasonable in order to eliminate the competition problems determined on the operator-specific mobile termination markets of Mobilkom FL, Orange FL, Swisscom FL and Alpcom Telecom Liechtenstein AG to impose the following measures of special regulation on them under Art. 23(1) KomG:

- Obligation to grant access (direct or indirect interconnection) to the public mobile telephone network of the operators for termination of voice calls in accordance with Art. 23(1)(d) KomG and Art. 37(1) VKND;
- Under Art. 23(1)(d) KomG and Art. 38 VKND the obligation of the operators to orient their termination fees to the costs of an efficient operator based on international benchmarking of the termination rates;
- External non-discrimination obligation in relation to the price of interconnection with the operators for the termination of voice calls as well as an internal and external non-discrimination obligation in relation to the quality of the interconnection in accordance with Art. 23(1)(d) KomG and Art. 34 VKND;
- Transparency obligation in accordance with Art. 23(1)(d) KomG and Art. 35 VKND: Obligation to publish and update a Reference Interconnection Offer on the website of the operators that must at least contain the following elements:
    - Ways and costs to establish the interconnection links,
    - Information about locations of the exchange(s),
    - Kinds of traffic and rates,
    - Regulations concerning emergency services,
    - Regulations concerning private networks,
    - Regulations concerning personal services,
    - Regulations concerning other services (telephone fault reporting points, recorded messaging services, information services, public short numbers for special services);

8 Setting the termination rates

8.1 Benchmarking as a method for setting rates

Art. 38(1) VKND provides in accordance with Art. 13(2) of the Access Directive that the Regulatory Authority can set cost oriented termination rates in order to promote efficiency and sustainable competition and to maximise the interests of the retail consumers. The AK is in accordance with Art. 38(2) VKND expressly permitted when setting the rates to take into consideration prices applicable on comparable markets open to competition.

With benchmarking the setting of the mobile termination rates occurs on the basis of the rates of foreign operators which are used as a comparison standard. Fundamentally it must be ensured when comparing that the comparability of the markets used is a given. In this respect however the markets to be utilised for comparison purposes do not have to 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.

Contrary to the frequently expressed opinion of mobile communications operators, in point of fact the foreign operators to be used for the comparison do not necessarily have to be uniform in terms of their structures and costs: Similarly to a so-called bottom-up or green field-LRAIC model, what should be determined exactly is which are the production costs of the "mobile termination" service of an efficient operator. In other words a hypothetical efficient operator is used as a basis for a comparison standard and exactly not the actual costs and other structures of the operators in question.[159]

8.2 Symmetric vs. asymmetric termination prices

When setting the termination rates for the individual termination network operators, the question arises of whether a uniform termination price (symmetric termination price) or rather a differentiated termination price (asymmetric termination prices) should be set. The EFTA Surveillance Authority[160], the European Commission[161] and the BEREC/ ERG[162] represent the opinion that termination rates should fundamentally be symmetric in the networks of different mobile operators in a country. The European Commission then also explicitly stipulates for the Regulatory Authorities in the 1st Recommendation Point second sentence of its Termination Price Recommendation 2009/396/EC that the termination

[159] For this reason the regulation of the rates also does not have to occur "operator-specific" as was incorrectly argued in the context of the consultation procedure, but rather – and especially in consideration of the prevailing termination monopoly on this market – on the basis of a hypothetical efficient operator.

[160] Cf. comment of the EFTA Surveillance Authority of 6 September 2005 on the submission of the Norwegian Regulatory Authority NPT on the planned measures in the mobile termination markets (M16), https://eea.eftasurv.int.

[161] Cf. for instance the comments of the European Commission on Art. 7 Framework Directive notification cases FR/2006/0461 and LV/2007/0574.

[162] Cf. ERG's Common Position on symmetry of fixed call termination rates and symmetry of mobile call termination rates, ERG (07) 83, page 63 et seq.

rates in the fixed network and mobile termination markets *"must"* be symmetric.[163] The EFTA Surveillance Authority is planning in the near future to issue a parallel recommendation for the termination markets.[164] The AK has in accordance with Art. 20(1) second sentence KomG to take into consideration *"as far as possible"* recommendations of the EFTA Surveillance Authority.

Thus factors such as e.g. different technologies or different costs per subscriber are of subordinate importance in a competitive market, because with functioning competition a new competitor cannot cite the technology utilised and/or the frequency band used[165], the business organisation or its own higher costs as an argument for a higher price for the service. In a competitive market the providers are price takers and forced to be sufficiently efficient in order to earn positive marginal returns at a given market price. Otherwise they are forced to leave the market. This mechanism guarantees that the companies are sufficiently efficient and the total public welfare is (and in turn the uses for the retail customers as well are) maximised. Against this background and the fact that the termination service represents a homogeneous product, fundamentally one uniform termination rate is to be provided for all operators.

Notwithstanding the details provided above, asymmetric termination prices limited in time could however be justified[166,167] as required in cases where there are objectively different costs due to exogenous factors not influencable by the undertaking concerned. Such factors can for instance be:

- The significantly later market entry (and lower market share)[168] of an operator;
- Different frequency allocations that lead to higher costs for constructing and expanding the network and securing coverage;
- Different costs for the issuing of the frequency/license (e.g. incumbents paid no fees, new competitors are subject to an auction procedure).

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163 Cf. Recommendation 2009/396/EC of the European Commission of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Markets in the EU OJ L 124, 20.5.2009, page 67.

164 On the occasion of a working session in Vaduz on 24.08.2010, representatives of the EFTA Surveillance Authority informed the AK that the Authority is also planning to issue a parallel recommendation "in the near future".

165 Unlike in a less densely populated country, there are no significant advantages and/or disadvantages with respect to the costs for the expansion and operation of the mobile radio communications networks in Liechtenstein resulting from the frequency spectrums allocated (900 MHz or 1800 MHz) due to the smallness and topography of the country. In fact there are little or no differences in the network topologies and/or the number of base transceiver stations (BTS) of the Liechtenstein mobile communications operators.

166 Cf. ERG's Common Position on termination rate symmetry, page 75 et seq.

167 Cf. for instance comments of the European Commission on the notification cases in accordance with Art. 7 Framework Directive BE/2006/0433 and FR/2006/0461.

168 However lower market shares cannot only be a consequence of a subsequent market entry but can also be from endogenous factors, i.e. factors for which the operator concerned is responsible.

The exogenous differences in costs[169] have to reflect such temporary operator-specific termination price asymmetries in order that inefficiencies and distortions in competition are avoided. In this respect a Regulatory Authority has to avoid that different termination prices only serve to cover higher unit costs of the operator subsequently entering the market and not for the subsidisation of retail customer products because the mobile operators are in competition with each other on the retail level and not on the wholesale level and otherwise this could lead to distortions in competition.[170] In addition the AK has to guarantee that any temporary asymmetric termination rates lead to a higher degree of competition in the future and that the overall economic benefits achieved by this are not exceeded by the costs induced by this for the consumers.

Furthermore temporary asymmetries in the design of the glide paths that take into consideration the different starting levels of the termination prices of the individual operators can be appropriate in order to avoid unduly disruptive interventions as the case may be.

The allowing of asymmetric termination prices over an unduly long period of time can lead to inefficiencies and/or inefficient market entries and be detrimental to competition and the total public welfare: The incentives are limited to minimise costs as well as for investments and innovation, distorted price signals arise and the higher costs due to the existing inefficiencies are rolled over to the retail customers. Due to these reasons and the details provided above on price setting in a competitive market with homogeneous products, any asymmetries are only temporarily permissible.

The question of any asymmetries limited in time between the regulated termination rates of the different operators in Liechtenstein is to be assessed as follows:

Swisscom FL was already operating under the former PTT Treaty as a mobile provider in Liechtenstein and received in the context of the liberalisation of the sector in 1999/2000 a license to guarantee the provision of services to its existing customers without it having to participate in a tendering procedure. Apart from the costs avoided by not participating in a tendering procedure, Swisscom FL had however the same license issuing fee imposed on it as had the newly licensed competitors. Hence there is no fundamental difference in costs between the operators in relation to the issuing of licenses which would make asymmetric treatment necessary.

In this respect the undertakings Mobilkom FL, Orange FL and Alpcom (formerly Tele2) have already been commercially active on the Liechtenstein market since 2000, or for 10 years. Although Swisscom FL had already provided mobile communications services in Liechtenstein under the PTT Treaty – and thus longer than the competitors first licensed in 2000 – the AK is of the opinion that due to the other mobile operators' many years of

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169 Due to a lower market share and/or number of subscribers, these operators lack economies of scale in their market entry phase which leads to higher unit prices for the termination service.

170 Cf. ERG Common Position on termination rate symmetry, page 89.

business operations by now as well, there are no grounds that would justify a (temporary) asymmetric termination regime at the present point in time. The market entry phase is long over.

The argument put forward in the context of the national consultation that through the use of different frequency spectrums (900 MHz vs. 1800 MHz) for the construction and expansion of the radio access network in Liechtenstein different costs would arise for the mobile communications operators is, in the opinion of the AK, valid as the case may be for geographically larger countries but not so for the conditions in Liechtenstein. The comparable number of transmitter stations the operators have in both frequency bands should be pointed out here. Furthermore the expansion of the network is also dependent on factors such as the topography, the traffic density and the (preferential) frequencies that are available.

Finally the argument has to be addressed that was also put forward in the context of the national consultation exercise that asymmetric termination rates between Swisscom FL and the other mobile operators ought to be set because, due to regulatory requirements imposed, there is an obligation for the other mobile operators to construct a whole mobile communications core network which however is not applicable to Swisscom FL. As an incumbent, Swisscom is not subject to the obligation. However the other operators would have had to make these investments (with the corresponding cost consequences) which they would not have had to make without the imposition of regulatory requirements as the case may be. The AK fundamentally agrees with the consultation participants that the competitors of Swisscom FL can have, due to the imposition of these regulatory requirements, additional investments costs arising to them – depending on each undertaking's own investment strategy. However the Liechtenstein Government has already detailed in its 2004 Policy Statement on mobile telephony that with regard to the question of the obligation to construct a mobile communications core network, relaxations of the framework conditions and requirements imposed can definitely occur.[171] This is to be examined on a case-by-case basis. In addition it should be pointed out that the operators newly licensed in 2000 had already demonstrated ten years of business operations since then during which time they could freely and arbitrarily use their price setting scope – and especially in the termination fees area – to amortise these additional investments and that they have also done so in the opinion of the AK. Likewise it should also be pointed out here that Swisscom FL for its own part has since the 3rd quarter of 2005 unilaterally reduced its termination prices clearly several times in comparison to the other mobile operators. Thus the marginal returns earned by Swisscom FL over the last few years from mobile call termination are correspondingly lower in comparison to those of the other mobile operators.

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[171] Policy Statement by the Government on 24 August 2004 on a National Communications Policy in the Area of Mobile Communications Telephony, page 12.

Furthermore additional costs also accrued to Swisscom FL over the course of the liberalisation of the mobile communications market which the other mobile operators did not have to render: In this way for instance costs accrued due to the migration obligation of the existing customers and the adjustment of the existing systems to the changed regulatory framework conditions.

In view of the above explanations, the AK does not regard it as justified to set asymmetric termination rates. As the termination service represents a homogenous product and any symmetries can, as detailed above, only exist temporarily, a uniform termination rate is to be provided at the end of the glide paths for all operators. Consequently the cardinal aim of regulatory intervention is in this connection the "imitation" of a competitive result (this is in accordance with Art. 1(1)(b) KomG, "promotion of effective competition").

8.3 The effective mobile termination prices in Liechtenstein

The current development of the mobile termination rates in Liechtenstein is as follows:

Termination rates as of	**Mobilkom FL**	**Orange FL**	**Swisscom FL**	**Alpcom**	***Weighted average***[172]
31.12.2006	0.395	0.35	0.26	0.395	***0.35***
31.07.2007	0.395	0.35	0.245	0.395	***0.35***
01.08.2007	0.35	0.35	0.245	0.35	***0.32***
01.09.2010	0.35	0.35	0.14[173]	0.35	***0.31***
01.10.2010	0.35	0.35	0.08[174]	0.35	***0.30***
01.11.2010	0.35	0.25[175]	0.08[176]	0.35	***0.28***
01.01.2011	0.35	0.20 [177]	0.07[178]	0.35	***0.28***

Table 6: The effective mobile termination prices in Liechtenstein in CHF

In Liechtenstein no peak/off-peak differences, weekend tariffs or call set-up rates are applied.

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172 Weighted average in accordance with the respective market shares.

173 In accordance with the notification by Swisscom (Schweiz) AG to the AK on 21.09.2010, it will reduce its termination prices in Liechtenstein in lockstep with the planned reductions in Switzerland as of 1 October 2010 from 14 to 8 centimes per minute and at the start of 2011 to 7 centimes per minute. Cf. in this respect the press release from Swisscom (Schweiz) AG dated 9.9.2010 as well.

174 Cf. footnote 173.

175 Notification by Orange FL to the AK on 16 September 2010.

176 Cf. footnote 173.

177 Notification by Orange FL to the AK on 10 December 2010.

178 Cf. footnote 173.

The reduction that occurred on 1 August 2007 in the termination prices of Mobilkom FL and Alpcom to CHF 0.35 per minute was a consequence of a setting of the rate ceiling for the mobile numbering ranges by means of Art. 12 of the Liechtenstein numbering plan in accordance with ITU-T E.164.[179] Hence this partial reduction in the termination rates is a consequence of a regulatory measure and does not concern an autonomous and/or competition induced reduction.

Prior to the introduction of a rate upper limit in the mobile numbering ranges, the weighted[180] average termination price of all mobile operator in Liechtenstein amounted to CHF 0.35 per minute. As of 1 January 2011 it amounted to CHF 0.28 per minute. The reduction in the rates can be traced back on the one hand to the introduction of a rate upper limit for the mobile numbering ranges and on the other hand to the repeated autonomous reductions in the termination rates by Swisscom FL and recently by Orange FL (as of 1 November 2010 and 1 January 2011). Since then Mobilkom FL and Alpcom have kept their termination prices – despite the unilateral reductions by their competitors in the meantime – unchanged at the current high levels. The termination price of Swisscom FL is currently 80% under the unit price of both these competitors.

The following graphic presents the development of the individual mobile termination prices of the Liechtenstein mobile operators from 2004 to today:

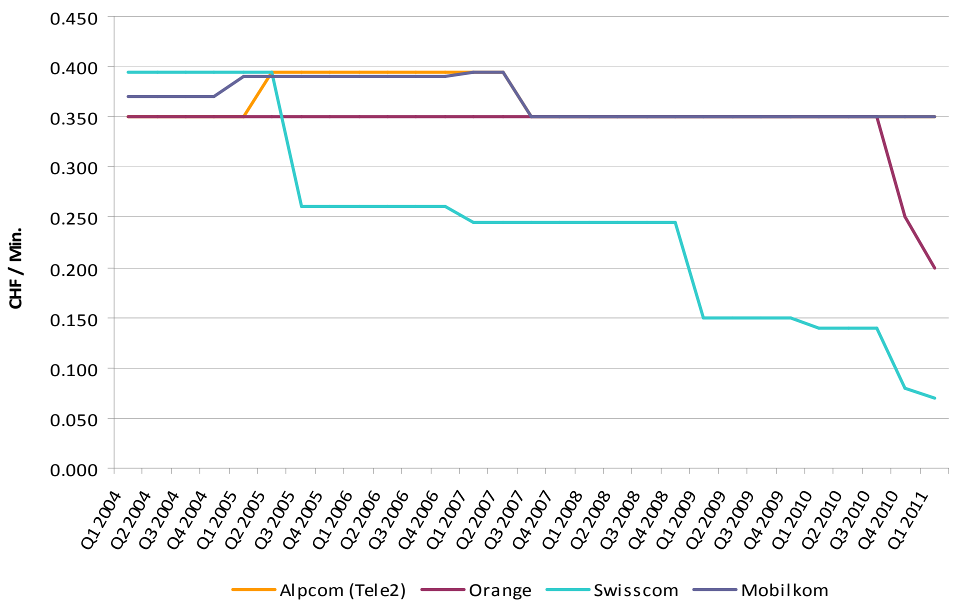

Figure 8-1: Development of the mobile termination prices of the Liechtenstein providers since 2004

179 Announcement on 3 April 2007 of the Liechtenstein numbering plan in accordance with ITU-T E.164, LGBl. 2007 No. 69, in the version from 1 July 2007.

180 Weighted with the domestic market shares of the respective providers.

It is clear from the presentation of the termination prices of the Liechtenstein mobile operators over the course of time that since 2004 the termination prices of Mobilkom FL and Alpcom have stagnated at a very high level and were even increased in the meantime before rate ceilings caused by the numbering plan became effective in 2007. Also Orange FL stagnated for a long time until the price reductions which first occurred recently. The only exception is Swisscom FL which has now reduced its termination price in six stages to the present level.

When the development of the weighted average of the Liechtenstein mobile termination prices is presented, it is evident that solely due to the price reduction by Swisscom FL – and despite the price increases undertaken by other operators in the same period – a moderate overall reduction occurred temporarily up to the end of 2005, before the prices even rose again at the beginning of 2007 in order to finally result in a new slight reduction in mid 2007 due to the introduction of the rate upper limits. Further reductions since this point in time can solely be traced back to one-sided reductions in the termination prices by Swisscom FL and since 1 November 2010 by Orange FL (as well as to shifts in the market shares in the context of calculating the weighted average).

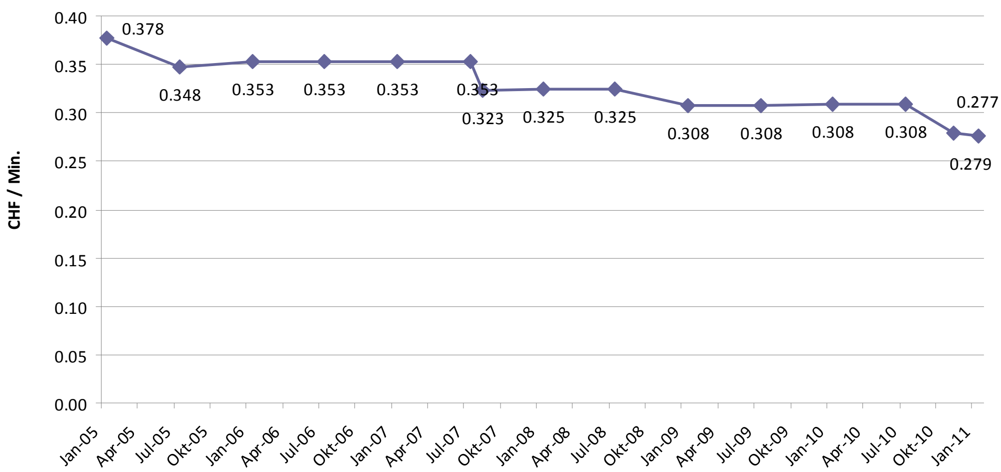

Figure 8-2: Development of the weighted average termination prices

8.4 The mobile termination prices in an EEA comparison

The Independent Regulators' Group (IRG) which is composed of the independent telecommunications Regulatory Authorities of the EEA Agreement states[181] and is now the Body of European Regulators for Electronic Communications (BEREC)[182] has since 2004 collected six-monthly detailed data on the effective mobile termination prices in the member countries (the so-called Mobile Termination Rate (MTR) Snapshots). The following analyses and presentations are based on the data surveyed by the IRG/BEREC and were supplemented by Liechtenstein data.[183]

The next overview presents the average national mobile termination prices as of 1 July 2010. The calculation basis is the minute average of a three-minute voice call.[184] The value provided for each country concerns a weighted average value with the market shares of the operators.

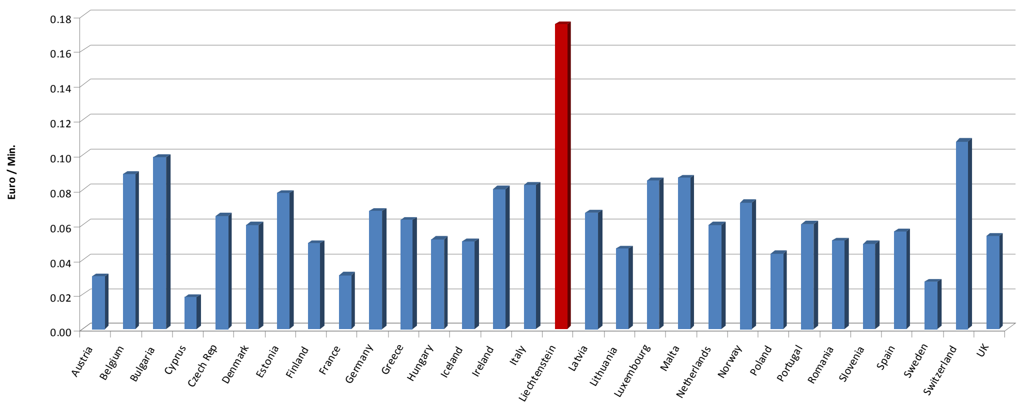

Figure 8-3: The mobile termination prices of the IRG member states as of 1 July 2010

It follows from the analysis of the present data that the average mobile termination price in Liechtenstein as of 1 July 2010 was 209% above the overall European average: While the weighted European average was at 5.65 euro cents, the weighted average mobile termination price in Liechtenstein amounted to 17.50 euro cents.[185] A comparison with

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181 In addition to the EEA states, the independent Regulatory Authorities of further European states are associated members.

182 The German name Gremium *Europäischer Regulierungsstellen für elektronische Kommunikation (GEREK)* is not used in the context of this work.

183 The AK is an IRG member but has not participated in the preparation of the MTR Snapshots. The IRG MTR Snapshots are published on the IRG website http://www.irg.eu.

184 When calculating the average termination price per operator, any peak/off-peak and weekend tariffs are taken into account at a ratio of 50%-25%-25% as well as any fees to set up a connection and the average of a three-minute call is formed.

185 All calculations and comparative data are based on an exchange rate of CHF 1.4086 to 1 euro.

neighbouring Switzerland shows that the Liechtenstein mobile termination prices as of 1 July 2010 were approx. 62.5% above the Swiss ones (10.75 euro cents).

The following graphic compares the development of the mobile termination prices in Europe, Switzerland and Liechtenstein:

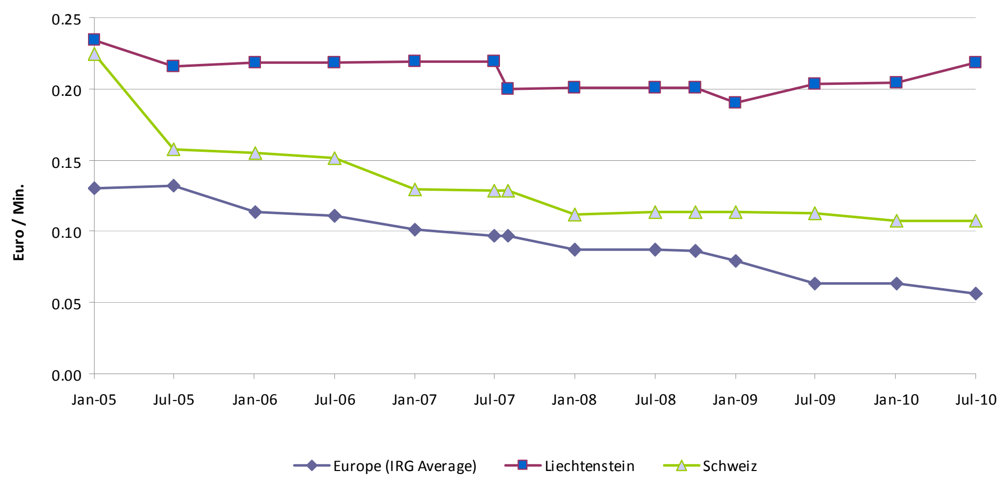

Figure 8-4: Comparison of the development of the termination prices in Europe, Switzerland and Liechtenstein

While the average mobile termination price in Europe from 2005 to mid 2010 decreased relatively by more than half (56.5%) in total, the Liechtenstein price decreased by just over 25% in the same time period. The absolute price level (starting level for the present comparison) in Liechtenstein was and is however considerable higher. At the beginning of 2007 a minor interim increase even occurred in the domestic termination prices. The slight decrease as of 1 August 2007 was a result of regulatory requirements and not of competition.[186]

By way of comparison the average mobile termination prices in Switzerland in the same period also decreased in lockstep with the rest of Europe by a total of approx. 52%, even if the absolute level of the Swiss termination rates was higher up to then and first began to decrease to the European level with the reductions there in the termination prices as of 1 January 2011.

In summary it can be said that the price comparison conducted above supplies empirical evidence for the existence of the central competition problem in connection with mobile termination, i.e. the problem of excessive rates. In concrete terms the comparative data show that the currently unregulated mobile termination rates in Liechtenstein amount to approximately three times (!) the European average as of mid 2010 as well as of the cur-

186 The fluctuations that emerge over the last two years are caused mainly by EUR/CHF exchange rates.

rent Swiss average. This suggests that the average termination rates applied in Liechtenstein are clearly above the long-term cost efficient level.

The average Liechtenstein mobile termination price has – despite the unilateral reduction in the termination prices by Swisscom FL and recently Orange FL – fundamentally stagnated over the last few years. Furthermore it must be said that, aggravating the situation, over the last three years several price increases have been undertaken by Alpcom (once) and by Mobilkom FL (twice). This price setting behaviour proves the market dominant position of the mobile operators in their termination markets which permits them to behave to a considerable extent independently from competitors, customers and ultimately consumers.

Which further distortions and negative excesses the high termination tariffs in Liechtenstein cause can be illustrated in relation to the international roaming tariffs regulated at EEA level. Article 4(2), 3rd Sentence, of the Roaming Regulation[187] provides that for passive roaming, i.e. the reception of a call in a mobile network abroad, a maximum retail tariff of currently 15 euro cents per minute (VAT excluded) may be levied. This price cap decreases to 11 euro cents on 1 July 2011.

Therefore, a foreign mobile provider may charge its customers who roam and receive a incoming call in the network of a Liechtenstein mobile operator not more than the above mentioned retail rate in accordance with the Roaming Regulation. At the same time that foreign mobile provider must pay the Liechtenstein mobile operator concerned a termination rate of 24.80 euro cents per minute (35 centimes per minute) for the delivery of the same call. He thus suffers a loss of 9.80 euro cents per minute (and even 13.80 euro cents per minute from 1 July 2011).[188]

This effect is exacerbated for most mobile operators in other EEA countries due to the fact that none of these operators maintains direct interconnection agreements with the four Liechtenstein mobile operators and, therefore, must pay even higher mobile termination rates (24.80 euro cents plus transit margins), with correspondingly higher losses.

The high domestic mobile termination rates consequently lead to unjustified revenues and transfers of wealth and market distortions. Some foreign operators have moved to block Liechtenstein as a roaming country and switched to Switzerland as a "cheaper" roaming alternative instead.

Hence based on the results of the present analysis, the conclusion must be drawn that resistant excessive mobile termination rates represent to a very considerable extent an acute competition problem on the operator-specific mobile termination markets in Liechtenstein. Consequently the termination prices of the operators are to be regulated and oriented to the costs of an efficient operator.

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187 Regulation (EC) No 717/2007 of the European Parliament and of the Council of 27 June 2007 on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC (EEA Compendium of Laws: Annex XI - 5cu.01, as amended by Regulation (EC) No 544/2009; EEA Compendium of Laws: Annex XI - 5cu.02).

188 For reasons of consistency the same EUR/CHF exchange rate as previously in this document was used, even though the differential based on the current exchange rate is even higher.

8.5 The selection of the reference values for the benchmarking

In Sections 7.3.7 and 8.1 above the use of benchmarking for setting the mobile termination rates in Liechtenstein was reasoned. The AK discusses the question hereunder of which reference value respectively which comparable countries are to be used as a basis for the benchmarking.

The Regulatory Authorities of those EEA states which are currently using or used until the introduction of an LRIC cost accounting system international benchmarking for setting the mobile termination prices have selected different approaches: Regularly the total average calculated of all countries represented by the IRG was selected as a reference value. To some extent a reference value was selected in which only the three countries with the lowest mobile termination prices were taken into consideration as a comparison standard or the termination prices of the neighbouring countries or further comparable countries in the region (e.g. the Nordic countries) were taken as a basis. The remaining Regulatory Authorities have determined their benchmarks by the selection of other criteria for comparison as a basis for termination prices, such as especially by a limitation to those countries that have determined the (regulated) termination prices on the basis of a suitable analytical cost accounting method.

More recently, and especially since the adoption of the *Recommendation 2009/396/EC of the European Commission of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU,* the majority of the Regulatory Authorities have switched over to the LRIC cost accounting system recommended therein to determine the termination rates. As per the AK's level of knowledge, the Regulatory Authorities of the following EEA states and associated countries/territories are still applying international benchmarking at present: Luxembourg, Malta, Estonia, Latvia, Ireland, Bulgaria, Portugal, Gibraltar.

The European Commission has recommended that national Regulatory Authorities introduce cost efficient termination rates on the basis of an LRIC cost accounting method by 31 December 2012. As already detailed in Section 7.3.7, the Regulatory Authorities can however in the event that there are extraordinary circumstances, and especially if there are a lack of means and/or resources, defer the introduction of such an LRIC cost accounting system or completely waive it if this were objectively disproportionate. In these cases the authority concerned has to apply an alternative method to regulate the termination rates, the result of which may not exceed the average rates that were set by the national Regulatory Authorities applying the recommended cost accounting methods of the Commission.

The AK has already set out above why it regards the introduction of an LRIC cost accounting system in Liechtenstein as objectively disproportionate (over the long-term) in the meaning of Recommendation Point No. 12 of the Recommendation 2009/396/EC and that instead it maintains that the application of international benchmarking to be proper and appropriate.

Furthermore it follows from the recommendation that when applying an alternative price setting method – international benchmarking in the present case – the regulated termination rates may not exceed the average of the rates of those national Regulatory Authorities already applying the LRIC cost accounting systems. Thus the AK is fundamentally restrained from regulating mobile termination rates in Liechtenstein that exceed this average price. For this reason it would also be self-evident to select exactly those countries as a basis for the comparison in the context of the benchmarking in Liechtenstein that apply an LRIC cost accounting model corresponding to the recommendation. In any case the question arises – against the background of the fact that the LRIC countries are generally characterised by the lowest termination prices in an EEA-wide comparison – whether a selection of the countries otherwise by the AK is capable at all of leading to a result that is not higher than the average of the countries applying the LRIC. In other words in the opinion of the AK it can be excluded anyway when following the Recommendation that a selection of the countries otherwise to form the basis for the comparison leads to a result above this average; however it could also be below that as the case may be.

In accordance with the information available to the AK, at present the Regulatory Authorities of 17 EEA states apply an LRIC cost accounting system in the meaning of the European Commission Recommendation for determining the mobile termination rates:

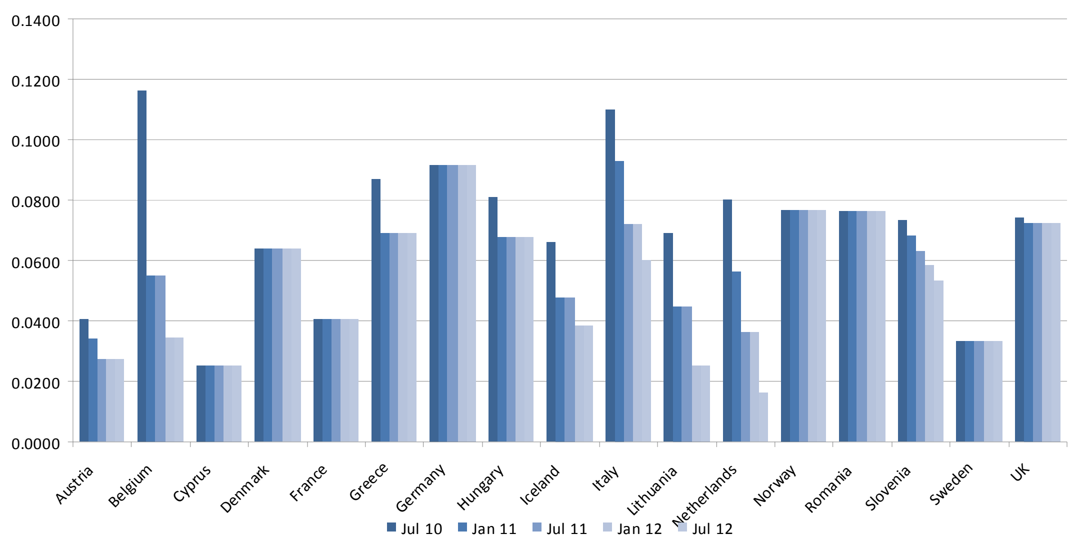

Figure **8-5: Countries with LRIC cost accounting systems (PPP adjusted; glide paths until 2012)**

In order to take into account appropriately the different purchasing power of these countries in comparison to Liechtenstein[189], the AK has adjusted the above average termination prices determined for these countries by taking the purchasing power parities[190] re-

[189] The purchasing power parities for Switzerland were used.

[190] http://www.oecd.org/dataoecd/48/18/18598721.pdf.

ported by the OECD as of September 2010 as an adjustment basis. As of 1 July 2010 the average of the adjusted termination price of theses countries amounted to 7.07 euro cents per minute (9.96 centimes per minute).[191]

The following development of the purchasing power adjusted termination prices is to be expected in the LRIC comparison countries based on the published glide paths:

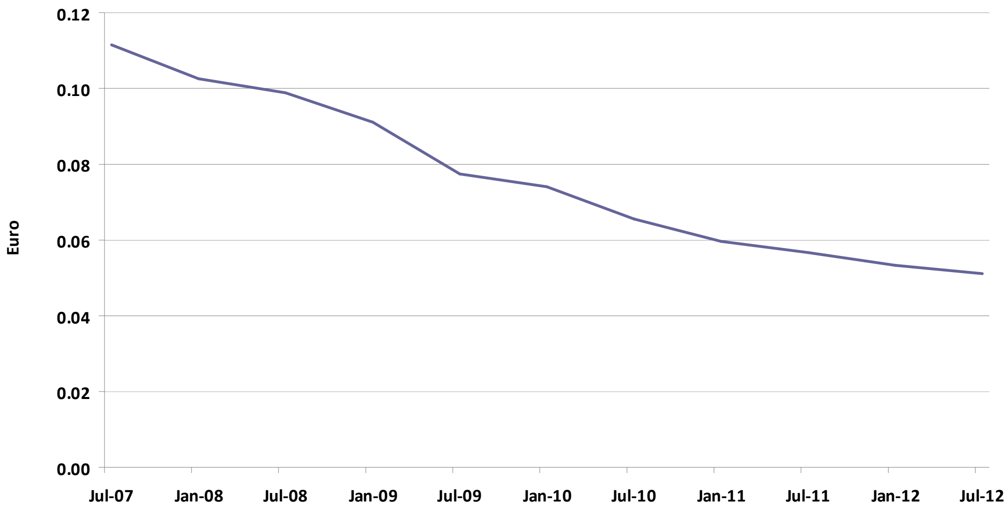

Figure 8-6: Expected development of the average prices in the current LRIC countries

The taking into account of the published glide path end values of the countries to be used as a basis for the comparison suggests a PPP adjusted benchmark value[192] of 5.12 euro cents (7.21 centimes per minute) in July 2010. This means that the average value calculated on the basis of the above LRIC countries available on 1 July 2010 will in all probability decrease by at least a further 27.5% up to 2012.

In contrast to the above referenced Recommendation on termination prices in which the European Commission requires as a minimum the compliance with the average value of all Regulatory Authorities applying LRIC, it has repeatedly[193] required of the Regulatory Authorities in the context of the Art. 7 notification procedure that when benchmarking the countries to be used as a basis for the comparison have to be chosen in accordance with carefully selected objective criteria and clearly justified for which reasons the selected markets are most suitable for the comparison. In this regard differences especially in the dominant conditions in these countries are to be considered in comparison to one's own

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191 Calculated while applying the method described in Section 8.4. The CHF/EUR exchange rate of CHF 1.4086 to 1 euro reported by the European Central Bank for the 2nd quarter of 2010 was also used here (cf. http://sdw.ecb.europa.eu/browseSelection.do?DATASET=0&FREQ=Q&CURRENCY=&node=2018794).

192 The calculation of the average weighted termination price is based on the published glide path values available. The weighting occurred by applying the market shares of the operators in the countries concerned as of 1 July 2010. When no glide path value was available for a year, the value for the previous year was applied. When the reduction in the termination price occurred during a year, the lowest price was applied.

193 Cf. for instance comments letter of the Commission dated 13.03.2009 in case EE/2009/0883, page 4.

market. An inherent contradiction results from this requirement to the requirement set by the Commission in its recommendation in that the alternative price setting method selected by the Regulatory Authority may not lead to termination prices which are above the average of the countries applying LRIC. The contradiction arises when the countries selected by the Regulatory Authority on the basis of the imposed requirement named above lead in the comparison to a higher benchmarking value than the average named by the Commission in its Recommendation. As already described above, this can be assumed to be very probable due to the fact that the application of LRIC generally leads to lower termination rates in a comparison.

Furthermore the AK cannot recognise any grounds that, in consideration of the scale of the conditions and the development of the market in Liechtenstein or due to other factors, would argue for selecting further for the countries forming the basis for the benchmarking with a result that still falls below the average value to be complied with in accordance with the Recommendation as described above.

Thus in the context of the regulation of the mobile termination prices in Liechtenstein the *Decision of the EEA Joint Committee No. 11/2004 of 6 February 2004 on incorporation of the Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive; Compendium of EEA Law: Annex. XI – 5cj)* is still to be taken into consideration. The decision determines that the Access Directive is applicable for the purposes of the EEA Agreement with the following adjustment: *"Whereas Liechtenstein and its national regulatory authority shall make all reasonable endeavours to apply the provisions of this Directive, the assessment of their compliance shall take due account of the specific situation of Liechtenstein and the particular circumstances of its very small telecommunications network, its market structure, its limited number of customers, its market potential and the possibility of market failure."*

Thus the AK can in the context of the access regulation in accordance with the Access Directive take into consideration – and this includes the regulation of access rates in the form of termination rates in mobile communications networks – "the specific situation of Liechtenstein" and "the particular circumstances of its very small telecommunications network, its market structure, its limited number of customers, its market potential and the possibility of market failure". This is applicable especially in those cases in which despite reasonable efforts to implement the Directive the above problems are rendered:

As described in Chapter 2, the Liechtenstein mobile communications providers are in direct competition with the Swiss providers for retail customers. The trend whereby Liechtenstein customers often buy their mobile subscriptions from Swiss mobile communications providers rather than from domestic providers is continuing unbroken. The circumstance especially is significant in this respect in that the total number of customers at Liechtenstein mobile communications providers since 2004 – against the background of the fast paced growth in the numbers of mobile communications subscribers everywhere in this time period – has only increased by a mere 9.5%. Yet during the same time period the number of Liechtenstein subscribers with Swiss mobile communications providers has increased by 68%.[194] Due to the low number of residents that is a given, the domestic market potential is in any case already powerfully limited and in the meantime the market has reached a saturation rate of 100%. As a result of the migration to Swiss providers and the very low growth in subscribers at the domestic providers, the cost structures continue to develop to the disadvantage of the domestic operators. In any case due to negative economies of scale, the Liechtenstein mobile providers are falling behind in a comparison with their largest competitors in Switzerland.

Thus in the opinion of the AK the mobile communications market in Liechtenstein continues to be – especially against the background of a marked reduction in the numbers of subscribers at individual operators and the acute possibility of market exits – classifiable as fragile. Hence the possibility that the Liechtenstein mobile communications market fails is a reality that cannot be dismissed out of hand. This has to be taken into consideration by the AK in the context of regulating the mobile termination rates in the present procedure especially as both Art. 8(2) of the Framework Directive as well as Art. 1(2)(b) and Art. 5(2)(a) KomG assume the premise respectively the aim that functioning competition represents the best means to promote the interests of the users.

Yet at the same time the AK has to ensure that no inefficient[195] market structures are promoted or protected by the regulation. The AK intends to establish the necessary balance by concentrating on the creation of comparable framework conditions in the competition for retail customers in the meaning of Art. 1(2) KomG. This means in the opinion of the AK that in the context of regulating the mobile termination rates the Liechtenstein operators may at least not be permitted to be placed in a worse position than their direct competitors on the retail customer market. Furthermore it should be left to the market as to which operators are competitive over the long-term against the background of their individual cost structures.

Against this background and due to the direct competition situation as described with the Swiss mobile providers on the retail level, in the opinion of the AK it is essential to also take into account the mobile termination prices prevailing in Switzerland especially in order to avoid a market failure induced by regulation. At least the Liechtenstein mobile communications providers should not be placed in a worse position than their direct competitors from Switzerland which are not subject to the regulatory framework applicable in the EEA and/or the regulatory powers of the AK. For all of these reasons the AK is of the opinion that the mobile termination prices to be regulated in Liechtenstein should not be lower than the average applicable in Switzerland. To that extent that through this the Ac-

[194] Cf. Section 2.2.

[195] "Efficient infrastructure investments" are to be promoted in accordance with Art. 1(2)(e) KomG.

cess Directive and/or recommendations passed in this regard should not be followed to the complete extent, the AK refers to the adjustment made in accordance with the decision of the EEA Joint Committee on adopting the Access Directive that permits the taking of due account of the particular circumstances of Liechtenstein and the possibility of a market failure.

8.6 Setting the reference price for the benchmarking

For the reasons named in the above section, the AK regards it as appropriate to orient the termination rates of the Liechtenstein mobile communications providers to the effective termination rates in Switzerland. This specification is, in light of the forward-looking approach in the present market analysis, not static but rather it also takes into consideration its future development. The AK will continue to monitor the development in the termination prices in Switzerland for this purpose and on the occurrence of significant changes, and however at the latest in 2012, initiate a new market analysis and/or an adjustment of the regulated termination rates.

In accordance with the corresponding press releases of Orange Communications AG, Swisscom AG and Sunrise Communications AG from 9 September 2010 as well as the notification by Swisscom (Schweiz) AG to the AK on 21 September 2010, the termination prices in their Swiss mobile radio access networks are to be adjusted as follows:

	1 Sept. 2010	**1 Oct. 2010**	**1. Jan. 2011**	
Swisscom AG	14	8	7	Termination price in centimes per minute
Orange Communications SA	17	10	8.75	
Sunrise Communications AG	17	10	8.75	
Weighted average[196]	***15.15***	***8.75***	***7.65***	
	€c 10.75	*€c 6.20*	*€c 5.45*	

Table 7: Current and future termination prices in Switzerland

If one compares the Swiss termination rates above with the average values presented in Section 8.4 of those EEA Regulatory Authorities which currently apply an LRIC cost accounting system in accordance with the termination price recommendation of the European Commission, it is evident that the weighted average in Switzerland on 1 October

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196 The weighted average calculated by applying the market share of the respective operator as of 1.7.2010 in accordance with an internal MTR Snapshot BoR(10)45b of the BEREC (confidential, not published).

2010 of 17.5% and on 1 January 2011 of 21.5% is higher.[197] The currently unregulated termination rates in Liechtenstein amount to more than three times that in comparison to Switzerland on 1 January 2011.

8.7 Glide path and regulated termination rates

A glide path leads, commencing from a current termination rate, to a target value in the future. The glide path is to be regarded as a price upper limit (price cap) and can be undercut by operators. When executing a glide path excessively disruptive interventions are to be avoided and it must be ensured that a long-term planning horizon and thus stability is guaranteed for the operators.

With respect to the length of the glide paths, the European Commission has insisted in a range of commentaries[198] in the context of the Notification Procedure in accordance with Art. 7 of the Framework Directive on as short a glide path as possible and in any event not longer than 1 to 2 years. Taking into consideration the conditions prevailing in Liechtenstein and the current very high level of the termination prices in an international comparison, the glide path applicable in Liechtenstein shall in any case not amount to more than 24 months. A longer period would not be justifiable in the interests of the retail consumers against the background of the current height of the excessive rates.

In the actual design of the glide path, the AK in particular considered the following aspects: Due to the very high current absolute level of the mobile termination rates (and their consistently high retention by the majority of providers over the years) drastic rate reductions are called for at the beginning of the glide path. The AK has further considered the effects of the termination rate reductions on the gross revenues of the operators and the need to take into account the fact that despite the urgency of the price cuts adequate time must be allowed for the operators to adapt their business, budget and product planning to the change in circumstances. The adjustment of certain parameters requires a lead time and the ongoing liquidity of the company must remain assured.[199]

At the end of the glide path uniform maximum mobile termination prices (i.e. symmetric tariff upper limits) for all Liechtenstein mobile operator shall be applicable (cf. the discussion in Section 8.2 in this respect).

As already detailed in the previous section, the weighted average of the termination prices in Switzerland of 7.65 centimes per minute as of 1 January 2011 serves as a reference val-

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197 This contains the applicable glide paths in the LRIC countries at these points in time. For reasons of comparability the exchange rate of CHF 1.4086 to 1 euro was continued to be applied for the MTR Snapshot of 1 July 2010.

198 Cf. Staff Working Document on the 12th Report of the European Commission on the Electronic Communications in Europe – Regulation and Markets 2006, SEC(2007) 403, page 11. Cf. by way of example the comment by the Commission on 13.01.2006 in case LU/2005/0321.

199 Thus, certain retail products may be designed and priced, for example, under the assumption of internal cross-subsidies from additional mobile termination revenues. Accordingly an das the case may be, these products may need tob e adapted (including price increases) or even taken off the market.

ue for the setting of the termination rates of the Liechtenstein mobile operators in the context of the present market analysis.

On the basis of this, the AK intends to regulate the following maximum termination prices[200] respectively glide paths as upper limits for the mobile operators:

	1 July 2011	1 Jan. 2012	1 July 2012	1 Jan. 2013	
Mobilkom FL	20	12	10	7.65	Termination price in centimes per minute
Orange FL	20	12	10	7.65	
Swisscom FL	20	12	10	7.65	
Alpcom	20	12	10	7.65	

Table 8: Glide paths and termination paths regulated in Liechtenstein

Mobilkom FL, Orange FL, Swisscom FL and Alpcom shall under Art. 23(1)(d) KomG and Art. 38(1) and (2) VKND be obliged to comply with the termination rate upper limits[201] set in the above table at the points in time as named.

This – especially in the first year marked – reduction is justified against the background of the absolute height of the current mobile termination prices in Liechtenstein in an EEA and Swiss comparison and the fact that the mobile operators have charged excessive termination rates to a significant extent since 2000. Likewise the mobile operators were already made aware of the drastic reductions in the termination prices planned by the AK in the context of the first national consultation exercise of the present market in November 2007. Hence the planned reductions are not surprising, but rather were already indicated by the AK in the planned magnitude almost three years ago. Not only have the mobile operators been able to continue to profit from the excessive rates in the meantime, they have also had sufficient time to align their business planning in a corresponding manner. In this respect the AK also regards it as an aggravating circumstance that with the exception of Swisscom FL – and most recently Orange FL – none of the operators have used this period of time to voluntarily reduce the excessive rates.

The total reduction in the termination rates at the end of the glide path in comparison to the currently effective termination rates amounts to 78% for Mobilkom FL and Alpcom, 62% for Orange and 0% for Swisscom FL.

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200 The rates are net of any applicable value-added tax as the case may be but without further mark-ups such as e.g. call set-up costs or the like. In the event that termination rates are differentiated between peak and off-peak times or other criteria and/or call set-up fees are charged, it must be verified that the termination rate upper limit is actually complied with on average.

201 The regulation of the termination rates occurs by the setting of uniform (symmetric) upper limits independent from whether individual operators have already actually applied lower termination rates at their own initiative, which is currently the case for instance with Swisscom FL.