

## **Mobile Termination Rates in Austria 2007**

**Study prepared for ONE**

by

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# EXECUTIVE SUMMARY

## INVESTIGATION OF MOBILE TERMINATION RATES IN AUSTRIA 2007

### 1. The overall conclusions of the expert opinion

The regulation of mobile termination rates (MTR) is very important to consumers in that it determines the relationship between mobile operators, their different market positions and their competitive chances. The fact that T-Mobile has acquired tele.ring, which has led to an increase in market concentration from 2,800 to 3,200 according to the HHI-Index (on the retail market), already indicates that the market is vulnerable. Adverse regulation of the mobile termination rates for the smaller operators with disadvantages caused by previous regulatory decisions could very likely lead to increased further concentration with additional risk of less competition and thereby harmful effects for consumers.

Currently, it is planned that MTR for all operators, regardless of market entry, size or frequency allocation (1800 MHz-based vs. 900 MHz-based), be reduced to reflect the cost structure of mobilkom Austria by the end of 2008. This is the result of the TKK concluding a "one price rule" is appropriate for all operators and that the price should be that of the most efficient operator, which it deemed to be the largest, incumbent operator mobilkom. The rate is set at 6.79 cents which is approximately half the actual cost of smaller operators.

Mobilkom has been significantly advantaged by regulation with very early market entry resulting in high market share and large economies of scale, as well as large initial allocations of 900 MHz frequencies which result in an inherently and significantly cheaper network cost (per WFI Study).

According to the results of this analysis, changes to the approach of TKK regarding regulation on MTR are necessary. The main reasons are that the assumptions of TKK for the regulation of MTR which the authority has applied so far do not correspond to the Austrian Telecom Act and are furthermore not in conformity with basic economic principles. Also, an international comparison shows that the way TKK has implemented MTR regulation deviates from other countries and that a number of changes are justified and required thereby reflecting on the provisions of the Telecom Act on the one hand and on the competitive situation as well as the changes during the last two years which have had an impact on the positioning of specific operators.

The major problems according to the regulation applied by TKK arise from the one price rule. Another obstacle to the assumptions introduced by TKK is that the operators are facing different structural conditions. These are mainly results of regulation in the past, e.g. the time of market entry (decided through the award of concessions / licenses by the competent authorities) and the frequency resources (as provided and regulated by TKK). Technical experts,

WFI have completed a study of the differences between 1800 MHz and 900 MHz-based networks in Austria, and concludes that there is a significant and inherent cost difference between them. This study incorporates the implications of that finding for the legal and economic analysis.

According to these findings, the conclusions to be drawn are that operator specific MTR based on the operator specific LRAIC instead of the one price rule have to be applied. Thereby, the operator specific LRAIC will differ with respect to those facets where differences induced by regulation exist.

This study analyses the situation of the operators and concludes that the LRAIC for mobilkom and T-Mobile must be the same, as with the effect of the T-Mobile/tele.ring merger they are now comparable with respect to costs, e.g. they are of equal size and have comparable frequency spectrum.

Regarding ONE and H3G, there are structural differences compared to mobilkom and T-Mobile in the efficient costs derived from regulatory decisions in the past. In order to consider these, it is important that these operators are regulated according to their own efficient costs.

Hence, regarding the proposed reductions of the mobile termination rates the following policy suggestions are made:

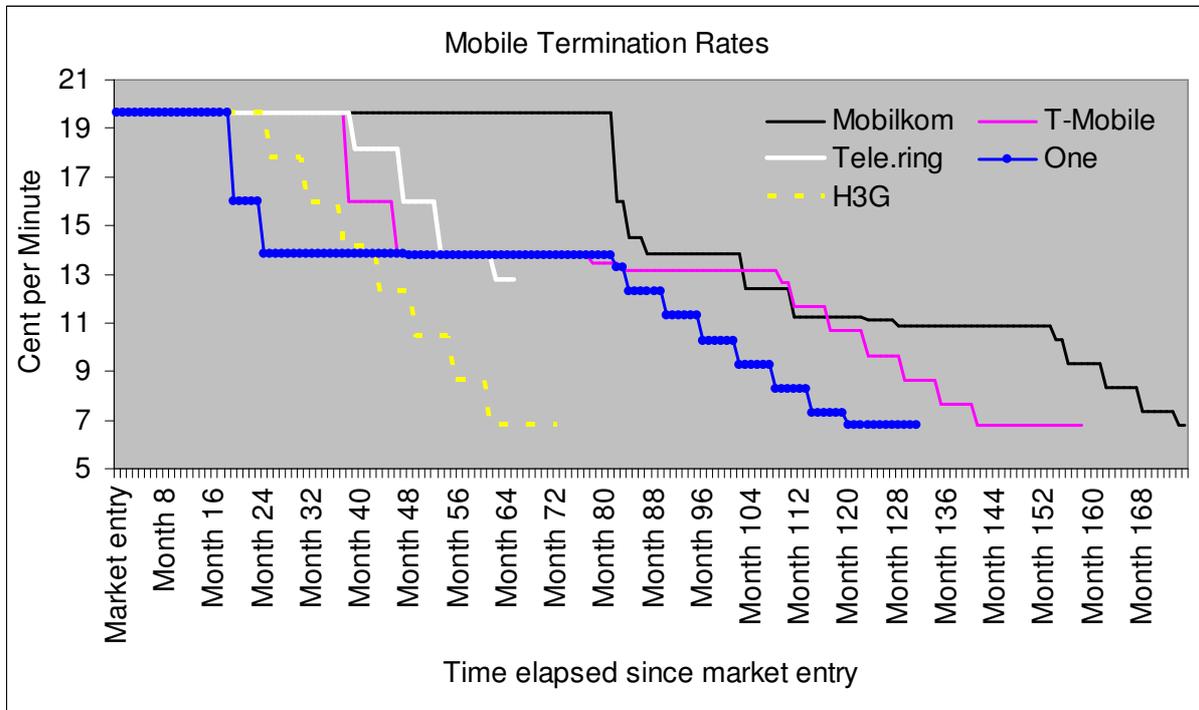
**I. Equal MTR for mobilkom and T-Mobile due to the similarity between the two operators in terms of size, market share, frequency allocation activity in the market etc.**

**II. Application of the individual LRIC for the MTR of the other operators thereby including the differences between the operators in terms of spectrum, size and market entry (as outcome of previous regulatory decisions) in the cost calculation.**

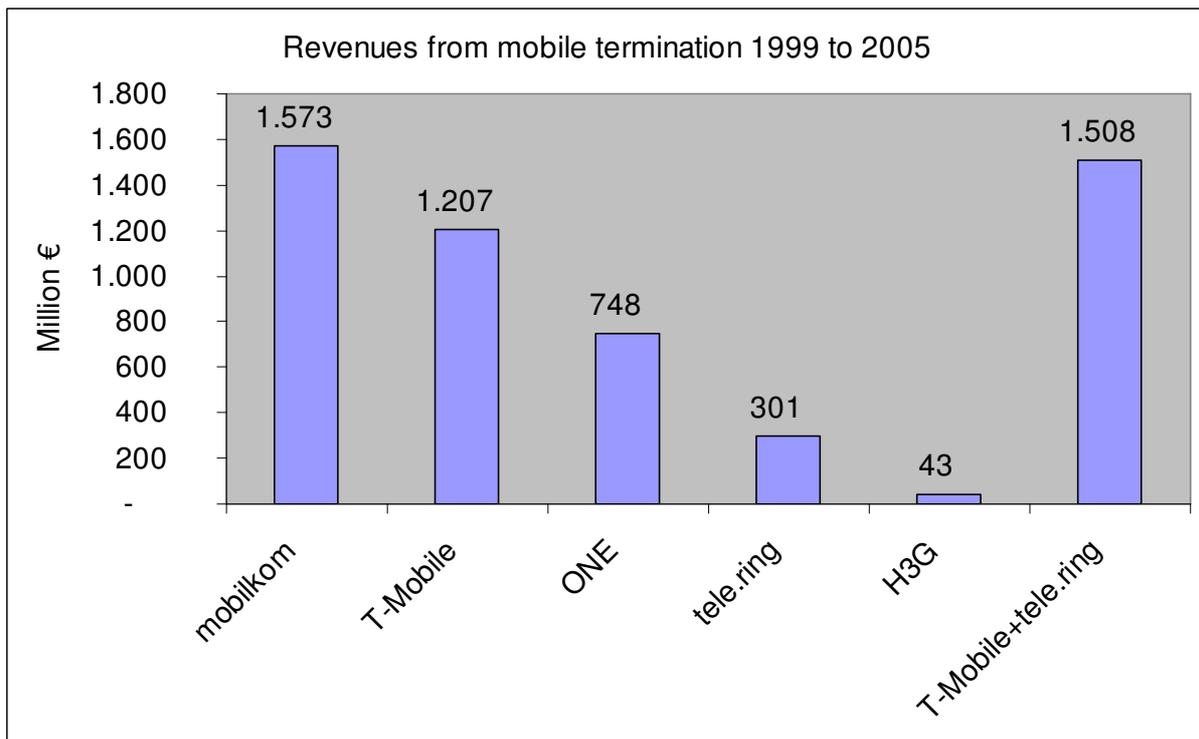
**III. Review of MTRs every two years to take into account prospective changes**

## 2. Background

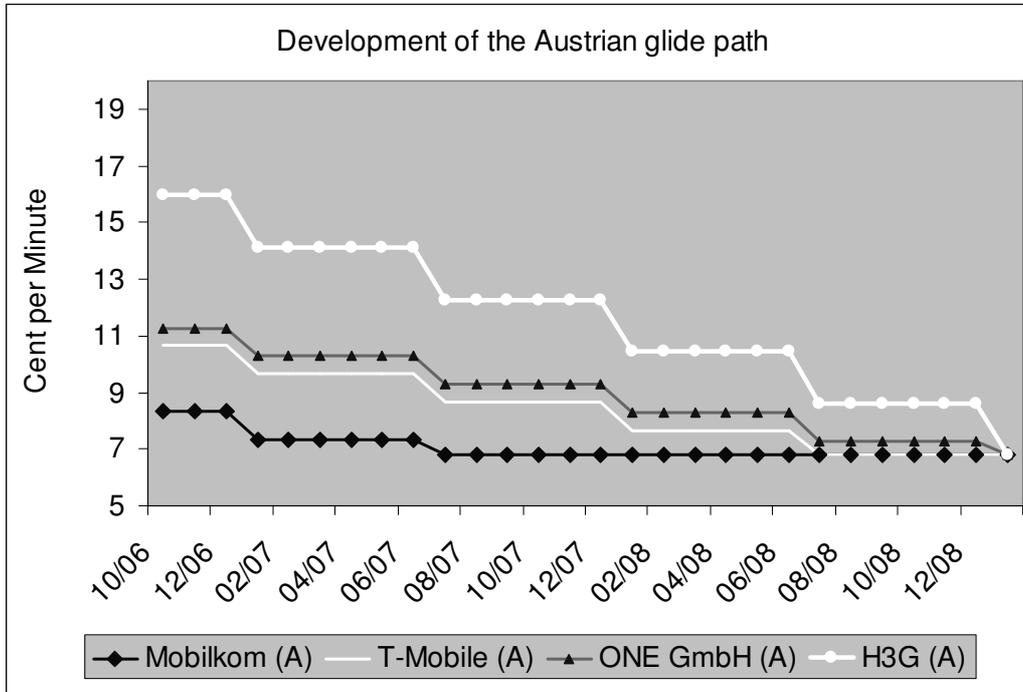
Historically in Austria, new (small) operators have been more harshly regulated than the earlier (larger) operators, with MTRs reduced much earlier.



This has resulted in a situation where Mobilkom and T-Mobile (merged with tele.ring) have recovered more than twice the level of costs from MTRs as the next smallest operator, ONE.



Mobile termination rates for the period 2004 to 2006 have been regulated as cost oriented according to the LRAIC of a single hypothetical efficient operator, mobilkom, (6.79 cents) to be reached by all operators by 2008. This will likely only further exacerbate the imbalance, continuing to benefit larger operators at the cost of smaller operators, competition, and ultimately the consumer.



### 3. Assessment of legal arguments

There is no basis in either Austrian or EU law for the “one price rule” which TKK has implemented, whereby it has constructed a hypothetical market where all operators should have the same cost level as the most advantaged (largely by regulation) operator in the market.

The **legal analysis** of the law and the European Directives come to the conclusion that the regulator in its latest decisions completely disregards the clear language of para 42 of the TKG 2003 and Art. 13 of the EU Access Directive which relate price control to the individual cost parameters of the very operator that is subject to regulation. As a consequence, different cost relevant parameters shall lead to different MTR. There is no basis whatsoever in the law for a “one price rule” based on the cost of the most efficient operator in the market.

Both Austrian and EU law very clearly imply that MTR should take into account the individual situation of each operator, namely:

- Investment (including technology);

- Risks involved (e.g. market entry, frequency allocation and technology);
- Reasonable rate of return on capital

The law also proscribes proportionality and equality in the treatment of operators which means treating operators in a similar situation similarly (e.g. mobilkom and T-Mobile/tele.ring) and those in different circumstances proportionally to reflect those circumstances.

By effectively imposing mobilkom's cost structure on operators which likely will never be able to replicate it, the TKK is violating the law, the principles of fairness, and creating a public policy situation which will likely result in less rather than more competition.

#### **4. Assessment of economic arguments**

The economic reasoning behind the "one-price" rule and resulting regulation applied by the NRA has some serious flaws, which invalidate the application of such a rule under existing Austrian market conditions.

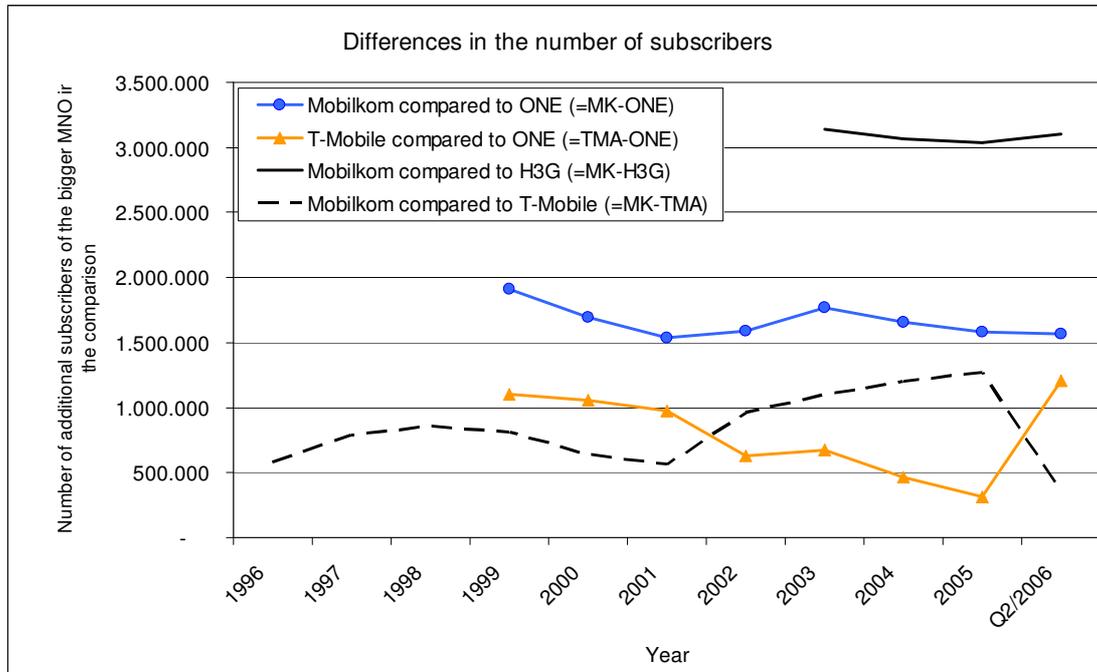
##### One price rule

The NRA assumes that in a market with perfect competition, there can only be one price. As the NRA tries to simulate such a market, one termination rate (MTR) should be introduced for all operators.

The first problem with this assumption is that the economic theory of perfect competition is a theoretical construction which is not realistic. The TKK itself has mentioned different reasons when the one price rule cannot be implemented. These are economies of scale, first mover advantages, the need to protect long run competition in the industry and the avoidance of disruptive interventions. Also the allocation of different spectrum and deviations regarding the time of market entry play a key role. This study finds that these conditions exist in Austria today and will continue for several years, inter alia because the disadvantaged operators have existed for only a few years now, which means that they have not yet overcome the disadvantage compared to the incumbent operators. The merger of T-Mobile and tele.ring again strengthens the dominant position of the larger networks, reducing ability of the smaller operators to compete.

A key assumption of perfect competition is that all competitors have equal access to production technology. The study from WFI clearly shows this is not the case. In short, they find that 1800 MHz-based networks are inherently, significantly, and indefinitely more costly than 900 MHz-based networks in Austria. This difference was induced by regulation through the frequencies which were allocated and the timing of allocation, as initial frequencies determine the future network structure.

Also the first mover advantages, which are a result of the licensing of the NRA itself, has lead to an uneven distribution of market shares implying different unit costs. These first mover advantages are also expected to last for still some time, because there is until now no indication that the market shares will be less unevenly distributed in the future. This is shown below, demonstrating that the volatility in the number of subscribers is very low (except for the change at the end which is due to the merger of the T-Mobile and tele.ring networks):



This situation is similar to other EU countries where the incumbent operator continues to maintain market share over 40% in a large majority of countries.

Finally, in order to determine a need to regulate, the NRA must find that an operator has significant market power. TKK does this by finding that each MT network is a separate market and that each operator dominates its respective market. This is logically inconsistent with a simulation of perfect competition between operators in different markets. There is no tendency toward a termination market with sustainable competition especially given that, according to TKK, terminations in different networks are different markets. There are no logical or economic reasons why prices should be the same in different markets.

The conclusion is that the one price rule should be abandoned and that the MTRs should be regulated according to the efficient cost for each operator. As the only differences might arise from different regulation in the past which are of permanent character implying that the effects are still valid as of today, the deviations in MTRs must be motivated by such differences. These are mainly due to frequency allocation and different market entry dates (which implies different network sizes and thereby different economies of scales and unit costs). Thus, a regulation of MTR based on operator individual cost is the conclusion to be drawn from the legal and the economic analysis.

Cost of an efficient operator vs. individual costs

The NRA has decided to set the MTRs at the level of the lowest LRAIC for the four operators in the market. This leads to a situation where mobilkom is regulated according to the efficiency that they are actually facing, hence the individual costs apply. For the other operators though, of which ONE and H3G are significantly smaller, the efficiency of a hypothetical efficient operator applies. This is in itself inconsistent (and is in contradiction to the legal provisions referring to individual costs) and in the end leads to late entrants receiving MTR which are below their actual costs while the incumbent still has his costs covered.

Another problem with the way the NRA sets the tariffs is that it uses the market size of mobilkom, which makes up about 40 % of the market. Hence, if all operators should reach the level of efficiency defined by the NRA, the total relative market shares would be almost 160 %, which is of course not possible. This assumes that the market grows with another 60 % until the end of 2008 without mobilkom winning a single new customer. By over 100 % penetration rate, this assumption will not be fulfilled.

The conclusion is that all operators must be regulated according to their own LRAIC. Thereby, the differences in MTRs will reflect only such differences that are implied by external factors outside the control of the operators themselves, such as regulatory decisions. This especially regards the outcomes of the time of market entry and the frequency allocation (due to licensing decisions).

**5. The regulation in other EU member states and the position of the EU commission**

The regulation of the telecommunication markets is partially harmonised. Harmonisation has taken place with respect to the regulatory instruments and the process regarding competition regulation including tariff regulation. Therefore an outlook in the EU is a helpful tool in order to determine the best way for the regulation in Austria.

**The position of the European Commission**

The EU commission policy can be summarised as follows: The EU Commission

- enforces the Directive, in that if significant market power is determined, it ensures that cost-based price regulation remedies are implemented (at the wholesale level)
- strongly recommends the use of LRIC models in determining costs of mobile termination,
- strongly discourages the use of benchmarking in lieu of cost-modelling
- allows glide path methodologies with the goal to achieve cost-based rates within a reasonable time frame
- never objects to asymmetry in rates when differences can be justified and relate to factors outside the control of the operator such as differences in spectrum allocation,

differences in the time of market entry and consequently differences in market shares.

The EU Commission is primarily concerned that NRAs implement the law and are diligent in their economic and cost analysis in applying the law. For Austria, this means that the EU Commission should not have any critique regarding the abolishment of the one price rule and implementation of operator specific MTRs as long as these are derived from effects due to regulatory decisions as the date of market entry and the allocation of spectrum.

### **The MTR regulation in other EU countries**

In the study, the regulation in 25 EU countries has been examined covering 79 operators. The areas of interest were market analyses, definitions and remedy decisions carried through, cost methodologies and cost standards used, tariff regulation implementation, current and future approved mobile termination rates and differences between the operators.

The conclusions derived from this study for Austria are as follows:

#### **Statements about cost models and cost orientation**

From the benchmarks, two statements regarding cost models and cost orientation were derived:

- International quantitative benchmarks calculating average or best practice benchmarks do not lead to long term reliable results, are rarely used, and such benchmarking is discouraged by the EU Commission.
- Cost models, recommended by the EU Commission, can be implemented calculating the costs of a reference operator or operator specific costs. In case of the latter, there can be one or multiple cost models. Most frequently, models taking into account operator-specific factors are used.

Austria has already implemented a cost model to calculate costs and hence, there is no need to change this aspect. Though, according to the second statement, there is only one cost model used in the Austrian cost calculations and that is a cost model calculating the costs for a reference operator (based on the situation of the biggest and incumbent operator mobilkom). Due to the content of the Telecom Act and due to the structural differences between the mobile operators within Austria, the method currently used to calculate the costs is neither legally nor economically appropriate, as it does not reflect where / which operators have similarities and where structural differences exist.

#### **Operator Specific or unified MTR**

The findings in the rest of the EU show that:

- Most countries have operator specific MTR, granting smaller operators, younger operators and operators with structural disadvantages higher MTR.

- The operators with 1800 MHz frequency-based networks receive higher MTR than the 900/1800 MHz operators.
- The late entrants receive higher MTR than the earlier operators within each country.
- Operators with more than 35% market shares have significantly lower MTR compared to the other operators.
- It is typical that small and medium sized operators (with regard to market share), operators with spectrum implying higher cost of network rollout and operation and a market entry as the third, fourth or fifth operator are entitled to significantly higher MTR.

In fact, Austria is the only EU 15 country with an 1800 MHz-based operator which does not take into account differences due to frequency allocation or market entry/market share.

It is clear from these findings that a unified (“one-for-all”) MTR is contrary to the way other NRA regulate the termination rates. First, the market shares of the Austrian mobile operators are spread between 4% and 39%. As the benchmark shows that the operators with at least 35% market share have substantially lower MTR, it would be in line with the European regulation to allow ONE to charge higher MTR.

Another structural difference in Europe and in Austria regards the frequency allocation. In the table below, the asymmetric frequency allocation in Austria is demonstrated:

Operator	GSM-900 MHz	DCS 1800 MHz	Total
mobilkom	17.0	15.0	32.0
T-Mobile	12.8	24.8	37.6
ONE	3.2	29.0	32.2
Total	34.8	74.8	109.6

Source: [www.rtr.at](http://www.rtr.at) from 26.4.2006

As can be seen in the table, all GSM operators have about the same amount of spectrum in total. The difference between the operators is that ONE is primarily 1800 MHz-based, and that 900 MHz frequencies only became available after ONE had to meet its 90% population coverage obligation under its initial license implying that ONE had to achieve that coverage with 1800 MHz spectrum. This set of facts determined the future cost structure of its network. The significant cost disadvantage from an initial 1800 MHz frequency allocation is demonstrated in the analysis of WFI, and is a clear reason for the NRA to grant a higher MTR to ONE which takes into account operator specific costs caused by regulation. This is entirely consistent with EU law, practice, and policy.

The other key reason to grant higher termination rates found in EU countries is the market entry order. A late market entry causes lasting disadvantages with higher costs for termination as the outcome. In order to compensate for this, the MTR of the late entrants are higher

in the EU. As the market entry date of ONE and H3G took place several years after the market entry of mobilkom and T-Mobile, this is an additional reason to grant higher MTRs for smaller operators which take into account operator specific costs caused by regulation.

Therefore, ONEs MTR has to be based on ONEs individual LRAIC and should be determined for a period of 2 years after which a new assessment would be made (then again based on a new market analysis).

#### T-Mobile/tele.ring Merger and its Implications

A very significant change has recently occurred in the Austrian market. The second largest operator and second entrant, T-mobile, merged with tele.ring. T-mobile now has approximately 35% market share and a 900-based network with even more total spectrum than mobilkom. Given these facts, it is not consistent anymore that T-Mobile charges higher termination rates than mobilkom. The merger and its effects require a significant modification in the treatment of T-Mobile's termination rates. As T-Mobile and mobilkom are in fact now very similar in terms of size and technology, they should be regulated to the same efficient operator standard.

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## Key findings with respect to the legal and economic analysis

### A summary of the study in 18 points

ONE commissioned independent studies to be prepared by WFI and Piepenbrock Schuster on the current situation and the further development of mobile termination rates from a technical, legal and economic point of view. The present document contains all legal and economic findings and can be summarized as follows points:

#### Introduction

According to the Austrian telecommunication law, the regulator shall review the analysis for the markets subject to potential ex-ante regulation on a biannual basis. In the context of the imminent review of the market for mobile termination, this study discusses the most important topics of this market from a **legal** and **economic** point of view.

The **legal analysis** of the law and the European Directives come to the conclusion that the regulator in its latest decisions (2003-2006) disregards the language of para 42 of the TKG 2003 and Art. 13 of the EU Access Directive which relate price control to the individual cost parameters of the very operator that is subject to regulation. As a consequence, equal cost relevant parameters shall lead to equal mobile termination rates ("MTR"). There is no basis whatsoever in the law for a "one price rule" based on the cost of the most efficient operator in the market.

The **economic analysis** elaborates which and how different cost parameters have to be taken into account. Different radio network technology and different points in time of market entry support the conclusion of non-reciprocal operator specific costs. Thereby, the analysis focuses on those cost parameters which are induced by regulation and where differences in regulatory approaches towards the mobile network operators are the source of deviations in cost today.

The differences in cost resulting from different radio network technology (GSM 900 and GSM 1800) are outlined in the technical analysis presented in the study prepared by WFI. In short, that study shows that the cost of an 1800 MHz-based network under existing and potential market conditions in Austria is significantly higher than that of a 900 MHz-based network. The difference deviates according to the difference in customer figures and population coverage, but is quite large in all sensitivities performed. In addition, different points in time of market entry lead to significant first and mover advantages of the incumbent and the second market entrant, which correspond to disadvantages of the late entrants.

The analysis of regulation of mobile termination rates in the EU shows that European regulators take into account individual costs of the operator which leads to non-reciprocal rates in most of the Member States. The European Commission tends to reject benchmarking (respectively to accept it only in circumstances where the benchmarked countries regulate on

the basis of cost-orientation) and strongly favours the application of cost models. The European Commission does not request regulators to apply reciprocal charges, but rather agrees to regulation which takes into account the individual cost differences between the various operators and explicitly mentions later market entry and different spectrum allocation as reasons for cost deviations.

### Legal analysis – Key points

1. The legal principles TKK has to observe when regulating MTR are contained in para. 42 of the TKG 2003 and in Art. 13 of the EU Access Directive. In addition to that, general principles of regulation such as non-discrimination, proportionality, objectivity and equality as well as the overall regulatory goals (see para. 2 of TKG 2003) have to be observed.
2. Para. 42 of the TKG and Art. 13 of the EU Access Directive explicitly state that cost accounting of undertakings with SMP has to take account of the individual situation of each operator. Differences in the cost structure of an operator, therefore, shall lead to different MTR. On the other hand, if the exogenous framework situation of two operators is equal or similar, equal or similar termination rates shall apply.
3. Differences which shall be taken into account according to the law are the following:
  - investment made by the operator (including for example investment in GSM 1800 vs. 900 technology);
  - reasonable rate of return on capital employed;
  - risks involved (market entry, frequency allocation and related network technology).
 Para. 42 of the TKG is fully in line with the content and meaning of Art. 13 of the EU Access Directive.
4. The principle of non-reciprocal regulation along operator specific costs is generally accepted by the TKK, by the High Administrative Court, by other European national regulatory authorities and by the European Commission (see section on economic analysis).
5. Historically, the Austrian regulator at first ruled that MTR shall be reciprocal for mobilkom austria, T-Mobile and Connect (1999-2000). Already at that time, the argument TKK used was the necessity of a simulation of the market price which would be achieved under competitive conditions. Only tele.ring as the smallest operator was exempted from the principle of reciprocity. Later on, TKK changed its approach and ruled that new entrants shall be protected until they had sufficient time to establish their business models on the market. As a consequence, asymmetric regulation was applied for MTR from 2001 onwards until the EU regulatory framework of 2002 was implemented. Under the new TKG 2003, despite the fact that no relevant change was made in the law, TKK goes back to reciprocal regulation, applying a “one price rule” with the cost of mobilkom austria as the most efficient operator in the market as the target which shall be achieved by all operators according to the glide path model at the end of 2008.

6. The main argument used by TKK is that the termination markets are resistant monopoly markets which deserve severe intervention. In order to overcome the competitive problems in this market, i.e. high MTR and excess profit of operators due to high MTR, only the simulation of competition can lead to a competitive market price. This leads to the “one price rule” as of the end of 2008.
7. In order to avoid disruptive effects, however, and in order to ensure planning security and protection of investment of the operators, a glide path model was introduced which shall give the operators enough time to achieve the “mindestoptimale Betriebsgröße”. According to TKK, a glide path with equal reductions for all operators is fair and non discriminatory.
8. The legal reasoning of TKK as summarized in the latest decree Z 8/05 is not in line with the law and contains several weaknesses which are outlined in the following:
  - TKK argues that the “LRIC concept” itself indicates the orientation of regulation of MTR on a “one price rule”. This is not correct, as the LRIC-concept is suited to calculate the costs of an efficient operator in order to avoid that the market bears the costs of the inefficiency of this very operator. The “LRIC concept” does not tell anything about a “one price rule”, but it clearly relates to the individual operator and its specific cost.
  - TKK’s interpretation of para 42 that this provision does not say anything about the relationship between MTR of different operators and that therefore regulation has to be based - irrespective of the principles contained in para 42 of the TKG 2003 - only on the results of market analysis, the principle of proportionality as well as the goals and targets of the TKG 2003 is wrong. The language of para 42 of the TKG very explicitly relates to operator individual costs. If the exogenous frameworks of two operators are equal, there is no objection against the regulation of equal termination rates. The approach of an imitation of the results of competition with the “one price rule” at the end cannot possibly be derived from the law. It is purely postulated from regulatory goals and it is in contradiction to the specific provisions of the law. The regulator is methodologically wrong when it states that the law does not say anything about the relationship between the termination rates of different operators and then defines the system it applies based on its understanding of regulatory goals and the postulation of a uniform market price. TKK has to start with interpretation of para. 42 of the TKG 2003. The results of this interpretation may then be put in the framework of the regulatory goals.
  - The regulator disregards the principles of proportionality and equality which are generally applied in European and national telecommunication regulations. The application of these principles underpins the results of our interpretation of para 42 of the TKG 2003, i.e. that operator specific costs shall be taken into account. Equal shall be treated equally, unequal unequally.
  - Furthermore TKK’s application of the “one price rule” violates the principle of proportionality also in so far as operators which are already disadvantaged by late entry and frequency allocation are regulated disproportionately, i.e. the regulator goes beyond the limits which is unnecessarily excessive (“überschiessende Regulierung”).

- TKK disregards the fact that competitive problems are not identical for those operators disadvantaged by late entry and frequency allocation and the first and second mover. When analysing mobile termination markets, TKK relates to competitive problems in the mobile retail market. But when doing so, it also has to take into account different market shares in terms of customers, revenue, and traffic volumes. Therefore, first mover operators have to be treated differently from late entrants which suffer from competitive disadvantages which are mostly induced by regulation (e.g., late entry, frequency allocation).
- TKK, in the current proceeding and in the future, has to take into account the arising joint dominance of mobilkom austria and T-Mobile (in the retail market) after T-Mobile's acquisition of the shares of tele.ring. As a consequence of the disappearance of tele.ring from the market as the major competitive force in the latest years, - which according to the position of the European Commission avoided the occurrence of coordinated effects between the two larger players insofar – coordination between mobilkom austria and T-Mobile Austria is most likely to happen in the new market environment. Hutchison 3G Austria which is designated by the European Commission to replace tele.ring as the competitive force after the merger, is currently not able to fulfil this position. This will only be possible after the acquisition of additional UMTS spectrum and the full integration of the newly acquired tele.ring base stations which will be the case at the beginning of 2008 at the earliest. In the meantime, the occurrence of coordinated effects and joint dominance of the two large operators is very likely to happen and deserves specific regulation of those two large operators, different from the regulation of the remaining operators.

### **Economic analysis – key points**

9. In the past, TKK has determined mobile termination rates in many different ways, most recently based on the findings of the analysis of SMP in the markets for termination in individual mobile telephony networks and remedies resulting from these findings. In its most recent decision from the end of 2005, which was based on the market analysis decision as of 2004 and a consultation regarding the details of a long run incremental cost (LRIC) model, TKK decided
  - to determine mobile termination rates by calculating the costs of each operator within the framework of a unified cost model with some assumptions/parameters being equal for all operators;
  - to define the LRIC of the operator with the lowest costs as being the terminal value to be reached by all operators. The methodology implies that the terminal value - valid for each operator - is determined by a benchmark of all Austrian mobile operators. The theoretical approach for the price determination is based on a hypothetical operator,
  - to define a glide path for each operator with two uniform rate reductions per year. The reductions would lead to symmetrical/reciprocal mobile termination rates for all operators by the end of 2008.
  
10. This concept does not only raise questions as to the correct interpretation and application of the Telecommunications Act (see above), but is additionally based on TKK's own economic assumptions. The major argument developed by TKK is the so called "one price

rule”, stating that TKK by conducting a “simulation” of a competitive market would arrive at a uniform market price for termination services. The theory of markets with full competition states that, under certain conditions (especially the existence of perfect competition) there can only be reciprocal / equal prices for all operators.

11. It needs to be recalled that the reason for regulatory intervention in the mobile termination market is the market definition which states that each network represents a single market. Therefore, and according to the market analysis, each mobile operator has a 100 % market share on its termination market. The outcome of the market analysis according to TKK indicated a monopoly which justified regulatory intervention. To argue in favour of the one price rule, TKK mixes the two models of perfect competition and monopoly. It turns the argument around and states that even under a monopoly situation, its task is to conduct a simulation of competition, implying also perfect substitutability of products. This, however, is a clear contradiction to the monopoly assumption used above. It is also a clear contradiction from a theoretical perspective. Not even on the mobile retail market one can find conditions which come close to perfect competition (as stated above, the tendency experienced is rather one of joint dominance of mobilkom and T-Mobile). There are barriers to entry and exit, costs of changing providers and other transactions costs, limited substitutability of products etc. just to mention a few characteristics. Thus, TKK’s basic economic assumptions are not convincing and even the comparison with a different market (wholesale termination vs. retail) cannot overcome this discrepancy.
12. We can derive the conclusion that in applying the one price rule, TKK has used a theoretical construct, but has selected contradictory assumptions to justify the type of regulatory intervention and the assumptions under which specific regulatory measures are taken. TKK therefore will have to adapt its conceptual mix. This change will consequently lead to the abandonment of the one price rule and to a partially different approach in determining termination rates.
13. Besides this conceptual flaw, it needs to be stated that further crucial assumptions of TKK’s approach do not stand the economic test. Crucial false assumptions of this kind are
  - the assessment of the frequency allocation advantages / disadvantages
  - the assessment of declining first mover advantages of mobilkom and T-Mobile
  - the assessment about whether and when changes are to be regarded as disruptive
  - the fairness and reasonableness of applying a glide path with equal steps of the rate reduction
  - the defined duration of the glide path.
14. Summing up the critical economic arguments we conclude that some findings of TKK have led to a decision which is not in line with the characteristics of the market. However, some elements of TKK’s approach are useful and help to overcome the competitive problems, other elements of the decision should be modified in the upcoming new proceeding as to ensure a fair and balanced regulation of mobile termination rates in the future. These modifications can be undertaken on the basis of the approach and the model used so far so that it will not be necessary to turn the regulatory approach “upside down”.

15. The analysis of required modifications and changes can be summarised as follows:
- Due to first mover advantages, there is no tendency towards equal market shares respectively an even position of all market players (in retail markets). The regulator needs to take account of long term differences between the operators which have their root cause in different regulatory treatment (e.g. licensing policy) in the past. Therefore, operators which are similar should be treated in an equal way, but operators which are substantially different from each other require an operator specific treatment in regulatory decisions. After the merger of T-Mobile and tele.ring, the new merged operator has reached a level of market share comparable to the one of mobilkom. Thereby, late comer disadvantages of T-Mobile have been finally overcome and the two operators are on the same level as regards their market position. As these operators also have a comparable amount and composition of GSM 900 and GSM 1800 spectrum, the only remaining difference between them is that they entered the market at different points in time, but T-Mobile is compensated for this by the integration of tele.ring customers (and network / spectrum). Therefore, it is fair to treat mobilkom and T-Mobile equally when determining mobile termination rates.
  - Compared to mobilkom and T-Mobile, the other two operators, ONE and Hutchison 3G, are substantially different. They do not only have significantly smaller market shares and customer figures, their networks are operated in different spectra. In addition they are suffering from a significantly later market entry and the second mover disadvantages, which are induced by regulatory policy. Therefore, different treatment in terms of mobile termination rates is required and justified.
16. This approach is in line with the regulation in other European Union member states. A benchmark of the regulation of MTR for 79 operators shows that the proposed approach is in line with the fact that most of the countries apply cost orientation to regulate MTR, thereby using the LRAIC standard. By applying cost orientation according to LRAIC, a majority of the national regulatory authorities in the EU approve non-reciprocal tariffs, granting smaller operators with permanent disadvantages (e.g., late entry, frequency allocation) induced by regulation higher MTR. The EU Commission does not object to non-reciprocal rates as long as the Access Directive has been applied diligently and properly, meaning that if significant market power is found, a remedy has been levied that requires MTR to be cost-oriented. In fact, in a number of cases, the EU has suggested regulators consider such differences as technology (specifically 1800 vs. 900 MHz), market entry and market share issues. In the EU, it is common that the smaller operators which rely largely on GSM 1800 and the late entrants have about 20 to 30 % higher MTR compared to the first movers which rely largely on GSM 900.
17. Also, the proposal made above is in line with the EU's suggestion to apply cost models. But based on the costs, EU agrees to operator specific costs if they are well founded and do not ground on operator specific inefficiencies but come about due to factors outside the control of the operators. As we can see from an international comparison of MTR and methodologies of regulation in the EU countries, there is today a situation (which will also be maintained for the foreseeable future) of
- frequency allocation disadvantages for late market entrants

- a spread between the termination rates for GSM 1800 and GSM 900 networks,
- a tendency towards regulation based on the individual costs of the operators,
- a tendency of arriving at the cost of efficient service provision at some time in the future whereby differences between operators are considered and may result in MTR deviations.

18. Concretely, having analysed the Austrian market and the situation of the operators, and having included the information derived from international comparison, the following conclusions can be drawn with respect to what needs to be done in the next decision of TKK on MTR:

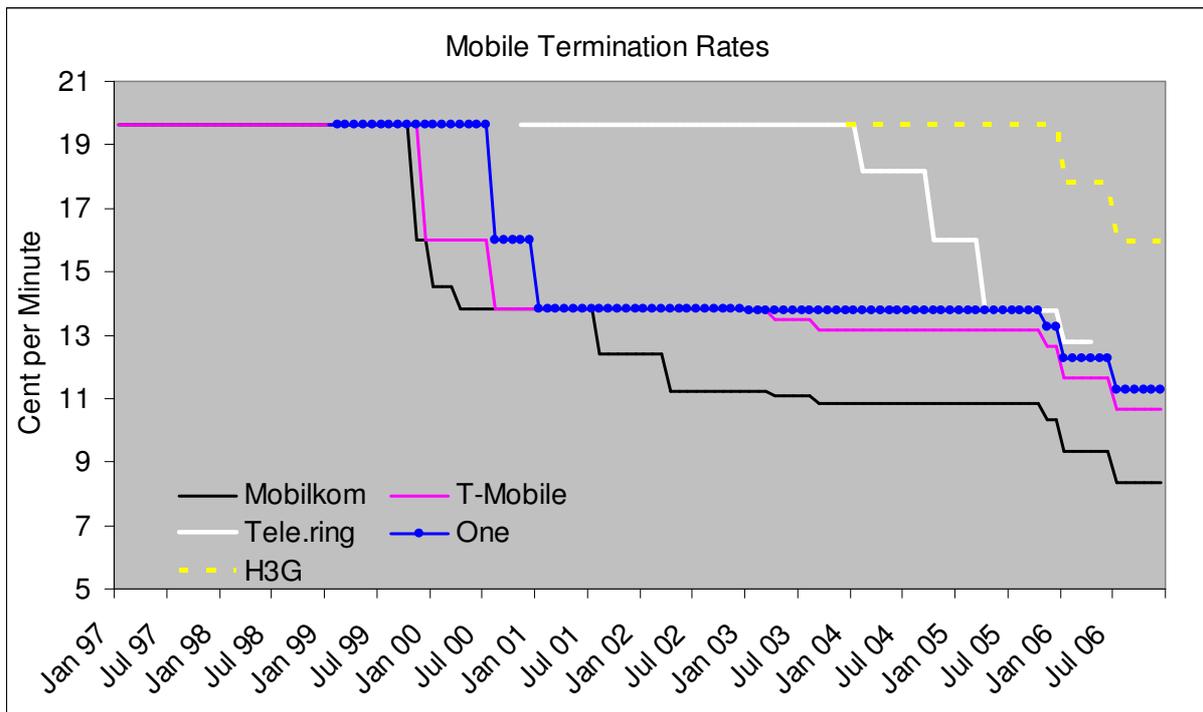
- mobilkom and T-Mobile need to be regulated at the same level of MTR based on their similarity in terms of market shares, traffic, market position, length of activity in the market, and spectrum frequency. This position can be justified economically and is especially reasonable after the merger of T-Mobile and tele.ring.
- The rates of ONE needs to take account of the differences between its network and the networks of mobilkom and T-Mobile with respect to different spectrum used, different points of market entry, disadvantage in terms of customer acquisition due to late market entry, higher network costs, etc. Regarding ONE's MTR, the dramatically higher network and operational costs arising from the spectrum allocation (GSM 1800 versus GSM 900 spectrum), the effects of a delay in market entry and a permanent gap in customer figures between ONE and the larger operators, etc, need to be reflected. The first two factors comprise effects that come about by regulation and are independent from the operators' efficiency. Hence, higher MTR for ONE are justified until disadvantages no longer exist.
- The determination of mobile termination rates should be set for the period 2007 and 2008, and be reviewed on a regular basis every two years, comparable to regulation in fixed network in previous times in order to be able to take account of changes that have taken place in the meantime.

# 1. Current situation in Austria

## 1.1 Current MTR and design of glide path

Mobile termination is a wholesale service necessary to provide any-to-any communication as long as there is more than one integrated operator for all telecommunication services. National mobile termination rates (MTR) with relevance for the market and the interrelationship between operators has been existing in Austria since the market entry of T-Mobile in 1996.

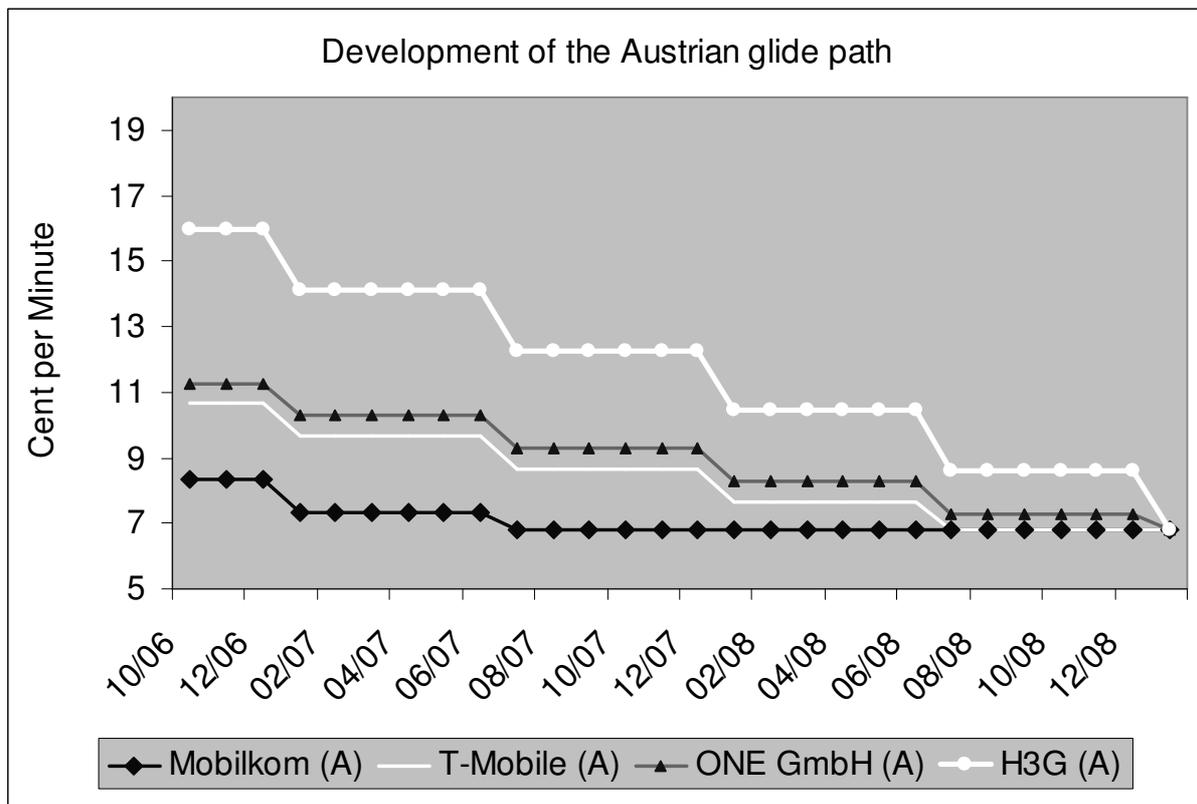
The graph below shows the development of the termination rates from 1997 until now. All operators started with a high termination rate of almost 20 Cent per minute (the first tariff which was agreed amounted to 2,70 ATS/min which equalled 19.62 cents) and then reduced this tariff over time. The reductions came about by voluntary agreements between the operators in the early years but also by regulatory decisions as of 1999. Currently, in October 2006, the termination rates are 8.34 Cent per Minute for mobilkom, 10.66 Cent for T-Mobile, 11.28 Cent for ONE and 15,95 Cent for H3G. Thereby, the MTR have been reduced by 57 % (mobilkom), 46% (T-Mobile), 43% (ONE) und 19% (H3G) since the respective market entry. The last five years, the MTR have been reduced by 33% (mobilkom), 23% (T-Mobile) und 18% (ONE).



Most of the reductions (since 1999) were triggered by decisions of the regulatory authority, so that the development is heavily influenced by regulation – at least since 1999 when the first decision on mobile termination rates was taken. It needs to be noted that the graph above does not relate the reductions of MTR to the time of market entry. As will be demon-

strated in the sequel, the period during which operators enjoyed the MTR of 19.62 cent and subsequent tariffs compared to their time of market entry varies quite substantially.

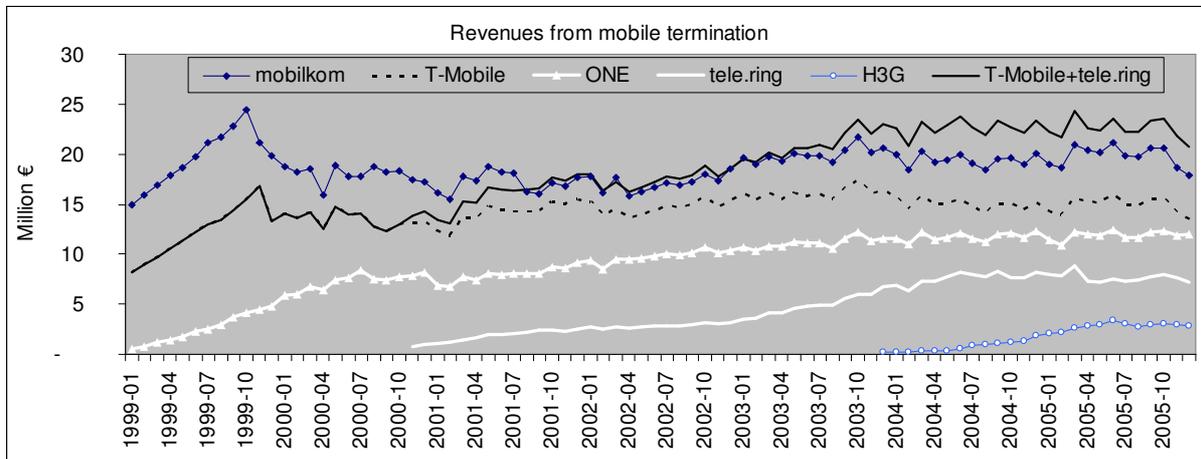
For the future, the Austrian regulator (Telekom-Control-Kommission, TKK) has already stated the MTR in his decision of December 2005 (e.g decision Z8/05). As can be seen in the graph below, TKK has decided in favour of one MTR (6.79 cents per minute) for all operators (reciprocal respectively symmetrical rates at the end point). This is effectively the LRIC value for what the TKK determined was most efficient operator in the Austrian mobile termination markets, mobilkom, which is in fact the operator with the lowest production cost. As will be shown this comes about from the 900 MHz frequency allocated to mobilkom, and significant, sustainable market entry advantages. This value will be reached through operator specific semi-annual reductions.<sup>1</sup> However, proper terminating fees and the way to achieve them are currently up for decision again at TKK as the currently regulated tariffs expire by the end of 2006.



Although TKK undertook a calculation of the terminal value based on the concept of FL-LRAIC (forward looking long run average incremental costs), a concrete decision for the period 2007 / 2008 for the mobile operators still needs to be taken. In this process, it is possible that the terminal value changes due to the market development over the last two years or modified views and assessments of TKK and likewise it is possible that the fees of the respective operators as well as the logic according to which they are set are amended.

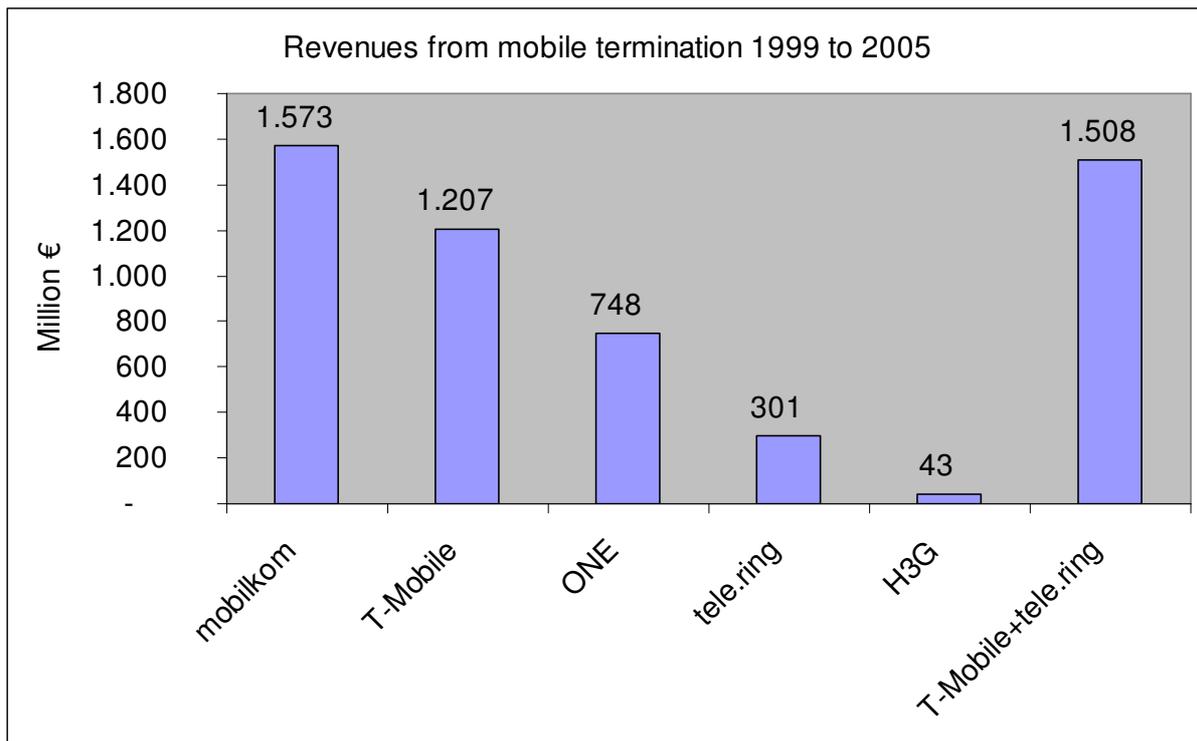
<sup>1</sup> TKK Decision from 19th of December 2005, Z 2-10/05, Z 7,8,9,11,13,14/05

The treatment of MTR especially the reduction of rates at different points in time in combination with the different size (in number of customers) and different traffic pattern imply that the operators in the Austrian mobile market have profited differently from MTR. To see the difference in revenue from MTR, the revenues from termination has been calculated for the operators. Based on the information contained in the expert opinion of RTR to TKK in the 2005 proceedings about all operators MTR revenues and the off-net termination traffic of ONE for the years 2003 and prior, the traffic volume has been calculated for all operators based on the subscriber figures / market shares in the market. That is, the calculations are based on the assumption that all operators have the same termination traffic volume per subscriber as ONE. These traffic volumes per subscriber have then been multiplied with the applicable termination rates of the operators at each point in time in order to calculate the overall MTR revenues. The development of revenues can be seen in the following figure:



Source: PSC AG calculations based on figures on traffic volume from ONE and subscriber figures from RTR ([www.rtr.at](http://www.rtr.at)).

The results are that, between 1999 and 2005, the termination revenues was about the same for T-Mobile (including tele.ring) and mobilkom, while ONE has earned about half the revenue from termination. This can be seen in the figure below, where the total revenues between 1999 and 2005 are displayed:



These figures indicate that Mobilkom and T-Mobile have received substantial amounts from the termination services in the past. As the efficient costs of mobilkom and T-Mobile are lower than the one of ONE, the large difference in termination rates implies that mobilkom and T-Mobile have had termination rates far above cost in the past. On the other hand, ONE has been forced by the regulation to charge termination rates at cost level. This imbalance in regulation has extended the first-mover advantages of mobilkom and T-Mobile, as these operators have had the opportunity to use the profit generated from termination services for marketing, handset subsidies and other customer acquisition activities thereby strengthening their market position. This implies that mobilkom and T-Mobile have been the beneficiaries of MTR regulation in the past. With respect to the future MTR regulation foreseen by TTK it needs to be considered that the current glide path foresees that mobilkom is regulated at cost level and will be able to recoup their costs from MTR whereas for e.g. ONE no such guarantee is given. ONE will be regulated downwards to mobilkom's costs – irrelevant of whether the determined prices are sufficient to cover the costs of ONE.

## 1.2 Legal framework for MTR determination

According to the Austrian telecommunication law, the regulator shall review the analysis for the markets subject to potential ex-ante regulation on a biannual basis. In the context of the imminent review of the market for mobile termination, the analysis of the law and the European Directives comes to the conclusion that the regulator in its latest decisions (2003-2006) disregards the language of para 42 of the TKG 2003 and Art. 13 of the EU Access Directive which relate price control to the individual cost parameters of the very operator that is subject to regulation. As a consequence, equal cost relevant parameters shall lead to equal mobile termination rates ("MTR"). There is no basis whatsoever in the law for a "one price rule"

based on the cost of the most efficient operator in the market. This will be shown in the following.

### 1.2.1 Price Control and Cost Accounting for Access According to Austrian Law

The Austrian Telecommunications Act (in the following: “TKG 2003” with respect to the law which is in force since 19 August 2005 and “TKG 1997” with respect to the law which was in force until 20 August 2005) in para. 42 contains provisions on price control and cost accounting for access, which are based on and are very similar to Art. 13 of the EU Access Directive.

### 1.2.2 Art. 13 of the EU Access Directive

According to the Art. 13 of the EU Access Directive,

1. *A national regulatory authority may, in accordance with the provisions of Article 8, impose obligations relating to cost recovery and price controls, including obligations for cost orientation of prices and obligations concerning cost accounting systems, for the provision of specific types of interconnection and/or access, in situations where a market analysis indicates that a lack of effective competition means that the operator concerned might sustain prices at an excessively high level, or apply a price squeeze, to the detriment of end-users. National regulatory authorities shall take into account the investment made by the operator and allow him a reasonable rate of return on adequate capital employed, taking into account the risks involved.*
2. *National regulatory authorities shall ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximise consumer benefits. In this regard national regulatory authorities may also take account of prices available in comparable competitive markets.*
3. *Where an operator has an obligation regarding the cost orientation of its prices, the burden of proof that charges are derived from costs including a reasonable rate of return on investment shall lie with the operator concerned. For the purpose of calculating the cost of efficient provision of services, national regulatory authorities may use cost accounting methods independent of those used by the undertaking. National regulatory authorities may require an operator to provide full justification for its prices, and may, where appropriate, require prices to be adjusted.*
4. *National regulatory authorities shall ensure that, where implementation of a cost accounting system is mandated in order to support price controls, a description of the cost accounting system is made publicly available, showing at least the main categories under which costs are grouped and the rules used for the allocation of costs. Compliance with the cost accounting system shall be verified by a qualified independent body. A statement concerning compliance shall be published annually.*

Art. 13 of the Access Directive clearly states that any regulation of cost-oriented prices shall be made according to the individual costs of the operator exercising significant market power. Art. 13 of the Access Directive obliges national regulatory authorities to take into ac-

count the investment made by “the” operator and to allow “it” a reasonable rate of return on adequate capital employed, taking into account the risks involved.

From this language, it is clear that national regulatory authorities shall take account of

- investment,
- reasonable return on capital, and
- risks involved

of “the specific operator”, and not of a hypothetical efficient operator or the most efficient operator in the market or the operator which is considered to be most efficient.

This argument is supported by subpara. 3 of Art. 13 of the Access Directive, when it says that, where an operator has an obligation regarding the cost orientation of its prices, the burden of proof that charges are derived from costs including a reasonable rate of return on investment shall lie with “the” operator concerned. This language would be meaningless, if the costs of a hypothetical efficient operator or the cost of the operator which is considered to be most efficient should be taken into account by the national regulatory authority when regulating MTR. Each operator will be able to prove that “its” charges are derived from “its” costs, but it will never be able to prove the costs of a hypothetical operator or the cost of the most efficient operator, if it is not by coincidence itself.

This is also fully in line with the last sentence of subpara. 3 of Art. 13 of the Access Directive, according to which national regulatory authorities may require an operator to provide full justification for its prices, and may, where appropriate, require prices to be adjusted, namely in cases where national regulatory authorities prove charges not to be cost-oriented. It is also perfectly in line with the arguments elaborated so far, that NRAs shall base regulation on a cost accounting system (subpara. 4 of Art. 13 of the Access Directive) which is filled with individual data leading to individual results.

To conclude, Art. 13 of the Access Directive which contains the relevant provisions on price control and cost accounting, is about the individual efficient costs of an individual operator which any undertaking subject to ex-ante-regulation is obliged to prove in case of a dispute and which may be adjusted by the regulator where appropriate. Cost accounting shall be made based on implemented cost accounting systems as described in subpara. 4 of Art. 13 of the Access Directive.

Nothing in Art. 13 nor in other provisions of the Access Directive or the other relevant Directives indicates that regulation of MTR shall not be based on individual costs of “an” operator, but rather on the costs of a hypothetical efficient operator or the operator which is considered to be most efficient.

The aspect of individual efficiency is already reflected in the cost model LRIC. Recital 20 to the Access Directive sets out the framework for price regulation which may be relatively light, such as an obligation that prices for carrier selection are reasonable or also much heavier,

such as an obligation that prices are cost-oriented to provide full justification for those prices where competition is not sufficiently strong to prevent excessive pricing. Recital No. 20 of the Access Directive also contains more explicit language as to which cost NRAs shall calculate by referring to “capital employed including appropriate labour and building costs, with the value of capital adjusted where necessary in order to reflect the current valuation of assets and the efficiency of operations”. Again, this indicates individual cost as the reference for any regulation.

### 1.2.3 Para. 42 of the TKG 2003

Para. 42 of the TKG 2003 depicts Art. 13 of the Access Directive:

1. *If the regulatory authority identifies, in the procedure pursuant to § 37, that an undertaking with significant market power might sustain prices at an excessively high level, or apply a price squeeze, to the detriment of end-users, the regulatory authority may impose obligations relating to cost recovery and price controls, including obligations for cost orientation of prices. In the process, the regulatory authority shall take into account the investment made by the operator and allow him a reasonable rate of return on capital employed, taking into account the risks involved. In addition, obligations concerning cost accounting systems may be imposed on undertakings with significant market power.*
2. *Where an undertaking with significant market power has an obligation relating to the cost orientation of its prices, the burden of proof that charges are derived from costs including a reasonable rate of return on investment shall lie with the undertaking concerned. For the purpose of calculating the cost of efficient provision of services, the regulatory authority may use cost accounting methods independent of those used by the undertaking. The regulatory authority may require an undertaking with significant market power to provide full justification for its prices, and may, where appropriate, require prices to be adjusted. In this respect, the regulatory authority may also take account of prices available in comparable competitive markets.*
3. *The regulatory authority shall ensure that, where implementation of a cost accounting system by an undertaking with significant market power is mandated, a description of the cost accounting system is made publicly available, showing the main categories under which costs are grouped and the rules used for the allocation of costs. The regulatory authority or a qualified independent body commissioned by the regulatory authority shall verify compliance with the cost accounting system on an annual basis. The regulatory authority shall publish a statement concerning compliance.*

Given the resemblance in content and language, the aforementioned arguments also apply with respect to the Austrian Telecommunications Act, both the TKG 1997 and the TKG 2003.

It is worth mentioning that the Austrian regulator in the first round of consultation as of 23 November 2004, used a different reasoning for the introduction of the “one price rule” (see section 2.1.) together with the glide path approach than in the later regulations. In the first round of consultation, the regulator argued that all operators would be able to achieve equal

market shares of 20% in a foreseeable timeframe. It is obvious that this reasoning is not in line with market experience. Based on this wrong assumption, the regulator argued that the five Austrian mobile network operators over the coming years shall charge one uniform mobile termination rate. The proposition of the regulator, thereby, assumes that 45% to 60% of all Austrian mobile end users will switch provider in the next four years. Moreover, this switch over would need to be exactly in the way that, by then, all mobile network operators would have a 20% market share. Those operators that fail to achieve this goal will permanently be punished with a too low MTR, those overachieving the target (those operators with frequency advantages leading to better coverage and network quality; both factors affect market shares) would gain excess profit. As a consequence, market exit of late entrants may occur and a consolidation of the market with a significant reduction of competition with respect to the retail market, which exactly shall be promoted by regulation. Thereby, the regulator achieves the contrary of what it wanted to achieve. Not surprisingly, the market pointed out that this assumption of converging market shares is wrong and the regulator adapted its argumentation accordingly. Nevertheless, the regulator stuck to its approach of long term reciprocal fees, irrespective of differences in market shares in the retail market. This argumentation is being analyzed critically in section 2.1.2.

#### 1.2.4 Regulation of MTR in Austria Oriented at Individual Costs

The discussion of reciprocal versus non-reciprocal MTR rates dates back to the first decrees by the regulator in the years 1999 and 2000 (see Z 24/99-27, Z 4/00-14, Z 6/00-25, Z 7/00-38, and Z 8/00-30). TKK at first imposed reciprocal MTR on mobilkom austria, T-Mobile and Connect, arguing that the termination rate of mobilkom austria has to be considered as the simulated market price which would materialize under a competitive market environment (see decree Z 24/99/-27, p. 58). Only tele.ring as the smallest operator was exempted from the principle of reciprocity. TKK derived from para. 125 subpara. 3 of the TKG 1997 and para. 6 of the Interconnection Ordinance a three years period of protection for new entrants. TKK argued that this three years period is not fixed, but new entrants shall be protected until they manage to establish their business model in the market (see Z 7/00-38, Z 6/00-25, Z 30/00-35).

At later stages, TKK again revised its jurisdiction. Given the fact that no operator had significant market power at that point in time, the regulator imposed MTR according to adequacy ("reasonable prices"). At the same time, it left behind the concept of reciprocity and regulated MTR rates according to the respective market position of the operator at different levels. It reasoned that according to European and Austrian telecommunication law, the principle of asymmetric regulation has to be observed, whereas individual operators depending on their relative market position (which is a consequence of different points in time of market entry and frequency allocation as TKK argued) shall be regulated differently. Another argument for this regulatory approach started from Art. 9 para. 5 of the Interconnection Directive (97/33/EG), according to which the relative market position of the individual operator has to be taken into account when regulating interconnection rates in general (see Z 28/02-77, p. 17). It has to be stated that nothing has changed in this respect since the introduction of the new European regulatory Framework which would lead to a different assessment and a dif-

ferent reasoning with respect to non-reciprocity. Also, regulatory goals remained the same as under the old framework.

Historically, the regulator always looked at individual costs according to the model developed by the expert witness which was then filled with operator specific data. Regulation took individuality of costs into account which led to asymmetry of rates. With its new approach, TKK is in obvious distance to legal aspects of regulation and disregards the clear language of para. 42 of the TKG 2003, despite the fact that during the consultation process, operators and other interested parties pointed to this very language. The regulator is driven by its intention to eliminate competitive shortcomings which it deems having identified and regulatory goals come to the fore. We strongly believe that this approach is not correct and critical from a legal perspective because with the misunderstanding of the relationship between the provision of the law which has to be applied to the general goals of regulation, it is possible to put any meaning to any legal provision.

It is important to look at the history of the regulation of MTR in Austria in order to understand how the regulator step by step approximated its new concept which, at the end, is a turning point in the history of Austrian interconnection regulation.

#### 1.2.5 Decree Z8/05-152 (19 December 2005)

The latest step of regulation of MTR is contained in decree Z8/05-152, dated 19 December 2005 (tele.ring Telekom Service GmbH vs. One GmbH) which summarises the arguments which TKK had developed in the process which was described in the previous chapters.

The regulator refers to its previous papers on reciprocity of MTR which shall be the goal from an economic perspective. Reciprocity of MTR shall be achieved if networks are identical and if the competitive positions of the operators concerned are similar, which was not achievable at the pace the regulator expected in the first place (see M 15b/03-33, 80 f. and the decrees mentioned in the previous chapter). Interestingly enough, the regulator now, despite the fact that the previous decisions were released only one year ago, revised its approach and turns the table.

Because one has to assume, it argues, that in a functioning competitive market in a long term perspective equal rates shall apply for equal services (“one price rule”) and because these rates are not achievable at the desired pace, the desired results of a uniform market price shall be anticipated by means of the introduction of the concept of the imitation or simulation of the result of competition:

*Zur “Imitation eines Wettbewerbsergebnisses” ist wie folgt festzuhalten: Wie in den Gutachten ausgeführt wurde, sind die Mobilterminierungsmärkte resistente Monopolmärkte. [...] Auf den betreiberindividuellen Terminierungsmärkten ist es nicht möglich, durch Regulierung Wettbewerb zu schaffen. In einer solchen Situation muss die Auswahl von Regulierungsinstrumenten einem anderen Prinzip folgen. Entsprechend [...] muss die Regulierungsbehörde in einer solchen Situation die Ausübung von Markt-*

*macht des Unternehmens mit beträchtlicher Marktmacht gegenüber den Konsumenten verhindern. Das wesentliche Wettbewerbsproblem im Zusammenhang mit Marktmacht auf den Terminierungsmärkten sind überhöhte Terminierungsentgelte, die wiederum zu erhöhten Tarifen für Anrufe in Mobilnetze (zum Nachteil der Endkunden) führen. Die Unternehmen mit beträchtlicher Marktmacht sind damit in der Lage, höhere Preise durchzusetzen, als dies der Fall wäre, würde effektiver Wettbewerb vorliegen. Ein zweites, wenn auch untergeordnetes Wettbewerbsproblem sind Foreclosure-Strategien [...]. Primäres Ziel der Regulierung muss es daher sein, sicherzustellen, dass die Konsumenten die [...] Terminierungsleistungen zu Konditionen beziehen können, die mit jenen vergleichbar sind, die sich bei Vorliegen effektiven Wettbewerbs einstellen. Auf einem Wettbewerbsmarkt stellt sich bei hinreichend homogenen Produkten ein Preis ein, der sich an den langfristigen Grenzkosten der Leistungserbringung eines effizienten Betreibers orientiert.*

*[...]*

*Vor diesem Hintergrund ist ein "einheitliches Terminierungsentgelt" zu präferieren. Das primäre Ziel regulatorischer Intervention liegt in diesem Zusammenhang folglich in der "Imitation" des Wettbewerbsergebnisses.*

By taking the intended goal as the starting point of the argumentation and by replacing factual reality to which the law makes reference with the desired result of competition in order to safeguard the targets of regulation and to ensure a non-discriminatory and functioning competition, the principle of reciprocity is not deducted from the law, but rather postulated.

In this chapter, we will summarise the main arguments used by the regulator and critically deal with them by showing that the principle of the "one price rule" or reciprocity of MTR has no basis whatsoever in the law. In the economic analysis in the chapters below, we will show which differences in factual reality of the various mobile network operators have to be taken into account and how they affect the calculation of individual cost-oriented prices.

The main argument used in the "M 15 decrees" (market analysis of market No 15), to which decree Z 8/05-152 makes reference is that in principle, in a functioning and competitive market in the long run, for equal services equal fees have to be paid ("one price rule"). In a competitive market, factors like different technologies or different costs per subscribers are less important because in a functioning market a new competitor is not able to argue a higher price for the same service due to technology or due to its higher costs. Consumers consider the service "termination" as a homogeneous product, irrespective of technology or customer basis. This leads to the regulator's preference for reciprocal termination rates.

The primary goal of regulatory intervention in this context for the regulator is the imitation of the result of competition. By introducing the glide path approach, the regulator tried to avoid disruptive effects and tried to make sure that operators have a long term planning horizon and stability. Also, investment of new entrants is taken into account ("protection of investment"). Also, it was taken into account that in a starting phase, new entrants have very high costs which would be relevant and account for their interconnection services. The application

of a glide path until the end of 2008 would be suited to avoid disruptive effects, to balance late comer disadvantages as well as to address the competitive problems which were identified beforehand. Furthermore, the regulator argued (p. 9 of decree Z 8/05) that the deviation of the principle of the uniform market price would only be admissible from an economic point of view in very exceptional cases and also only temporarily.

Furthermore, TKK argues that there is no real competitive market where an operator is able to enforce higher prices only because it has higher costs of production. The regulator also says that the argument that differences in termination services would justify prices which are oriented along individual costs of the operator.

Furthermore, the regulator argues that price differentiation would protect operators with a lower productive efficiency and would lead to distortions of competition. However, the regulator (see p. 10 of decree Z 8/05) states that previous procedures proved that in fact there were significant economies of scale and first mover advantages of the larger operators.

This argumentation is not in line with the language of para. 42 of the TKG 2003, but rather relates to general principles of regulation, which are incorrectly applied in the context of the application of the relevant provisions of the law.

The legal arguments are again summarised on pp. 23 ff. of decree Z 8/05: TKK is wrong when it says that in the context of the regulation of MTR in case of dispute, those rates shall be oriented at long run average incremental costs of “an” efficient operator. This is in clear contradiction to the wording of para. 42 of TKG 2003 which, as shown above in detail, makes reference to the individual costs of each operator and other relevant parameters relating to the individual parameters (see also Art. 13 of the Access Directive).

**1.** It seems to be the most important argument of TKK (at least it is the first legal argument mentioned) that already the LRAIC principle itself, generally speaking, would indicate that prices shall be oriented at a uniform market price in the light of the fact that competitive problems are the same for all mobile network operators in the context of para. 42 of the TKG 2003.

This argumentation is not correct as the LRAIC model is not even explicitly mentioned in para. 42 of the TKG 2003. LRIC or LRAIC may, however, be one of the cost models used in this context. Indeed, the LRAIC concept does make reference to efficiency, however, it does always relate to the efficiency of the individual operator. There is no argument whatsoever, that the LRAIC concept looks at a hypothetical efficient operator or at the operator considered to be most efficient. In case of a dispute between two operators, the LRIC cost model is applied to each operator's cost. The result is the evaluation of its cost-oriented MTR.

**2.** Only in the next step of argumentation, the regulator comes to the interpretation of para. 42 of the TKG 2003. When it says (p. 24) that para. 42 of the TKG 2003 has no prefer-

ence for reciprocity or non-reciprocity, the regulator is in principle right. If the relevant exogenous parameters of operators are equal or at least very similar, there is no reason to regulate their MTR differently. On the other hand, if the law makes reference to individual cost parameters, it is very clear that such differences in costs have to lead to differences in MTR, because cost-oriented prices will be different due to different costs.

The regulator completely misinterprets para. 42 of the TKG 2003 when it says (p. 24) that the law opens up a full range of concrete options for the concrete operationalisation of price control in the context of para. 37 and 42 of the TKG 2003 as the regulator completely isolates the language of the law which relates to benchmarking and cost accounting methods independent of those used by the undertaking. Both aspects clearly relate to different methods to be used when calculating cost-oriented prices. However, the purpose of empowering the regulator to use accounting methods independent of those used by the undertaking is clearly to verify or falsify whether the undertakings with significant market power delivered correct data, miscalculated or applied the wrong logic of calculation. It shall be remembered that according to the law, the burden of proof that charges are derived from costs including a reasonable rate of return on investment shall lie with the undertakings concerned. It is very clear that this is nothing but a procedural tool of the regulator to ensure that it is not being cheated by the operator. There is no indication whatsoever - as the regulator on p. 24 of Z8/05 does want to make us believe - that the regulator by using cost accounting methods independent of those used by the undertaking is entitled to introduce the concept of a uniform market price.

Also, the reference to benchmarking is no argument for a uniform market price. The language “[...] the regulatory authority may also take account of prices available in comparable competitive markets” just follows the language which entitles the regulatory authority to require an undertaking with significant market power to provide full justification for “its” prices, and may, where appropriate, require prices to be adjusted. Also, this right of the regulator is nothing more than a procedural tool enabling the regulator to rectify or falsify data provided by the undertaking with significant market power in order to ensure that the factual basis of its decision is correct. Therefore, regulators may also take a look into comparable (international) markets. This benchmark may lead to the result that the costs of an individual Austrian operator are very similar to the costs of a comparable operator in another Member State; it may also lead to the result that the costs of an individual Austrian operator are way off the costs of a comparable international operator. In the latter case, this may induce the regulator to look deeper into the data provided by the respective operator and, potentially, to adjust parameters accordingly. The right of benchmarking, however, is no indication whatsoever that the regulator may apply a uniform market price. It would be completely pointless, if the law first introduces the concept of regulation according to specific cost parameters of an operator in subpara 1 of para 42 of the TKG 2003, and then to turn everything upside down in subpara. 2

**3.** The regulator makes reference to case law of the Austrian High Administrative Court (“VwGH”) (VwGH 2002/03/0270 and VwGH 2002/03/0273, dated February 25th, 2004). TKK thinks it has an argument from the reasoning of VwGH when it says that:

*“Soweit sich die Beschwerde dagegen wendet, dass durch die im angefochtenen Bescheid erfolgte Festlegung von Zusammenschaltungsentgelten eine Kostenunterdeckung eintrete, genügt es, auf das h.g. Erkenntnis vom 11.09.2002, Zahl 200/03/0190, zu verweisen, wonach sich aus den für die Zusammenschaltung relevanten Rechtsgrundlagen, insbesondere aus dem Grundsatz der Kostenorientiertheit, der bei der Entgeltfestsetzung für ein marktbeherrschendes Unternehmen gilt, die Relevanz der konkreten, bei marktbeherrschenden Unternehmen tatsächlich angefallenen Kosten für die Zusammenschaltung bei der Entgeltfestsetzung nicht ableiten lässt.”*

TKK uses isolated reasoning of the VwGH in order to justify its position. TKK is wrong and it would have been very easy for TKK to look at the context of the decision, where the reasoning which we quoted above was made. VwGH, in its decision is not at all in favour of a uniform market price, it is analysing different models of calculating cost-oriented prices and states that cost calculation has to be on the basis of FL-LRAIC, but not, as Telekom Austria in its case tried to make the regulator believe, based on historical full costs:

*“Auf Grund der auch von der Beschwerdeführerin anerkannten Kostenermittlung auf Grund der zukunftsrelevanten langfristigen durchschnittlichen zusätzlichen Kosten (FL-LRAIC) war eben von diesen Kosten und nicht – wie die Beschwerdeführerin meinte – von ihren historischen Vollkosten auszugehen.”*

In the context of the decision, it is very clear that it is about the cost orientation of the specific individual operator, i.e. Telekom Austria, but not about the costs of a hypothetical efficient operator.

Moreover, there are several decisions of VwGH which prove that non-reciprocal regulation is fully in line with the Telecommunications Act (2005/03/0088; 2000/03/0285; 2002/03/0084; 2000/03/0287; 2002/03/0125, etc.). Also, TKK agrees that decisions of VwGH according to the TKG 1997 are still relevant after the enactment of the TKG 2003. VwGH says that prices shall be individual and non reciprocal rates are appropriate:

*“Vor diesem Hintergrund erweist sich die Festsetzung von gleich hohen Zusammenschaltungsentgelten nicht marktbeherrschender und marktbeherrschender Unternehmen nicht als per se rechtswidrig. Doch sind die konkreten Kosten (auch nicht marktbeherrschenden) Unternehmens ein Parameter für die Ermittlung des “angemessenen” Entgelts, weshalb bei der Festsetzung des Entgelts für die Zusammenschaltungsleistung auch auf diese Kosten einzugehen ist. [...] Die Kosten für Zusammenschaltungsleistungen eines Unternehmens werden regelmäßig auch vom Verkehrsvolumen, letztlich also auch von der Marktposition des jeweiligen Unternehmens beeinflusst. Ausgehend davon, dass die Marktposition eines Anbieters wesentlich auch durch den Zeitpunkt seines Markteintritts bestimmt wird, sind die Ausführungen der belangten Behörde, wonach für neu in den Markt eingetretene Mobilfunkanbieter eine “Schutzfrist” anzunehmen ist, nicht als rechtswidrig zu erkennen. Die “relative Marktstellung” ist [...] eines von mehreren unterschiedlichen Kriterien zur Erreichung des durch Art. 9 Abs. 5 RL 97/33/EG gesteckten Zieles, einen “fairen Ausgleich der berechtigten Interessen beider Parteien” zu erreichen. Im Hinblick auf den klaren Wortlaut des Art. 9 Abs. 5 RL 97/33/EG, der die (beispielsweise) Berücksichtigung einer Reihe von*

*Kriterien anordnet, kann kein vernünftiger Zweifel daran bestehen, dass deren Heranziehung unter Berücksichtigung aller Umstände des Einzelfalls auch dazu führen kann, dass in einem konkreten Fall die Zusammenschaltungsentgelte vom marktbeherrschenden und nicht marktbeherrschenden Unternehmen in gleicher Höhe festzusetzen sind. [...]*

4. Hypothetical Cost Accounting: It has already been investigated in the literature whether cost accounting can be done independently from the cost situation of the regulated undertaking, solely based on a hypothetical communications network. This has been denied so far by making reference to case law of VwGH (see Stratil, TKG, p. 188, with reference to the decision of VwGH date 6 September 2001, 2000/03/0195).

*“Im Ergebnis haben die Amtssachverständigen der Bestimmung des Zusammenschaltungsentgeltes anhand der FL-LRAIC-Berechnungsmethode somit nicht die tatsächlichen Kosten der Beschwerdeführerin, sondern (lediglich) das “Schema der ANB” (mit aus ihrer Sicht angebrachten Korrekturen) zugrunde gelegt, weil dieses Schema eines um Effizienz bemühten Netzbetreibers entsprechen würde. Damit wurden entgegen Art. 7 Abs. 2 der zitierten Richtlinie lediglich “fiktive” Kosten unter Außerachtlassung der von der Beschwerdeführerin geltend gemachten Ansätze berechnet. Im Lichte der in Art. 7 Abs. 2 leg. zit. [der Richtlinie 97/33/EG] und der besagten Empfehlung vorbezeichneten Vorgangsweise hätten die Sachverständigen die Berechnungen primär ausgehend von den tatsächlichen Kosten der Beschwerdeführerin nach objektiven Kriterien (siehe Erwägungsgrund 10 der RL 97/33/EG) vorzunehmen gehabt. Diese objektiven Kriterien sowie deren Anwendung auf den Beschwerdefall wäre von den Sachverständigen klar auszuarbeiten gewesen.”*

It is surprising that the regulator in decree Z 8/05 seems to disregard the history of the regulation of MTR. One would have expected TKK to deal with its previous decisions and to reason in detail why it again revised its approach as compared to the previous regulation (2001-2002).

The regulator also says that the argument that differences in termination services would justify prices which are oriented along individual costs of the operator. Coming back to the regulator's reasoning in the Z 8/05, the turning point for the argumentation is to be found at the end of p. 24:

*“Nachdem nun die gesetzlichen Vorgaben für die Regulierungsbehörde keine ausdrückliche Bestimmung betreffend des Verhältnis der Mobil-Terminierungsentgelte zu einander enthalten, hat die Telekom-Control-Kommission eine Entscheidung zu treffen, die dem Ergebnis der einschlägigen Marktanalyseverfahrens Rechnung trägt, dem Gebot der Verhältnismäßigkeit sowie dem Zweck und dem Ziel des TKG 2003 entspricht.”*

TKK disregards clear language of para. 42 of TKG 2003 and Art. 13 of the Access Directive which clearly relates to operator specific costs and interprets para. 42 as if it would not contain specific terms and specific provisions about the relationship between MTR. As already said before, MTR of operators may be identical if relevant exogenous parameters are identical; yet, MTR of operators shall differ in case the relevant parameters are different.

It is interesting that the regulator does not derive the “one price rule” from para. 42 of the TKG 2003 (which is not feasible from a legal point of view), but only from general principle of proportionality, an approach which is not linked whatsoever in the law. At the end of its reasoning (see p. 25 of decree Z 8/05), TKK comes back to its previous reasoning that competitive conditions and a competitive price which would be achieved in a competitive market have to be simulated. This price would be the long run incremental costs of service provisioning of efficient operators, i.e. LRIC. Again, disregarding the language of para. 42, subpara. 1 of TKG 2003, TKK argues that this is the LRIC of a hypothetical efficient operator. Interestingly enough, TKK in this context argues that LRIC considers efficient provision of service which may lead to a situation where not all operators may be compensated for their costs of termination. This sentence shows the weakness of TKK’s reasoning. It is undisputed that LRIC may lead to a situation where an operator does not recover all its costs as it may not be efficient. But efficiency always relates to the individual operator and not to a hypothetical operator. TKK’s position necessarily leads to a situation where some operators may not be able to recover their termination costs, despite the fact that they apply the utmost efficiency, simply because TKK rather looks at the efficiency of a hypothetical operator as benchmark than at there individual efficiency. Again, this is not what the benchmark concept of para. 42 of the TKG 2003 is about.

**6.** TKK mentions the principle of proportionality, but this does not explain the way it applies this principle. Indeed, the principles of proportionality and non discrimination are most important in European telecommunication regulation (Art. 8 para. 1 of the Framework Directive; Art. 5 para. 3 and para. 4 of the Access Directive; Art. 12 para. 2 of the Access Directive; Art. 17 para. 2 of the Universal Services Directive).

According to Art. 5 para. 3 of the Access Directive, obligations and conditions imposed in accordance with para. 1 and 2 shall be objective, transparent, proportionate, and non-discriminatory, and shall be implemented in accordance with procedures referred to in Art. 6 and 7 of the Framework Directive.

The principle of proportionality is an important one which has to be taken into account in the context of regulation under the TKG 2003. It has various aspects:

- It says that the means to reach the goal shall not exceed the intensity necessary to reach the goal;
- measures to reach the goal must be necessary in general;
- measures shall not unreasonably burden the operator.

It is a further aspect of the principle of proportionality that the regulator shall differentiate when regulating various undertakings with significant market power, taking into account market power, countervailing power, etc. (see Stratil, TKG, p. 95).

The principle of proportionality has to be considered in the context of regulatory goals which may, in different cases, have different importance and relevance and which may be also conflicting, as the case may be. Hence, the principle of individuality as explicitly mentioned in para. 42 of the TKG is supported by general principles of sector specific competition law. Regulation has to be proportionate, non discriminatory and objective (see Art. 8, para. 4 of the Access Directive). Regulation of MTR leading to charges below the cost of an operator which is the consequence of the one price rule, would be excessively disproportionate. Applying the criteria of proportionality to the interpretation of para. 42 of the TKG 2003, the result of our interpretation as described above is confirmed.

Furthermore TKK's application of the "one price rule" violates the principle of proportionality also in so far as operators which are already disadvantaged by late entry and frequency allocation are regulated disproportionately, i.e. the regulator goes beyond the limits which is unnecessarily excessive ("überschiessende Regulierung").

**7. Equality:** Furthermore, TKK disregards the principle of equality which is a general principle according to Austrian and European constitutional law. TKK insinuates that the para 42 of the TKG 2003 has a meaning which is in contrast to the principle of equality. The principle of equality, apart from the prohibition of differentiation not related to the facts, also requires differentiated rules where facts are not equal.<sup>2</sup> Although, in our view, para. 42 of the TKG 2003 does not give room for interpretation with respect to individuality of cost criteria (so that one might assume that the principle of interpretation according to constitution does not play a role in this case), it is important to emphasise the principle of equality on a higher legal level which confirms the results of our interpretation and which is an additional argument for regulation which treats equal equally and unequal unequally.

Cost accounting according to the TKG 2003 starts from cost and cost data of the respective undertaking as well as from its individual circumstances. Cost accounting has to be done on an individual basis. The results must not simply be applied in a parallel procedure of another undertaking which has a different cost situation. If the regulator were to regulate unequal equally, the burden of proof would be with it.<sup>3</sup>

**8. Competitive Problems are not equal:** TKK repeats that competitive problems are all the same for each individual termination market because each mobile network operator is exercising significant market power with a 100% market share on the individual termination market. In the future regulation of MTR, TKK has to take into account that the merger between T-Mobile and tele.ring has completely changed the competitive picture. Together with tele.ring, T-Mobile now has approximately the same market size and frequency allocation as the incumbent mobilkom austria in terms of market shares, turnover, and traffic volumes. On the other hand, there are late entrants with significantly lower market shares, turnovers and volumes of traffic and significantly different frequency allocations which are severely disadvan-

<sup>2</sup> See *Öhlinger*, Verfassungsrecht 5 Rn. 793 ff.

<sup>3</sup> See *Ostelroh*, in: Sachs, Grundgesetz – Kommentar 3 (2003) 83, Rn. 13 ff.)

taged due to late market and induced by regulation who may not be able to exercise sufficient countervailing power.

When TKK refers to the end user market and prices in the end user market, those significant differences in the retail markets have also to be taken into account when regulating the termination market. As a general principle, different market shares and frequency allocation have to be reflected in different MTR. This would lead to two, respectively three groups of operators, differentiated according to market shares and individual costs of termination. Different market share in the retail market leads to different costs in mobile termination.

**9.** Joint dominance of mobilkom austria and TMA needs to be taken into account: Furthermore, it has to be taken into consideration that after the merger between T-Mobile and tele.ring, joint dominance of the two large Austrian mobile network operators mobilkom austria and TMA is likely to occur which is also indicated by the merger control decision by the European Commission dated 26 April 2006 (COMP/M.3916). The European Commission argued that coordinated effects were prevented as long as tele.ring exercised enough countervailing power. In the future, such coordinated effects and joint dominance may be avoided in case Hutchison 3G Austria is able to fully replace tele.ring. This would also ensure that coordinated effects of mobilkom austria and TMA are withheld.

Approximately six months after the approval of the merger, there are no signs that Hutchison 3G Austria is able to replace tele.ring and there are no signs that this will happen in the foreseeable future. So far, Hutchison 3G has not acquired the necessary UMTS spectrum, nor the approximately 2,000 sites which shall be integrated in the Hutchison 3G network according to the plan of the European Commission. Based on the time perspective of TMA's network integration, we would assume that Hutchison 3G Austria may possess a nationwide UMTS network with a coverage comparable to the GSM coverage of the GSM operators at the beginning of 2008 at the earliest. Only by then, the preconditions are fulfilled which would enable Hutchison 3G to potentially fully substitute tele.ring as the major competitor of the larger operators in the previous years. This implies that for the next 15 months at least we are facing the probability that TMA and mobilkom austria will jointly dominate the market and exercise coordinated effects to the disadvantage of the competition and to the disadvantage of the end users.

This has to be taken into account by TKK when regulating MTR in the future. Therefore, one cannot say that competitive problems are all the same with each mobile network operator, quite to the contrary. There are two groups of operators which have to be treated differently. The structure of the market with its high transparency enables the two larger operators to monitor their market behaviour. This enables them to coordinate their market behaviour and to establish a uniform pricing policy for the retail market. Operators disadvantaged by late entry and frequency allocation are not in the position to question the coordinated effects, in particular the coordinated policy of pricing. Hence, the joint dominance of mobilkom austria and TMA deserves specific regulation of these operators.

### 1.3 Reasons for Current Situation – TKK’s Arguments

#### 1.3.1 Arguments Used in the Most Recent Determination of MTR Rates (December 2005, Z8/05)

The most recent determination of mobile termination rates in Austria took place in December 2005, where a number of bilateral dispute resolutions were issued by Telekom-Control-Kommission (TKK) – see section 1.2. These determinations reflected upon bilateral disputes between mobile operators (in several different constellations) as well as between fixed and mobile operators.<sup>4</sup>

The determination orders a rate decrease with a glide path approach as described in sect. 1.1. Regarding the reasons for determining the rates at the respective level, TKK refers to its decision on market analysis and remedies from 27 October, 2004. One of the remedies stipulated that mobile network operators may only charge a fee for termination that is oriented towards long run average incremental costs of an efficient network operator (thereby making reference to the concept of LRAIC). The main reasons for this determination stated by TKK are:<sup>5</sup>

- that TKK already in previous decisions had stated that it believes that a reciprocal inter-connection fee, respectively a uniform market price<sup>6</sup> is to be aimed at. TKK generally assumes that in a competitive market with workable competition, there is a “one price rule” that should be applied (see section 1.2. and 2.1.). In a competitive market factors like different technologies or different costs per user are of minor importance due to the fact that in a functioning competitive market one operator offering identical services compared to other operators will not be able to be compensated for higher costs incurred. From the perspective of the end user, termination services are a homogeneous product, irrespective of technology or customer base.
- that in a competitive market, the suppliers are forced to be efficient in order to achieve a positive profit margin/contribution in a market with a given market price. Otherwise, the operators would be forced to exit the market.
- TKK follows its approach from the final results of its consultation "Ergebnisse der Konsultation Ermittlung der Kosten der effizienten Leistungsbereitstellung für Terminierung in Mobilfunknetzen" of March 2005 in determining the cost of an efficient operator. The current cost of termination of the operator with the lowest overall cost are equal to the cost of an efficient operator. These costs form the basis of MTR for all operators and shall be deemed to be equal to LRAIC.
- in order to implement this result, relying upon a long term glide path is regarded as useful, thereby defining the glide path as a price cap. The end of a glide path should then reflect the price of a competitive outcome.

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<sup>4</sup> The cases were (1) UPC vs. mobilkom; (2) tele.ring vs. mobilkom; (3) tele.ring vs. T-Mobile; (4) tele.ring vs. ONE; (5) tele.ring vs. H3G; (6) h3G vs. mobilkom; (7) UPC vs. tele.ring.

<sup>5</sup> See e.g. decision Z8/05, pp. [http://www.rtr.at/web.nsf/deutsch/Telekommunikation\\_Regulierung\\_Entscheidungen\\_Entscheidungen\\_Mobilterminierung2005?OpenDocument](http://www.rtr.at/web.nsf/deutsch/Telekommunikation_Regulierung_Entscheidungen_Entscheidungen_Mobilterminierung2005?OpenDocument)

<sup>6</sup> In German: Markt- und Wettbewerbspreis (market and competition price).

- that, when implementing a uniform glide path for all operators, respectively when applying a top down model, disruptive regulatory intervention is to be avoided. It has to be taken into account that operators need a long term planning horizon in order to secure business stability. Also, it has to be taken account of the investments undertaken by “late-comers”, respectively new entrants (“protection of investment”).<sup>7</sup>

It is especially interesting to note why the Austrian regulator favours a glide path which ends in December 2008, considering that during the phase of notification of the decision towards the EU Commission (international coordination according to article 7 of the framework directive), the Austrian regulator had favoured a longer period for the glide path (2011). After having received the comments of the EU Commission, the TKG changed its position and now argues as follows:

- The end date of the glide path being 31<sup>st</sup> December, 2008, is to be regarded as not implying disruptive consequences for the mobile operators.
- The decision in favour of the one price rule needs a defined end date by when this result has to be realised. A period of three years (from the decision end of 2005 onwards) is regarded to be sufficient for operators to adapt to the market changes and also to gain enough market share for the respective mobile operators in order to achieve the minimum optimal size of business. For the three year phase, reference is made to the old Telecommunications Act, specifically sect. 125 para. 3 TKG 1997 which contained a period of protection for investment for three years.

With regard to a deviation from the one price rule TKG stated:

- that a deviation from the one price rule from an economic point of view can only be allowed in justified circumstances against the background of
  - (1) economies of scale,
  - (2) first mover advantages,
  - (3) the protection of a competitive market structure, and
  - (4) the avoidance of disruptive regulatory interventions,
 and that such deviations are only allowed for a specific period of time (transitory measures).
- that in case of different termination rates between the operators, there exists the danger that inefficient operators enter the market and that the wrong incentive structures are set.
- that differentiating termination rates will in the long run lead to distorted competition, due to the fact that the spread of the fees increases the payment balances between the operators, which again implies interventions into the relative competitive position.
- that in the current cases, the situation is characterised by significant economies of scale as well as first mover advantages.<sup>8</sup>

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<sup>7</sup> A more explicit rule preventing new entrants was contained in the TKG 1997 (section 125 para 3) which defined the time between the issuance of new mobile licenses, however, this protected a mobile entrant from additional competitors but it did not protect their investment e.g. by a favourable rate regulation.

<sup>8</sup> Especially this latter point gives rise to the arguments that differentiated tariffs still are justified which we will outline in section 2.

At this point, we do not discuss in detail the reasons that TKK used to determine the rates, but such a discussion based on economic factors is contained in sect. 2.

### 1.3.2 Arguments Used in Prior Market Analysis Decisions (M15/03) and in Current Market Analysis Procedures (M13/06) on SMP

The main economic reasoning for the concrete decision on rates traces back to the decision of TKK regarding market definition and analysis for termination in individual public mobile telephony networks. The decision in this case (M15/03) was taken on 27 October, 2004 after a long procedure including the national consultation as well as the international coordination foreseen in the EU framework. The decision reflects upon why cost orientation obligations are levied upon the mobile operators at all as one of the remedies. Although this study is not intended to discuss whether or not regulation of mobile termination rates is necessary at all, it should be mentioned that TKK identified four competition problems with regard to allocative distortions and foreclosure strategies.

- Allocative market distortions due to excessive termination rates for callers from the fixed to the mobile network, whereby TKK believes that the excessive termination rates will lead to excessive end user prices and thereby to output volumes which are too low and results in negative effects on welfare.<sup>9</sup>
- Allocative market distortions due to excessive termination rates for calls between mobile networks and due to price discrimination between on-net and off-net calls.
- Danger for foreclosure strategies against small mobile network operators, especially greenfield operations and mobile virtual network operators by not granting access, respectively interconnection, excessive termination rates, price discrimination between on-net and off-net calls, and other non pricing tactical moves which raise the costs of the rival operators (competitors). A closely related argument is that the leverage of market power from the termination market to the end user market is potentially relevant. TKK also sees the danger that - stemming from excessive earnings on the termination market - these fees are used on the retail market with the risk of cross subsidisation of on-net tariffs.
- Foreclosure strategies against fixed network operators in terms of an overlap of business areas such as fixed mobile convergence or in the framework of virtual private networks, respectively by increasing the substitution between fixed and mobile networks.

To abandon the competitive problems outlined above, TKK finds that to oblige operators to remedies such as MTR regulation based on LRAIC is one of several necessary means. Al-

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<sup>9</sup> Opposed to this, some observers believe that FL-LRAIC regulation for mobile termination leads to lower termination rates and thus a so-called waterbed effect implying that mobile operators will increase end-user prices again in order to make up for the loss, see e.g. Frontier Economics, The Waterbed effect, 2005 and similar considerations contained in CRA International, Die Ermittlung der Kosten der effizienten Leistungsbereitstellung in Mobilfunkmärkten, Expert opinion for T-Mobile, August 2006. This is regarded as problematic for penetration of services and could imply that a suboptimal penetration ratio is achieved. See below for a further discussion of this argument.

though, the type of regulatory intervention and the measures used are debateable, the further text only deals with the “proper way” of regulating MTR in Austria under the given circumstances.

In its most recent document<sup>10</sup> in the procedure M 13/06, TKK has repeated its market analysis for the mobile termination market. There is no big change in arguments compared to the proceeding M15/03, however, due to the changes that have taken place in the market, the following arguments used by the authorities’ experts should be mentioned:

- The position that due to the fact that in mobile termination one network equals one market, is upheld implying that mobile termination remains a monopoly service in the authorities’ assessment.<sup>11</sup>
- The IRG snapshot research list ranks the mobile operators according to the cheapest price. In all cases, the Austrian operators have dropped compared to 2004.<sup>12</sup>TKK mentions that only Belgium and Switzerland experience larger spreads in the termination rates. The issue of spread of termination rates between operators in one country is of high importance and we will come back to it in the course of this document.
- The experts are addressing more actively than in the previous proceedings the issue of price discrimination between on-net and off-net calls. They mention that through price discrimination between on-net and off-net calls, network externalities are partly reactivated. By offering cheaper on-net tariffs than off-net tariffs, there are price induced network externalities, which are also called “tariff mediated network externalities”, which reduce the attractiveness of the smaller operators because it is economically rationale for consumers to be a subscriber of a larger network. Excessive termination rates combined with on-net and off-net price discrimination are an instrument in order to leverage market power from the wholesale side to the retail markets. In order to overcome the disadvantages on the demand side by these tariff mediated network externalities, a small operator is required to offer specific tariff packages to its users. Especially the small operators are affected by the high share of network external calls and the implicit effect of “raise-each-others-costs” and are therefore endangered of being subject to margin squeeze.

Due to these arguments, TKK arrives at the same conclusions regarding significant market power and the necessity to have price control mechanisms and cost orientation of termination rates.

### 1.3.3 Arguments Used in MTR Consultation (November 2004 – March 2005)

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<sup>10</sup> Wirtschaftliches Gutachten für die Telekom-Control-Kommission im Verfahren M 13/06 Terminierung in individuellen öffentlichen Mobilfunknetzen

<sup>11</sup> Thereby, it is interesting to note that ONE has increased the termination traffic in 2005 from 1.85 to 1.94 billion minutes, but that its market share dropped from 18.20 % to 16.77 % (based on the market share of the combined termination market(s) of all operators – which is not the relevant market according to TKK).

<sup>12</sup> mobilkom is now no. 15 (out of 86), T-Mobile no. 34, ONE no. 41, and Hutchison 3G no. 71.

After the decision on market analysis and remedies in October 2004, TKK entered into discussions about how to regulate mobile termination rates by adopting a methodology for cost calculation and launched a consultation. A consultation paper was published in November 2004 and subject to an intensive discussion. In the position paper prepared by the authority for the consultation, TKK was trying to outline its preliminary position on how to determine the concrete mobile termination rates. Thereby, the TKK assumed the following:

- There is a necessity for a uniform competitive market price which is derived from economic theory (no excessive earnings, maximisation of total welfare, efficient production).
- The application of the LRAIC cost standard as basis for the calculation is proposed.
- The way towards uniform market price is defined by an assessment of all relevant factors and goals which are
  - o the avoidance of disruptive interventions,
  - o planning security for market participants,
  - o uncertainty about future developments,
  - o legal provisions regarding the reasonableness of rates,
  - o transitory protection of investment for new entrants,
  - o guarantee of competitive market structure,
  - o avoidance of competitive distortions, and
  - o static versus dynamic efficiency gains.
- TKK assumes that a glide path is workable and useful in order to solve the problems and regards the definition of a start value, the calculation of an end value and the definition of the steps to be taken in between as the best way forward.
- For the calculation of network operator individual (!) costs, TKK sees as a major input
  - o the values from the model assumptions,
  - o the length for which the determination of termination rates shall remain valid,
  - o the assessment of the required investment,
  - o the depreciation,
  - o the efficiency,
  - o the cost of capital,
  - o the cost accounting methodology, and
  - o common costs, not directly attributable costs as well as scale effects.

When considering the common costs, methodologies like identical/uniform mark up, a mark up on the basis of Ramsey pricing as well as based on a proportional distribution of costs are seen as alternatives. The latter approach is then suggested. Thereby, the common costs are distributed towards products, based on the share of the direct costs per product in relation to each other.

Furthermore, the consideration of the UMTS costs shall only take place to the extent the UMTS network reserves capacity for voice. Already in this consultation document, TKK

did not see a connection between the service of mobile termination and the costs of marketing, end user billing, customer care, and handset subsidies, so that it excluded these cost elements.

- For the operationalisation of the glide path, TKK argues in favour of the following main parameters and their content:
  - In terms of the glide path, TKK discusses an individual glide path as opposed to a uniform glide path. It assumes that an individual glide path per operator is better suited to avoid disruptive interventions.
  - As a starting value for the glide path and in case of a network operator individual glide path, these are the currently used termination rates.
  - As a terminal value, TKK assumes that the termination rate will be between 8.5 and 9.5 cent per minute, which shall represent the long run average incremental costs of an efficient network operator in the year 2010.
  - TKK assumes that an efficient operator will have a market share of 20 % (representing 100 % divided by the number of operative companies at that time).
  
- Regarding the slope of the glide path, TKK discusses a linear, a progressive and a digressive function. TKK deems it to be logic to select a slope in a way that it guarantees the best possible approximation to the cost function. Following the regulatory practise so far and in order to guarantee equality of opportunities, the market situation of a new entrant has to be taken into account (protection of investment). TKK finally decides for a digressive cost function and slope of the glide path. Also, it favours reductions two times per year during at which the fees shall be reduced according to the glide path. TKK is in favour of having Hutchison 3G start with the glide path approach a year later.

In the final document issued in March 2005 containing the results of the consultation, the following main points are covered. This document came about after a period of discussion obviously within the authority but also with market participants. TKK received 9 substantial documents with comments to the consultation.<sup>13</sup> TKK made the following adaptations:

- A major change between the final and the starting consultation document is found in the assumption regarding LRAIC costing. The first document assumes that an efficient operator will have a market share of 20 % (representing 100 % divided by the number of operative companies at that time), which would be achieved in the long run. This was heavily criticised by many comments in the consultation. Therefore, TKK now changed its view and it believes that the lowest LRAIC can be determined by “hypothetically constructing” an efficient operator. Thus, TKK is now in favour of an average efficient opera-

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<sup>13</sup> See [http://www.rtr.at/web.nsf/deutsch/Portfolio\\_Konsultationen\\_bisherige?OpenDocument&Start=1&Count=1000&Expand=3.4.3.1](http://www.rtr.at/web.nsf/deutsch/Portfolio_Konsultationen_bisherige?OpenDocument&Start=1&Count=1000&Expand=3.4.3.1)

tor partly based on hypothetical considerations which for the time being and in the long run has the lowest cost.<sup>14</sup>

- Also, the glide path itself is significantly amended. Now, TKK is in favour of a linear reduction of termination rates as such a linear reduction (equal absolute deductions on a step by step basis on a glide path of deducted amounts) avoids disruptive effects.<sup>15</sup> It is equally intended that it ends in the year 2011.
- Also the terminal value has been redefined due to the fact that it is not the end value of an average operator, but the LRAIC value of an efficient operator. Also, now two different glide paths are foreseen, one for the GSM operators and one for Hutchison.
- On UMTS costs, the Commission has also amended its position and now speaks in favour of including as many costs of UMTS as possible (“to the largest possible extent”). However, the principle of cost causation has to be fulfilled.

Clearly, during the consultation, TKK has amended its position on how a specific glide path shall be constructed. The conclusion from all this is of course that the regulator has acted very flexibly in terms of the arguments he has used regarding how to determine mobile termination rates. This also proves the difficulty to find a model that secures inter-temporal fairness and equality of treatment. Especially the introduction of glide path solutions constitute a problem in that respect.

#### 1.3.4 Position of the EU Commission During the International Coordination (Art. 7 Procedure) on the Austrian case.

The national consultation as well as the international coordination came about after the TKK had notified its planned measure for market analysis and remedies to the EU Commission in October 2004. It has to be read very carefully because it is important to know what the EU Commission really took up in its comments to the regulatory authority and what it did not take up. It needs to be noted that Austria has been amongst the first movers when it comes to notifying measures to the EU commission on market analysis and remedy decisions. A look at comments of the EU Commission to other NRA’s at a later stage is contained in section 3. The EU Commission discusses the following contents of the notification of TKK critically:<sup>16</sup>

- The period of six years until cost orientation has to be achieved is considered to be too long.
- There is a lack

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<sup>14</sup> Considering the market consolidation that took place since then and the stable market shares implying large differences between the operators and no reduction in the gap between the operators with respect to market shares, this change in opinion seems to be useful.

<sup>15</sup> The deducted amounts in absolute figures are identical over time for each operator but they differ between operators. The MNO with the highest MTR at the outset of course experiences the largest absolute deductions on each step of the glide path.

<sup>16</sup> See comments of the EU commission sent with letter on 7 October 2004 (AT/2004/0099), [http://forum.europa.eu.int/Public/irc/infso/ecctf/library?l=/sterreich/registeredsnotifications/at20040099/greffe\\_2004\\_204425/\\_DE\\_1.0\\_&a=d](http://forum.europa.eu.int/Public/irc/infso/ecctf/library?l=/sterreich/registeredsnotifications/at20040099/greffe_2004_204425/_DE_1.0_&a=d).

- for justification of the assumption that mobile network operators need to keep substantial excessive earnings in order to achieve an advancement respectively and intensification of competition,
- of impact assessment about the negative competitive effects regarding a speedier reduction of termination rates,
- of explanation by TKK why cost orientation within a shorter period of time cannot be achieved and would not be proportionate,
- of consideration of increasing mobile traffic, and finally
- there is a criticism towards how the excessive earnings per operator are assessed with regard to the competition problem and the length of the glide path.

The most important points in this discussion are the adequacy of the remedy according to the competition problem and especially the length of the glide path which was contained in the first notification of TKK. The EU Commission criticises that the length of the glide path (six years) is not explained and justified. A glide path in itself is not a problem for the EU Commission, however, the Commission believes that TKK would need to demonstrate why a speedier reduction would not be justified under the current competitive situation.

Furthermore, the EU Commission holds the position that an approximation of the excessive earnings of each operator would be useful in order to assess the reasonableness and the length of a glide path in relation to the competition problem. Also, the EU Commission suggests the delivery of data about the development of the total excessive earnings to be an instrument in order to assess the length of the glide path. Thereby, it is interesting to note that the EU Commission only finds that the glide path is too long, but that it does not suggest (as in other cases, see below) how long the glide path should be.<sup>17</sup>

It should be explicitly stated that these are the main points of criticism of the EU Commission. The EU Commission, and this should also be clearly noted, does

- **not** take a position on whether the Austrian regulator should use network operator individual costs or a hypothetical cost model,
- **not** give a hint towards the level of fees which it assumes to be correct, and finally and most specifically,
- **not** state whether it regards different termination rates for the different mobile operators in Austria as unreasonable. This is especially important because TKK discusses in its market analysis document the one price rule as well as reasons to deviate from it in the transitory phase. There is no criticism towards this approach by the EU Commission. As will be shown in proceedings from other countries (see section 3), the EU Commission has taken a clear position on this matter and stated that non-reciprocal MTR are valid if there is a reasoning for it.

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<sup>17</sup> As will be seen from section 3, the EU commission now usually suggests that the glide path should be designed in a way that it achieves FL-LRAIC values for the MTR by 2008.

Therefore, it has to be concluded that from the position of the EU Commission in the Austrian case and the notification of TKK, a number of issues could be dealt with flexibly by TKK. Especially there was no remark of the EU Commission on the cost standard used and on the question of whether to use hypothetical cost models or operator specific costs, and there was no comment to invite TKK to move towards reciprocal fees.

#### 1.4 Arguments used by mobile operators

In the most recent proceeding in front of TKK (the dispute resolutions at the end of 2005, e.g. Z8/05 and others decided at the same time), the operators argued with respect to the expert opinion that was distributed during the procedure and formed a major part of TKK's decision.<sup>18</sup>

tele.ring remarks that the Austrian market was already saturated when tele.ring entered the market and therefore, tele.ring, as late entrant, suffers from late comer disadvantages. Additionally tele.ring and ONE oppose TKK's view that the imposed remedies differentiate between the market participants and their position in the market and that they do reflect operator specific costs. Thereby, tele.ring stated that there should be a difference between the termination rates of first movers and late entrants due to the characteristics of the mobile termination market such as significant long term differences in size, deferred market entry, first mover advantages/late entrants disadvantages, spectrum allocation, differences with respect to the spectrum allocated, regarding surcharges for externalities, and impact of regulation (e.g stability and investor confidence). tele.ring at that time proposed a model which it called E-LRAIC which was to be understood as an enhanced or extended LRAIC which consisted of calculating the costs of an efficient service provision of the "incumbent mobile operator" on the basis of FL-LRAIC costs. This FL-LRAIC should be applied for the incumbent mobile operator, while for the other operators additional surcharges for spectrum usage, technological differences (for GSM 1800 operators, UMTS costs, network coverage etc.) and surcharges for niche operators respectively late entrants should be implemented. With respect to the current situation, this is a feasible approach with several benefits which will be discussed at a later stage.

Furthermore, tele.ring and mobilkom criticise the risk premium that has been taken into consideration in the calculation of the regulatory authority, the tax rate and the way, the calculation of overhead costs has been conducted.

ONE, T-Mobile and mobilkom argue against the methodology of TKK to calculate the weighted average cost of capital based on book values. ONE believes that it should be based and calculated on an efficient capital structure (equity ratio) based on market values. Furthermore, TKK argues that the values for the cost of capital delivered by ONE were not used for the definition of the relevant WACC. For calculation purposes a different WACC was used which was derived from other data including information provided by all operators. Fur-

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<sup>18</sup> All arguments mentioned here refer to the published comments of the operators respectively the publicly available documents making reference to the operator's position vis-à-vis the regulator.

thermore, ONE criticises that the experts of the regulatory authority use a relatively high risk-free interest rate for the calculations. TKK refers to this criticism by stating that the risk free interest rate was based on the average Euro swap with a period of ten years. They believe that this is a feasible point of reference. Further points of critique refer to the use of the risk premium and the methodology to calculate the overhead costs.

mobilkom as well as T-Mobile state that some of their cost parameters are not reflected in the cost calculation model of TKK, such as some overhead costs, depreciation duration for license fees, the costs of the SAAG-law, positive externalities, marketing and sales and criticises the glide path model in general.

Hutchison remarks that it is not justifiable that the termination rates of an operator with suboptimal size of business shall be regulated according to rate level that is under the possible efficient termination rates. The one price rule of the termination rates is further criticised by Hutchison as no unified market exists in monopoly markets. Hutchison reflects on the identified competition problems and questions whether the glide path is able to abolish them in the near future.

T-Mobile argues that also reciprocal termination rates could lead to unbalanced traffic and therefore to uneven payments between the operators. There is no indicator why reciprocal termination rates should limit the distortions of competition. Even TKK does not mention that a difference in termination rates is a competition problem as TKK only identified four problems.

T-Mobile strictly follows the idea of operator specific termination rates as from § 42 TKG a one price rule can not be deduced. Additionally, the Access Directive does also not define a one price rule. T-Mobile states that a glide path may lead to situations where an operator has to offer its services, at least for a while, below costs. This could lead to massive distortions in the market.

Most fixed network operators as Colt and eTel as well as most other mobile operators like Hutchison insisted that a merger between T-Mobile and tele.ring has to be immediately reflected in the mobile termination rates during the term of the decision. eTel argues that the mobile termination rates of a merged entity have to be reduced immediately to the level of mobilkom due to the same market share.

In a position paper provided by PSC AG in the consultation launched in late 2004, it was argued that the assumptions underlying the one price rule and the fully competitive market would not be fulfilled in reality. Especially shortcomings regarding the reality in comparison with the fully competitive market can be found in

- the lack of a sufficient number of market players;
- the absence of "perfect competition",
- the lack of full homogeneity of all goods,

- the absence of total market transparency,
- no unlimited mobility, and no potential division of production factors,
- no decreasing economies of scale, and also no immediate reaction and adaptation processes,
- the lack of full autonomy of the individual decisions of all market participants as well as the existence of external effects.

All elements of perfect competition can not be found in mobile markets. This is also recognized by operators and regulators as e.g. stated by tele.ring

*„Auf Grund der Frequenzknappheit sind andere Mobilfunkmärkte als der Terminierungsmarkt enge Oligopolmärkte (wenige Anbieter) mit hohen bis unüberwindlichen Markteintrittsbarrieren. Auf solchen Märkten besteht die Gefahr von kollusivem Verhalten. Aus diesem Grund ist die Anbieterzahl kritisch für das Marktergebnis auf diesen Märkten, der Marktaustritt eines Anbieters kann zu erheblicher Minderung des Wettbewerbs und damit zu Wohlfahrtsökonomischen Verlusten führen.“ („Konsultation – Ermittlung der Kosten der effizienten Leistungsbereitstellung für Terminierung in Mobilfunknetzen“, TKK, November 2004, p. 7)*

or by TKK itself reflecting upon the effects of economies of size

*„Betreiber erst nach einem längeren Zeitraum die kleinstmögliche, effiziente Betriebsgröße (MES) erreichen und derzeit noch nicht alle Betreiber Größenvorteile hinreichend ausschöpfen“ (Consultation document, p. 6)*

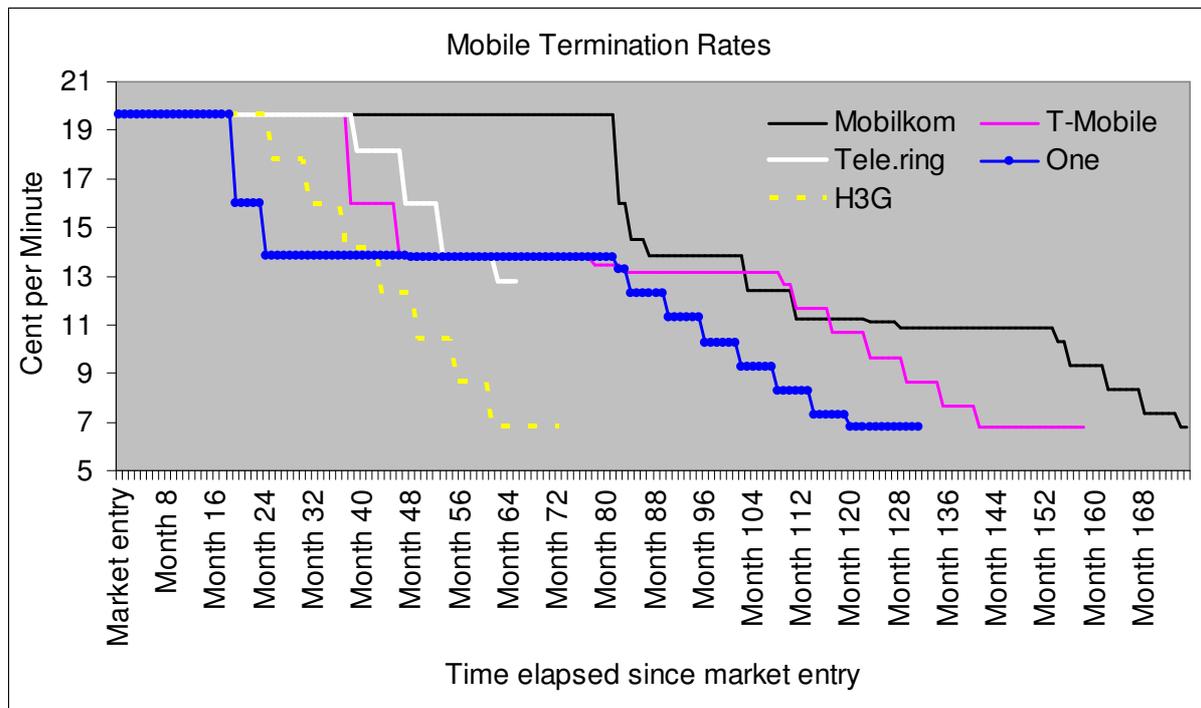
Due to this, it is unreasonable to assume perfect competition in the long run and therefore also to decide in favour of the one price rule (see section 2.1.1 for details). Therefore, this study upholds the position just outlined with reference to the previous submission of PSC AG that the market conditions and assumptions used leading to the one price rule do not approach the issues at stake with the correct analytical tool from the point of view of economic analysis. Pure reciprocity is not the only thinkable scenario in a competitive environment and the theoretical assumptions in reality will not lead to perfect competition.

These examples show that the operators in the previous proceedings focus on two different aspects: first they oppose the methodology used by TKK to set MTR using the LRAIC of an efficient operator without taking into account the respective operator specific cost situation. Additionally, they focus very much on concrete cost issues and methods of calculations undertaken by the experts assigned by TKK. One specific major issue of concern was the development of the termination rates of the merged company T-Mobile/tele.ring.

## 1.5 Effects of current glide path for ONE

### 1.5.1 Fairness in treatment between operators

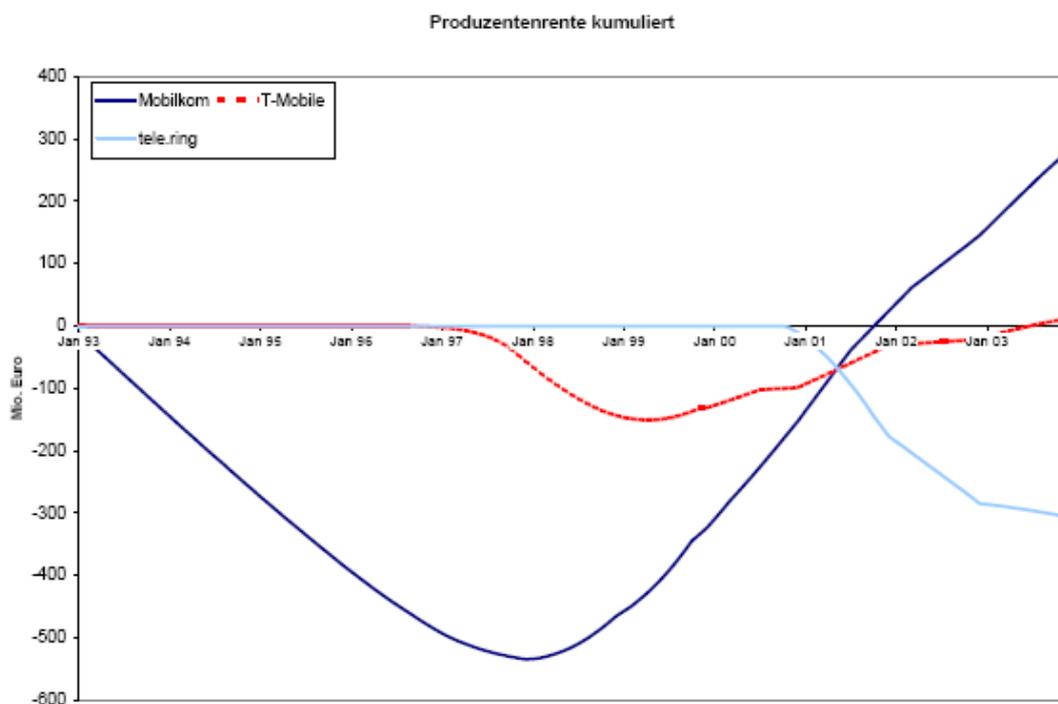
The currently applicable glide path for mobile termination rates in Austria foresees that symmetry of termination rates will be reached by the end of 2008 at a level of 6,79 cent / min. This implies that thereafter all operators will receive payments according to the costs of an efficient operator which serves the market of mobile voice termination into mobilkom's network, irrespective of their own costs. It also implies a total reduction by 12,83 cent / min since the market entries, as all operators started with a termination rate of ATS 2,70 (= 19,62 cent / min). Although all operators started with the same MTR, when they entered the market, mobilkom and T-Mobile were able to enjoy this high MTR for a much longer period than the other operators. In the graph below the MTR are displayed, with the respective market entry date for the operators in the point of origin.



This graph needs to be compared with the graph contained in section 1.1. regarding the reduction of operators. The scale is now not any longer to the years 1996-2006 but to the number of months after market entry. The graph shows that mobilkom could enjoy the highest tariff of 19,62 cent / min for a very substantial period of time (several years) whereas e.g. the first intervention to ONE's termination rates took place very early on after a little more than a year of operation. This analysis reveals that the later market entry took place, the earlier a regulatory determination of (lower) mobile termination rates happened – a clear disad-

vantage to the late entrants.<sup>19</sup> This graph can also help to explain why e.g. mobilkom has been able to collect much more revenue from mobile termination than the other operators over time. Mobilkom has simply been able to enjoy higher tariffs for a longer period of time.

Additionally considering the higher number of customers and incoming calls that these first-movers have had, it is evident that the largest operators have profited most from the development of mobile termination rates. tele.ring in its submission to the consultation in 2004/2005 has calculated the producer's surplus from the termination calculated as the margin between the termination rates and the calculated LRAIC multiplied by the terminated traffic volumes. The results show a large asymmetry regarding the profit from termination services when comparing mobilkom, T-Mobile and tele.ring.<sup>20</sup>



The graph shows that T-Mobile and mobilkom have been able to profit from the producer's surplus and the "cost oriented" tariffs to a much stronger extent than the late entrants and therefore the "profit" (if any) is distributed unevenly. On the other hand, the regulation of mobile termination rates now affects all operators very evenly (the spread in terms of mobile termination rates is rather small) and therefore, the smaller operators become subject to regulatory discrimination, which has evolved over time.

An interesting fact can be discovered when considering the path of rate decreases of MTR over time and the way the operators have been affected by this change. Calculating the unweighted average of MTR over time for each operator results in the following figures (in cent / min). These figures demonstrate that ONE has experienced the lowest average mobile ter-

<sup>19</sup> The dotted lines indicate the further foreseen development according to the glide path.

<sup>20</sup> See [http://www.rtr.at/web.nsf/lookuid/2D2808BA5E52380CC125719C0025C520/\\$file/TRA.pdf](http://www.rtr.at/web.nsf/lookuid/2D2808BA5E52380CC125719C0025C520/$file/TRA.pdf), p. 58.

mination rate over time. Due to the fact that ONE's MTR was reduced at such an early stage after market entry the company still experiences that it has been disadvantages over time. It is no surprise that tele.ring and Hutchison 3G have higher average rates because their market entry has been more recent and they have not come that far down the glide path, but it is a large surprise that mobilkom and T-Mobile have such high termination rates.

Unweighted average MTR over time (during phase of activity in the market)

<b>Operator</b>	<b>Average MTR over time (cent / min)</b>
mobilkom	15,50
T-Mobile	15,32
tele.ring	17,91
ONE	14,81
Hutchison 3G	18,73

This implies a discrimination of ONE whose MTR has been regulated downwards rather quickly after the launch of the activities.

The later entrants in practice had to accept a quicker reduction of mobile termination rates than the enterprises which entered the market first and this will impact their business models. A continuation of this policy of disadvantaging late entrants would not contribute to a competitive development of the market.

### 1.5.2 The waterbed effect

Regulation of mobile termination rates specifically, but tariff regulation in general, contains the risk of regulatory failure, due to impacts on neighbouring markets being overlooked. Therefore, it needs to be analysed whether and how the proposed mobile termination rate regulation in Austria will affect the market in general and the specific mobile network operators individually. Thereby the risk of the so called waterbed effect has to be considered.<sup>21</sup> This theory implies that prices in other markets will increase by the reduction of mobile wholesale tariffs (i.e. international roaming and mobile termination). According to the water bed theory, mobile network operators compete based on the supply of attractive tariffs in the retail market. In order to cover the costs for subscriber acquisition, operators take into account the revenues which are generated by a customer from all mobile services. Therefore, the different prices in the mobile communications market are dependant on each other. The lower the termination revenue per customer, the weaker the competition between the mobile network operators, as the individual customer generates less revenue. Therefore, mobile operators will turn to charging more for outgoing calls from mobile customers as well as for

<sup>21</sup> See Frontier Economics Bulletin : Patching up the waterbed, March 2005 and . Frontier Economics, The waterbed effect, Report for Vodafone, July 2005

handsets. This implies that the level of the termination fees influences the attractiveness (commercial effectiveness) of a customer. Hence, the regulation of mobile termination rates will according to the waterbed theory have an effect on prices in other (retail) markets.

The regulatory authority has to consider whether these effects can be assessed and how they are evaluated. Due to the fact that the Austrian mobile retail market has seen strong competition over a long period of time, but is now vulnerable to significant market power due to the merger of T-Mobile and tele.ring and thus the potential joint dominance of mobilkom and T-Mobile, a continued regulation of mobile termination rates contains some risks not only for consumers paying more but also for the competition in the retail markets.

The question regarding the reduction of MTR is, if the waterbed effect will arise. Business models in mobile telephony rely on revenue from connection fees, usage fees, fees from handsets, ringtones and other services, roaming charges and revenue from mobile termination, etc. When the mobile termination rate is reduced this will negatively impact the overall profit margins of the operators, if they cannot compensate otherwise. Such compensation would mean the attempt to raise prices for other services. This proves to be rather difficult.

- an increase in retail prices for originating calls and monthly subscriptions would hurt the market position of the two smaller operators as these are competing with a competitive pricing. mobilkom and T-Mobile on the other hand, do not need to increase the retail prices according to the proposed glide path, which leaves enough return on investment for these two bigger operators. These two operators do not need to and most probably won't take any risks through increased tariffs. Hence, no operator has both the possibility and the incentive to increase the retail prices for calls and connection fees. If the two large operators do not change their prices, the smaller operators will not be able to compensate decreasing MTR from higher retail prices. Customers will immediately notice the price increase and – assuming a situation close to the one price rule applies to the retail market – demand will drop.
- Handset revenues: this revenue is limited in any case due to the fact that handsets are used as customer retention and acquisition tools. Throughout Europe this practice widely exists and in former times TKK even accounted for these costs when the mobile termination rates were approved. The customers are now used to handset subsidies of the operators and expect a new handset (almost) for free when prolonging their contracts. Furthermore one could say that the handset subsidies are an important instrument for the operators to win customers. If handsets were not distributed below costs, then termination traffic volumes would be much lower and termination costs higher, so there is a rationale to subsidize handsets in order to gain traffic on the network.
- Ring tones and other services: In this unregulated area, in theory prices could be increased, however, competition is quite strong in this area and price elasticity is rather high so that there are limits defined by the market for price changes. Only where an operator has access to e.g. premium content there would be a possibility to raise prices. This is however, not sufficient to compensate the losses in the area of mobile voice termination as ring tones and other services are still making up a small share of the total revenue.

- SMS has become more and more popular. Again, users are price sensitive. In principle, no intervention has so far taken place and eventually, an increase in SMS prices on wholesale and retail markets could lead to higher revenues. However, if an operator raises its SMS termination prices, he will likewise be exposed to price increases of the other mobile network operators for SMS termination. There is little to gain in this strategy.
- Roaming charges: Roaming charges have for a long time been criticized for being above costs and therefore excessive. The European commission has started an initiative to intervene with a regulation thereby limiting the level of roaming charges on the retail and wholesale level.<sup>22</sup> This implies that an increase of roaming charges to compensate the falling termination rates is not possible. On the contrary: as revenues and margins from roaming will decrease as well, operators like ONE will experience a second major reduction in the revenue streams for their operations.

From all this we can conclude, that mobile network operators will come under increased pressure from a continuation of mobile termination regulation if the proposed reductions will be implemented. This will lead to a more difficult economic situation which is especially valid for smaller operators. This has also been discovered in recently published research, demonstrating a deterioration of margins for mobile operators especially in Western Europe.

### **“Sinkende Margen unter westeuropäischen Mobilfunkanbietern**

#### **AMPU und ARPU weiter rückläufig - Fokus der Unternehmen auf neuen Sparten**

*Westeuropas Mobilfunkanbieter kämpfen weiterhin mit sinkenden Margen. Laut einer aktuellen Studie von Strategy Analytics sank die durchschnittliche Gewinnspanne pro Nutzer (AMPU) innerhalb des zweiten Quartals 2006 um rund zehn Prozent auf 14,6 Dollar. Zwar würde der Rückgang dieses Wertes in schnell wachsenden Regionen wie Zentral- und Osteuropa, dem Mittleren Osten und Afrika noch höher ausfallen. Im westeuropäischen Raum war der achte Rückgang in Folge aber auch der bislang stärkste. (...).*

#### **“Der wettbewerbsbedingte und regulative Druck beginnt nun deutlich auf den westeuropäischen Mobilfunkmarkt zu wirken.”**

*Strategy Analytics untersuchte für die Studie die operative und finanzielle Leistung von insgesamt 113 Mobilfunkanbietern, deren Kundenstamm zusammen drei Viertel der weltweiten Mobilfunknutzer darstellt. “Der wettbewerbsbedingte und regulative Druck beginnt nun deutlich auf den westeuropäischen Mobilfunkmarkt zu wirken. Während die Margen derzeit mit 42 Prozent noch hoch sind, werden sie innerhalb des nächsten Jahres vermutlich unter die 40 Prozent-Marke fallen”, so Studienautor Phil Kendall. Sowohl den westeuropäischen als auch den Anbieter am nordamerikanischen Markt würden durch Preissenkungen im Sprachsegment und niedrige Ausgaben für Daten-Dienste schwere Zeiten bevorstehen. Diese Entwicklung könne auch die steigende Zahl der 3G-Nutzer nicht ausgleichen. Der durchschnittliche Umsatz pro Kunde sank im abgeschlossenen zweiten Quartal mit sechs Prozent etwas mehr als im ersten (minus fünf Prozent).” (Web-Standard, 27.9.2006, 14.22 Uhr)*

In the end, this implies that the attempt to raise prices otherwise when MTR are regulated downwards and thus to realize compensatory revenues from a so-called “waterbed effect” are not at all realistic. Thereby, there is a significant difference between mobile incumbent

<sup>22</sup> [http://europa.eu.int/information\\_society/activities/roaming/index\\_en.htm](http://europa.eu.int/information_society/activities/roaming/index_en.htm)

operators and mobile new entrants how to tackle reduced MTRs if other prices cannot be changed for compensatory purposes. Mobile incumbent operators will to a much greater extent be able to compensate for (also significant) changes of their mobile termination rates due to the “deep pockets” they have been able to assemble over time. However, for an operator like ONE this is much more critical due to the fact that the commercial success over time has been much smaller (e.g. measured by the sum of EBITDA over time) due to – as has been demonstrated in the study by WFI - the disadvantages of significantly higher 1800 MHz-based network technology costs, a more competitive market situation the late entry. This points out the need to differentiate between the tariffs of the incumbent operators and new entrants in order to take account also of the differences between these operators in the market and to what extent they are able to “bear” changes of mobile termination rates.

Because the operators, especially the smaller ones, won't be able to compensate for the revenue losses due to reduced MTR, there will be an effect on the level of investments. This will negatively impact the investments, e.g. in the UMTS technology and the development and distribution of new products. For example, a reduction of handset subsidies would in the end imply an intervention into the price structure and penetration of 3G services.

## **1.6 Market developments since last decision with impact on MTR regulation**

An assessment of the upcoming regulation of mobile termination rates for the next years needs to take account of the main changes that have taken place since the last decision which have an impact on the mobile termination rates. The following section highlights some of these changes and outlines their effect on costs and on rates for mobile termination services.

### **1.6.1 TMA/tele.ring merger**

One of the main developments in the Austrian mobile market has been the merger between T-Mobile and tele.ring. It was started in 2005 with procedures on the national and the EU level and received the approval of the EU Commission on the one hand and the Austrian regulator on the other hand in April, 2006. The merger does not only have the effect of a reduced competition in retail markets (e.g. to be measured by the Hirschman-Herfindahl-Index (HHI) which has increased from approx. 2,800 to more than 3,200 after the merger), but also the competitive situation of the mobile operators between each other is affected. T-Mobile with the additional customers and the traffic from tele.ring customers grows to a size which is almost similar to mobilkom. There are only slight differences in the absolute number of customers and the market shares which currently amount to 2-3 percentage points. In addition, T-mobile now has a GSM frequency situation actually exceeding that of mobilkom or any other operator. The T-Mobile management stated during the acquisition process that they now would be in the position to “attack” mobilkom's leading market position.

This move significantly changes the picture of the whole market. It of course means that also the economic situation of T-Mobile changes. This has to do with the measures in the area of infrastructure, where T-Mobile takes over certain sites from tele.ring and also the GSM spec-

trum. These measures serve to transmit the higher traffic volumes that will be running in the T-Mobile network due to the service supply to prior tele.ring customers. In the decision COMP/M.3915 T-Mobile Austria/tele.ring on 26 April, 2006, it is described how these measures will affect the cost situation of the merged company:

*“Nach Abschluss der vorgeschlagenen Transaktion wird daher nicht nur das tele.ring-Netz eliminiert werden, sondern es ist auch davon auszugehen, dass das T-Mobile-Netz sehr viel weitgehender ausgelastet sein wird als heute. Die vorgeschlagene Transaktion würde daher dazu führen, dass – auf der Grundlage von mobilkom's Netz als Referenznetz – statt drei Betreibern mit freien Kapazitäten nur noch One freie Kapazitäten für neue Kunden hat, auch wenn in manchen Gegenden nach der Marktuntersuchung eine Verbesserung der Netzabdeckung möglich erscheint.” (Rz. 97, 98).*

The conclusion from this statement is that due to the growth of customers in the network of T-Mobile in Austria, the company is able to achieve a higher degree of efficiency in its network. An additional amount of approx. one million customers and the additional spectrum allows T-Mobile to work on a higher level of efficiency and this again implies reduced costs. Therefore, the merger of TMA and tele.ring is a clear indication that cost effects of the merger on mobile termination will appear. A decline of mobile termination rates will also come about by another development. In the last procedure on mobile termination rates, TKK calculated that the costs of the mobile network operators differed and that tele.ring, despite the fact of being the fourth largest operator in the market, had lower costs per termination minute than T-Mobile being the second largest operator with more than 1 million customers more than tele.ring. At that time, tele.ring was already more efficient than T-Mobile. Acquiring tele.ring, T-Mobile will therefore in all likelihood also import an increase in efficiency.

With respect to the mobile termination market, the merger has led to a significantly bigger market for termination in the individual mobile network of the merged company (T-Mobile plus tele.ring), and due to the fact that network integration currently is taking place, this enlarged market is now under realisation/implementation. A larger market will cover a higher number of customers and due to the fact that not the complete network of tele.ring is integrated into the T-Mobile network, the provision on the mobile termination service will be significantly more efficient. An increase of 50 % of customers will be realised, thereby not increasing the network in terms of coverage and only increasing it with respect to network elements to a certain amount. Therefore, the unit costs of termination will decrease which has to be taken into account by future mobile termination regulation. As the retail market share of the merged company is rather close to the market share of the largest operator (mobilkom), one can assume that a reason for deviating mobile termination rates between those two companies is not applicable anymore, i.e. the costs of the two operators should be more or less equal if both run their operations efficiently.

The topic of effects of mergers has already been handled in another case. This shall be mentioned here in order to demonstrate the significant changes brought about by such a merger and the necessity to reflect upon this new situation in the upcoming decision. Telekom Austria complained to the VwGH against TKK's decision M6/03-60 with respect to the finding of SMP for Telekom Austria on the market for international outgoing calls. One out of many

reasons given by Telekom Austria to justify the complaint was that TKK according to TA had not assessed the market correctly and especially overlooked to investigate the competitive consequences of the merger between Tele2 and UTA. TA argued that the merger between the 2<sup>nd</sup> and the 3<sup>rd</sup> largest operator (at that time) would significantly change the competitive situation in the market. VwGH did not accept this as a valid argument in the complaint and based this largely on the market shares of the three / two companies involved whereby TA enjoyed more than 60 % market share and the new combined entity was significantly smaller. Therefore, TA's market position was not to be re-evaluated due to the merger of two competitors (see VwGH Erkenntnis 2005/03/0109).

In the mobile arena we have a similar development, though with a different effect. The merger of the 2<sup>nd</sup> and the 4<sup>th</sup> largest operator change the competitive situation on retail but also on wholesale markets, whereby the consequences are more "dramatic" than in the fixed network, because the market share of the market leader is approximately 40 % and the new merged entity is very close behind, implying a situation with an oligopolistic structure because the number of operators as such is limited to 4 due to spectrum scarcity. This implies that the merger has much more substantial effects in terms of market concentration, competition etc. and is thus more critical with respect to the question how to treat the effects of such a merger economically with regard to the termination rate of T-Mobile/tele.ring. The conclusion from this development is that TKK will have to undertake a revision of its market assessment and a very close investigation of costs for termination which will have experienced reductions due to economies of scale and other arguments mentioned above for the merged entity.

### 1.6.2 GSM Market Shares and Traffic Volumes

The TKK has based its regulation of the mobile termination rates on an annual increase in traffic volumes of 6 %. Because the prices per minute for termination in the cost model of TKK decreases by an increase in traffic, this is relevant for the tariff regulation. The 6 % has been derived by two calculations. In the first one the increase has been about 10 % up until 2003 and about 6 % by September 2003. Secondly, the TKK has made an extrapolation of the traffic. With a very high correlation coefficient ( $R^2 = 0,9742$ ), the following regression curve was identified:<sup>23</sup>

$$\ln(y) = k \ln(x) + d$$

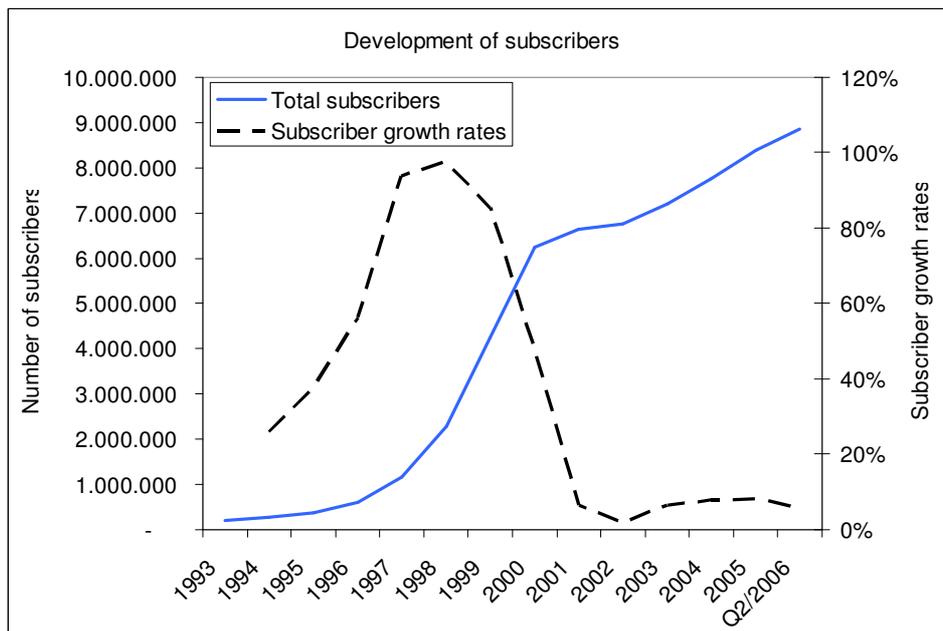
Thereby, a growth rate in traffic also resulted in a 6 % annual growth from 2005 to 2010. The responses to the consultation were rather critical to these estimates.<sup>24</sup> Inter alia, the derived growth rate and the long period of estimation were criticised.

<sup>23</sup> See consultation document of TKK "Ermittlung der Kosten der effizienten Leistungsbereitstellung für Terminierung in Mobilfunknetzen", November 2004, [www.rtr.at](http://www.rtr.at).

<sup>24</sup> See the responses to the consultation („Ermittlung der Kosten der effizienten Leistungsbereitstellung für Terminierung in Mobilfunknetzen") published on the 22nd of December 2004

One year later, an expert opinion was compiled for TKK in the procedure regarding mobile termination rates. This is not open to the public. According to information provided for this analysis, only tele.ring and H3G had a projected growth rate between 2004 and 2005 of more than 6 %. The total growth rate for all operators for UMTS and GSM traffic had fallen from 6 % in September 2003 to below 5 % in 2005.<sup>25</sup>

This decline in growth rates is in line with the development of the subscriber figures. The growth rate of the penetration has also declined in recent years and due to the already high penetration rate of above 100 %, the decline in growth rates will continue.



Source: PSC AG based on figures from [www.rtr.at](http://www.rtr.at) and ITU

The only factor that can bring higher growth rates in traffic volumes are lower tariffs leading to more terminated minutes per subscriber. As the retail tariffs are already comparably low and, as there seems to be little room for further retail price reductions it is more likely that the traffic volumes per subscriber will remain stable or be reduced.

The conclusion regarding the development of the traffic volumes is, that the estimation of TKK has shown to be too optimistic. A growth rate of 6 % per year until 2010 will not happen. How high the actual growth rate will be, is difficult to say at this point in time. Especially the impact of wholesale regulation and the merger of T-Mobile and tele.ring will result in an uncertainty regarding the future development. In spite of this uncertainty, the current development with lower and decreasing traffic volumes will most likely occur and there are no signs that the growth rate will increase to a level of 6 % per year. The assumed growth rate of TKK, however, was a cornerstone to argue for a decrease in termination rates as more traffic

<sup>25</sup> Procedure Z 2, 7, 8, 9, 11/05, Expert opinion „Wirtschaftliches Gutachten für die Telekom-Control-Kommission in den verbundenen Verfahren“ from June 2005

makes more efficient use of the networks. If this does not take place, the MTR reductions as far as they are based on traffic increases would not be justified.

### 1.6.3 UMTS Market Development

UMTS is slowly but steadily developing. Although this technology so far not has fulfilled the expectations of market participants, it is gaining momentum. Interestingly, the applications mostly used are not the ones expected in beforehand. Video telephony and content services are not the primarily used services of 3G users. Voice plays a very important and somewhat unexpected role. Therefore, voice communication via 3G networks need to be taken into account. Thereby, it is a question to which degree costs of UMTS shall be included in a joint (2G/3G) market respectively a uniform termination price. One important fact is that the termination services for GSM and UMTS cannot be separated properly from a technical point of view.<sup>26</sup> Therefore, it is logical to have an identical price for GSM termination and voice termination in UMTS. To that end, part of the UMTS costs need to be taken into account which reflect the “voice part” of UMTS. Thereby, it should be noted that technical analysis assumes that voice termination in UMTS is more efficient (i.e. produced at lower cost) than GSM voice termination. However, this holds only true only for urban areas with high traffic volumes. On the country side and in sub-urban areas, UMTS is less efficient if mainly used for voice services, as the higher frequency spectrum requires smaller cells, hence, the gains from the traffic driven costs are eliminated through the higher costs of coverage.<sup>27</sup>

From the current analysis and the market developments so far the approach of TKK to handle these costs seem to be feasible and the treatment of UMTS costs requires no change in TKK’s approach.

### 1.6.4 International roaming regulation

The EU commission has started a process to intervene with wholesale and retail prices for international roaming. A regulation has been intensively discussed and will probably be passed in the further course of 2006. This implies that the margins of the mobile operators come under additional pressure and that the commercial viability for the mobile operators is negatively affected as the EU proposal foresees to intervene on the retail and on the wholesale level with a price cap regulation. The intervention in roaming charges and in termination rates is (viewed in total) a very strong regulatory intervention which displays substantial effects on the future business. With respect to the costs of mobile termination, this move might not have a direct impact as it is not relevant for the analysis of costs according to the model applied by the regulatory authority, however, it demonstrates that mobile operators are under increasing pressure on various issues where regulatory intervention takes place. It also shows that mobile operators will not be able to compensate the effect of MTR regulation by increasing other prices (“waterbed effect”) because also other prices of mobile operators increasingly become subject to regulation.

<sup>26</sup> See Tariff filing of T-Mobile in the German procedure (BNetzA) (BK3a/b-06/010), Anhang 2, provided by CRA International (London)

<sup>27</sup> This is a result of the higher efficiency of UMTS within the base cell on one hand, and the lower area of coverage on the other (see e.g. <http://www.bmwi.de/BMWi/Navigation/Wirtschaft/Telekommunikation-und-Post/mobilfunk,did=36600.html>)

## 2. Assessment of arguments

TKK has used a number of arguments to arrive at its current position on mobile termination rates. In this section the main arguments derived in section 1 will be assessed according to the following criteria

- Economic reasoning of TKK
- Validity of argument in current situation
- Reasons for changing this position
- Effects of such change (reactions, methodological modifications ....)

The analysis will have an economic focus and lead to an assessment of each argument with respect to its validity also for the future regulation. The arguments derived from prior decisions of TKK are described in 2.1.1 to 2.1.9. The list of arguments which was derived from regulatory decisions and statements of market participants comprises

- different production technologies / costs
- the "One price rule" (reciprocal fees in the long run)
- the assumption that the rates are the "Outcome of competitive market / simulation result"
- the use of the costs of efficient operator vs. individual costs
- the reward new investment
- economies of scale
- first mover advantages
- a transitional inequality of rates
- the assumption that termination in different networks represents similar services - non substitutability from consumer's perspective
- overhead costs
- WACC
- development of traffic volumes
- the duration of the glide path (2008)
- external effects, Marketing and customer care costs; handset subsidies

whereby some of these arguments are combined or address the same issues and are therefore discussed jointly in the sequel.

## 2.1 Economic analysis of arguments

### 2.1.1 One Price Rule and the outcome of the competitive market /simulation

#### 2.1.1.1 Economic reasoning of TKK

The major cornerstone of TKK's decision so far has been the "one price rule". The argument assumes that for the purpose of determining the MTR - the market is competitive and products are fully substitutable. These assumptions are used because it is the NRA's task to simulate a competitive situation. In a fully competitive market, companies cannot try to demand higher prices due to different market shares or production technologies. Prices simply have to be equal irrespective of differences in cost as consumers identify the products as full substitutes. Therefore, the market consequently ends up with one similar price for all operators. Competition as such will force the companies down to equal prices.

#### 2.1.1.2 Validity of argument in current situation

The argument used by TKK that the prices would be an outcome of competitive markets, respectively a simulation result of competition seems to be extremely questionable because it has to be doubted whether it is possible to simulate such a market situation. One needs to consider a number of behavioural aspects. Due to the market structure and the given fact that mobile termination has been regarded as a monopoly (see the definition of market no. 16), it is hardly possible to simulate a competitive situation for all aspects of the market. TKK is well aware of the fact that its exercise contains a simulation of competition in a market where competition does – according to the market definition – not exist. TKK's position is that it requires a simulation approach to arrive at sustainable results for a competitive market.

There are major economic flaws in TKK's concept of the simulation of a market with perfect competition and the one price rule. The main obstacles are the assumptions on which the theories of perfect competition and the one price rule are based upon, namely<sup>28</sup>

- All producers have equal access to production technologies and resources
- Multiple producers and consumers, of which none has high market shares
- Homogeneity; goods and services are perfect substitutes
- there is perfect and complete information, i.e. all consumers and producers have access to all information
- Free entry, all producers may enter or exit the market as it wishes

These assumptions do not hold true for any telecommunications markets. In fact, due to the assumption of perfect and free information, there can be no market with full or perfect competition in reality. Hence, the one price rule is a theoretical construction and by regulating markets, the impacts of the violation of these assumptions have to be considered, e.g. by approving different MTR for the different operators, if necessary. Otherwise, a regulator would try to apply "overly perfect" conditions on a market to justify regulation leading to MTR equality. This would go far beyond the assignment of a regulatory authority. Limitations of

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<sup>28</sup> Cnf. [www.mikrooekonomie.de](http://www.mikrooekonomie.de) and the Jevons law

competition have to be observed (e.g. caused by spectrum scarcity) and to be reflected in regulatory decisions.

In the current case, the assumptions used by TKK contradict with the characteristics of the mobile markets but also it is in contradiction to the situation that we have network individual markets (one network = one market) and that therefore each operator has a 100 % market share which implies “no substitutability”. Consequently, TKK works with two assumptions which do not fit together: The monopoly assumption for market no. 16 (fostered by a market definition that already predefines the result) to justify regulatory intervention at all and the competition and substitutability assumption to justify the one price rule. These two assumptions jointly exclude each other.

In its decisions at the end of 2005 (decision Z8/05 and others), TKK argued that the one price rule would be the economically correct view on the issue and that only in justified circumstances one should deviate from this rule, whereby economies of scale, first mover advantages, the security of guaranteeing competitive market structures, and the avoidance of disruptive interventions can be arguments to deviate from the one price rule, however, it should only take place in a transitory way.<sup>29</sup> Regarding the Austrian markets for mobile termination, all the reasons to deviate from the one price rule are valid.

First of all, the WFI study proves that all producers do not have equal access to production technologies and resources. 1800 MHz-based networks are inherently more expensive than 900 MHz-based networks due to the physical properties of the spectrum. Taking into account actual frequency positions of Austrian operators and characteristics of the Austrian market, WFI has shown a cost differential of almost 100% even at very high subscriber levels. Initial frequency allocation largely dictates network structure and was determined by regulation. By the time any 900 MHz frequencies were made available for auction in 2002, subscriber penetration was already up to 80% of the population with the most dramatic part of the growth cycle over.

The different possibilities with respect to access to equal production technologies is also a key finding and identified as a problematic issue in other countries. The discussion in Germany with respect to the determination of mobile termination rates which is currently ongoing also focuses on the relevance of higher costs for operators of networks with largely 1800 MHz spectrum. In its latest submission to the NRA of 10 October 2006, E-Plus writes:

*„Bei der Schaffung einer Flächenversorgung und der Gewährleistung hoher Netzqualität war und ist die Antragstellerin jedoch durch ihre Ausstattung mit Frequenzen aus dem 1800-MHz-Frequenzband benachteiligt: Es ist unbestritten, dass der Auf- und Ausbau eines 1800-MHz-Netzes mit höheren Kosten verbunden ist als der Auf- und Ausbau eines 900-MHz-Netzes, da die Ausbreitungsbedingungen der 1800-MHz-Frequenzen im Vergleich zu den 900-MHz-Frequenzen deutlich ungünstiger sind. In*

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<sup>29</sup> See decision M15/03, TKK, 27 October 2004, p. 9.

*diesem Zusammenhang verweisen wir auf das der BNetzA vorliegende Gutachten von Prof. Wiesbeck vom 27. April 2005 zum „Vergleich der Versorgung bei GSM 900/1800“, das der BNetzA in dem Verfahren zum Erlass des Frequenzverlagerungsbescheids vom 3. Februar 2006 (Az. 224 B 5440-1 E-GSM-Frequenzverlagerung) vorgelegt wurde.*

*Dieses Gutachten belegt, dass der Betreiber eines 1800-MHz-Mobilfunknetzes bis zum [REDACTED] mehr in Basisstationen investieren muss, um die gleiche Flächenabdeckung und Netzqualität zu erzielen wie ein vergleichbarer Betreiber eines 900-MHz-Netzes.*

*Dieser durch die regulatorisch bedingte Frequenzausstattung hervorgerufene Wettbewerbsnachteil der Antragstellerin ist bei der Ermittlung der Kosten der effizienten Leistungsbereitstellung von Terminierungsleistungen zu berücksichtigen. In den Parallelverfahren der T-Mobile und Vodafone ist demgegenüber der kostenmäßige Wettbewerbsvorteil bei der Bestimmung der Kosten der effizienten Leistungsbereitstellung in vollem Umfang einzubeziehen.“*

This confirms the higher cost of an 1800 MHz operator irrespective of whether (additionally) it has a lower market share. Interestingly, even the alternative fixed network operators accept this point of potential cost differences, s. statement of BREKO of 9 October, p. 7:

*“Eine Nichtreziprozität der Entgelte im Verhältnis zu den D-Netzbetreibern kommt daher allenfalls dann in Betracht, wenn netzspezifische Umstände wie etwa eine schlechtere Netzauslastung oder geringere Skalierungseffekte höhere Terminierungskosten als bei den D-Netzen nahe legen.“*

On behalf of E-Plus WIK refers to its approach and explains the following with respect to the work conducted on cost calculations:

*“In diesem Zusammenhang sollen hier zunächst kurz die strukturellen Ergebnisse unseres 2G-Kostenmodells für den deutschen Mobilfunkmarkt vorgestellt werden:*

- *Die Kosten eines 1800-MHz-Netzes liegen im gesamten Bereich der relevanten Nachfrage über denen des 900-MHz-Netzes. Selbst wenn der 1800-MHz-Betreiber mit 38 % den gleichen Marktanteil wie einer der beiden D-Netzbetreiber hätte, lägen seine Kosten pro Minute immer noch um ca. 10 % über denen der D-Netzbetreiber.*
- *Selbst bei einem gleichen Marktanteil für alle vier Betreiber gibt es signifikante Kostenunterschiede zwischen den Netzen. Die in diesem Marktszenario ausschließlich frequenzbedingten Kostennachteile des 1800-MHz-Netzes liegen bei 24 % der Kosten.“*

(WIK, Stellungnahme zum Gutachten „Die Ermittlung der Kosten der effizienten Leistungsbereitstellung in Mobilfunkmärkten“ – ökonomisches Gutachten erstellt von CRA International im Auftrag von T-Mobile, August 2006, S. 4.)

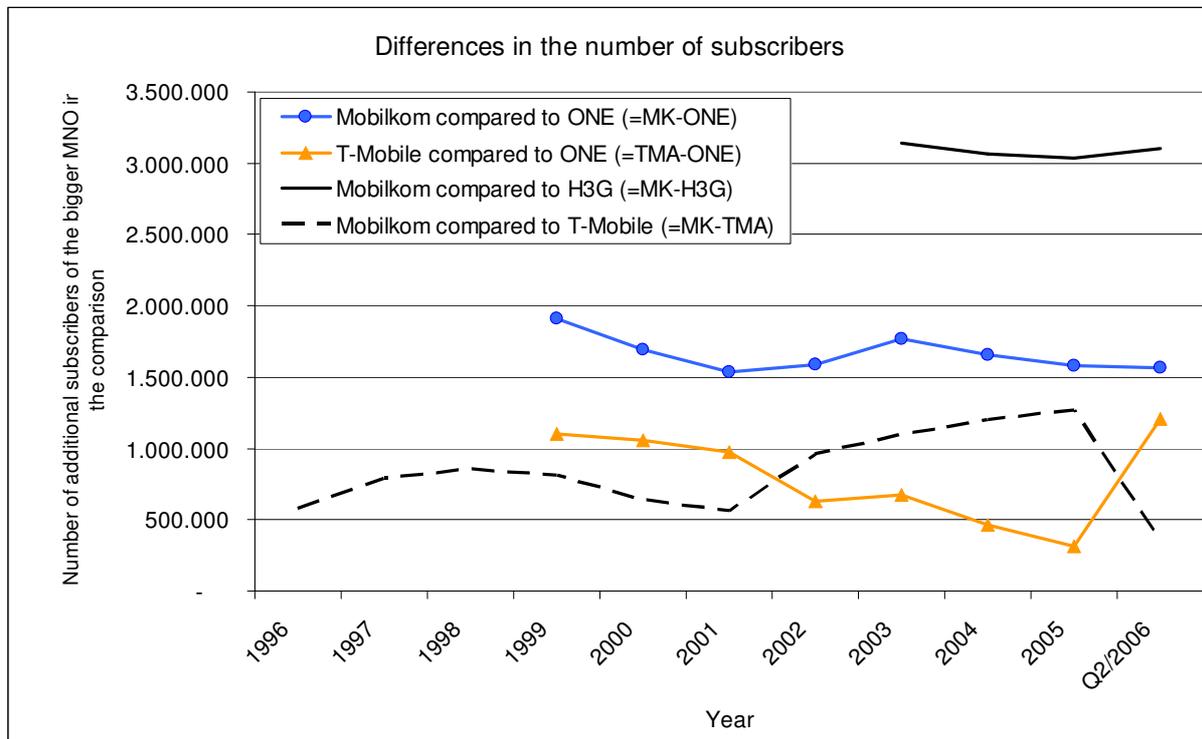
Again, this shows that there is strong evidence for the assessment of permanent cost differences irrespective of achieved market shares and thus, late entrants are faced with the situation that the unequal access to production technologies will imply a permanent cost disadvantage.

Second, there are economies of scale which have been changing over time (see section 2.1.4). Especially the merger of T-Mobile and tele.ring a few months ago has significantly changed the composition of the market and the market shares of the specific operators. The reduction by one competitor first of all increases the concentration in the market. The consequence is a new implication through economies of scales where T-Mobile gains on behalf of the long run competition. Hence, if TKK does not consider different economies of scales between the operators, there is a risk that one or two smaller operators are forced out of the market, increasing the market concentration and harming the tendency to long run competition even more.

Third, there is a wrong interpretation of TKK with regard to the full substitution of the seemingly “homogenous” product mobile termination. Mobile termination is in no way a fully substitutable product as the authority tries to indicate. A subscriber only has the possibility to subscribe with a specific telephone number / mobile access in one single network. That is why the TKK stipulated all mobile networks as operators enjoying SMP. All access operators do differentiate in the retail prices. They offer different prices for on-net, off-net, national fixed, international and other types of calls. Therefore, end users can easily differentiate between networks. For ported mobile customers, it is even legally compulsory to inform about the called network by a voice message to the consumer to recognise the correct network and its related price. The latter implies that the customer is well aware of the fact that he is implicitly buying a termination service in another network and the fact that these announcements are made demonstrate that the products are not homogeneous. Therefore, basic assumptions for the “one price rule” are not valid in mobile markets. The characteristics of mobile markets do not allow to assume a completely abstract form of perfect competition. TKK’s assumptions thus are incorrect at this stage.

Fourth, there are significant first mover advantages (see section 2.1.5) in the market which leads to an advantageous situation for mobilkom and T-Mobile. The market entry took place not very long ago for an industry with high fixed costs and long roll-out time needed (i.e. ONE has only been active for eight years and H3G only three years). Therefore, first market entrants’ advantages will still last for a substantial time and have a “permanent” character. ONE was the third operator licensed in 1997 and launching its service 28 October 1998. The “late market entrants” have until now not succeeded in closing the gap between themselves and the first movers with respect to customer figures and traffic volumes. As a consequence, the company that at first entered the market, mobilkom, still enjoys the largest customer figures and traffic volumes and T-Mobile was only able to close that gap because it acquired the fourth operator (tele.ring). Austria therefore is a country where first mover advantages still exist, due to the role that mobilkom plays as the largest operator. The curves in the following graphs demonstrate that there is little change in the “gap” measured in difference in cus-

tomers figures between the operators over time – except for curves affecting T-Mobile which lately include the tele.ring customers.



The graph shows that especially mobilkom has been able to maintain its substantial advantage compared to other operators over time and also even managed to widen the gap. Interestingly, the difference in time of market entry has been induced by regulation because the federal ministry at that time responsible for telecommunications issued the licenses at different points in time. Therefore, a consideration of these first mover advantages is necessary in order to secure a consistent regulation which is necessary to improve the market players' confidence in the Austrian regulation. This confidence is important when it comes to new investments.

Fifth, the aim to guarantee a competitive market structure as one of the possible reasons for deviations between the termination rates have gained importance after the merger of T-Mobile and tele.ring. The EU Commission in its decision on the merger<sup>30</sup> saw this development as rather critical and therefore has undertaken an investigation which continued for a significant period of time. With the market exit of one company, there was assumed to be a danger that the competitiveness of the market structure will suffer. This can for example be seen in the development of the Hirschman-Herfindahl-index which increased by approx. 600 points.<sup>31</sup> Therefore, there are serious doubts as to whether the competitive market structure is unchanged compared to the situation before the merger. An objective analyst would argue that the competitive structure and situation has suffered. In this situation, it is important that

<sup>30</sup> See COMP/M.3916, p. 34.

<sup>31</sup> See TKK decision F2/05-76, p. 14.

TKK does not regulate in a way which could force one or two market players out of the market.

Sixth, regulation has to avoid disruptive interventions. It needs to be stated that the intensity of the interventions against Hutchison 3G and ONE in the past have been much more significant and substantial than against mobilkom and T-Mobile, simply due to the fact that the changes of the termination rates for the later entrants have taken place in a shorter period of time and have been more substantial in absolute terms. The change of the termination rate for T-Mobile after the merger with tele.ring has, however, been minimal and does not take account of the fact that there are – forward looking! - cost advantages arising from the merger. Therefore, it seems as if the companies in the market are being treated differently and suffer from a discriminatory approach by the national regulatory authority. It cannot be stated that regulation so far has tried to avoid disruptive interventions.

Seventh, TKK states that deviations in termination rates shall only be valid for a transitory period of time. Due to the fact that the merger of T-Mobile and tele.ring has led to a completely new situation in the market, the expectation of market development is changing as well as the development of costs as a dependent variable also of each operator's market position. Therefore, due to the increase in market concentration and the strengthening of the two larger operators, a deviation in termination rates may also be valid for a longer period of time.

Finally, the regulatory authority makes another mistake by referring to the end user market<sup>32</sup> and stating that due to the fact that there is no price differentiation visible on the end user market, it seems as if companies with higher production costs would not be able to charge also higher termination rates. Therefore, TKK argues that termination prices also should be equal in the long run as they run a simulation as if it was a competitive market. We find that the conclusions drawn by TKK are incorrect in this case. The situation on end user and wholesale markets are pretty different. On the end user market, it is necessary to convince the customer and to offer him specific deals, prices, and products which will raise his interest, especially if a new operator is entering the market and one has to defend the market share. This can, however, not be linked to the price situation on the termination markets. We find that the concept of the one price rule is economically flawed and that even the comments of the EU Commission in many cases state that the differences between operators' costs and prices should be taken into account.

#### 2.1.1.3 Reasons for changing this position

The arguments laid down in section 2.1.1.2 show that there are no signs that the one price rule would correctly picture the market situation. The one price rule is a hypothetical construct demonstrating how things would be or should be assuming perfect competition in the market. These conditions do by no means reflect reality. Very simply, termination services are not substitutes to each other and cannot be "made" substitutes by theoretical ap-

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<sup>32</sup> See TKK, M15/03, p. 9.

proaches. The analysis demonstrates the major discrepancies between the operators which justify a different treatment regarding mobile termination rates. It is necessary that TKK takes account of the long term differences between the mobile operators justifying permanent asymmetry in termination rates without distorting competition and without fostering inefficiency.

The conclusion from the analysis suggests that the “near equality” of T-Mobile and mobilkom justifies a change of mobile termination rates which brings down T-Mobile termination rates immediately to the same level as mobilkom, due to the size of the company, its spectrum situation and the cost situation that should be valid for T-Mobile. Compared to earlier decisions, such a move could also not be regarded as disruptive. Furthermore, the substantial differences between the later entrants and mobilkom and T-Mobile justifies the continued difference in MTR.

#### 2.1.1.4 Effects of such change (reactions, methodological modifications ....)

If the change suggested were to be followed, TKK would need to amend its approach for regulating mobile termination rates. Thereby, first of all the methodological and theoretical approach to the issue would need to be revised. The model currently in use would need to be adapted in a way that accepts that not all markets lead to a homogeneous market price which is derived from the demand side mostly without taking into account costs of production as other factors where operators differ.

In the end, there is very much of the model setting (assumptions etc.) that defines the outcome of the result. In the case of TKK it is the contradictory assumption of the one price rule which does not reflect economic reality but which is responsible for the current outcome.

The conclusion is, that the assumptions that had been used by TKK over time and which have led to the position that reciprocal fees should be the desired results are only valid under the assumption of “perfect competition”, e.g. that operators are not able to differentiate themselves against other operators. As has been shown above, these conditions of perfect competition are not valid in mobile termination markets, not even if a simulation of the market/competition result is being conducted. Equal prices and homogeneous offers/products are not only the wrong answer to the problem but are also not desirable from an economic policy point of view. Market and competitive industries derive their benefits from a healthy mixture of large and small companies with their respective advantages and disadvantages and characteristics such as market leadership and niche strategies. Therefore, the assumption of an equality in the size of operators under perfect competition and a homogeneity of mobile termination services is not correct.

## 2.1.2 Cost of efficient reference operator vs. individual costs

### 2.1.2.1 Economic reasoning of TKK

The question is, if the costs of an efficient hypothetical operator shall be calculated or if the cost model should calculate costs that are based on the situation of each operator. The TKK has used a cost model to arrive at the long run average incremental costs (LRAIC) of all operators, but only the costs of the operator, with the lowest LRAIC has been applied for all operators. TKK's reasoning is that the operator with the lowest costs is the most efficient one and since the efficient costs are the basis for the prices in a competitive market, the lowest LRAIC must apply.

As WFI has shown it is impossible under the laws of physics for an 1800-MHz based operator such as ONE to overcome the substantial cost advantage of a 900 MHz-based operator such as mobilkom in any reasonably foreseeable future. Therefore, choosing mobilkom as the "efficient operator" has a fatal flaw with respect to the consequences of the assessment of costs of the smaller operators.

This also leads to a situation where the incumbent mobilkom is afforded preferential treatment by being regulated according to an operator specific LRAIC (with some exceptions as for WACC and overhead costs), while the other three operators are regulated according to a reference operator (with market share of about 40 % and a large proportion of 900 MHz spectrum and its inherent technology cost advantage).

### 2.1.2.2 Validity of argument in current situation

An intensive debate is centered around the issue to which degree cost differences exist and need to be taken in to account. At first, there is an inconsistency in the way TKK regulates, because mobilkom actually has to offer MTR according to their own LRIC, but the other three operators have to offer MTR based on the LRAIC of a reference operator (which is mobilkom).

Secondly, by using mobilkom as the reference operator for the other operators, a market situation is modelled, which can never exist because mobilkom has a 39 % market share,<sup>33</sup> and as there are four operators in the market, all the operators cannot achieve this level of efficiency (there would be a total of 156 % market shares) with the same economies of scale as mobilkom because there can only be 100 % market share in total for all operators. In fact, TKK calculates the costs as if there were only 2 ½ operators in the market. As a matter of fact, the regulation by TKK regarding MTR might force one or two operators out of the market as their long term MTR are below costs. TKK itself has once come to the conclusion, that the reduction of the number of operators is very harmful to competition:

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<sup>33</sup> Source: www.rtr.at for Q2/2006 (MVNOs are not considered)

*„Aufgrund der Frequenzknappheit sind andere Mobilfunkmärkte als der Terminierungsmarkt enge Oligopolmärkte (wenige Anbieter) mit hohen bis unüberwindlichen Markteintrittsbarrieren. Die ökonomische Theorie zeigt, dass auf Märkten mit einer so geringen Anbieterzahl, diese kritisch für das Marktergebnis ist und der Marktaustritt eines Anbieters zu einer erheblichen Minderung des Wettbewerbs und damit zu wohlfahrtsökonomischen Verlusten führen kann, was nicht zuletzt auch durch die Marktanalyse zum Markt für Zugang und Originierung in öffentlichen Mobiltelefonnetzen (M 14/03) bestätigt wird.“<sup>34</sup>*

Therefore, it is difficult to understand why it does implement MTR as if there were only 2 ½ operators in the market. Instead, TKK should have modelled the efficient costs (LRAIC) for each operator as it currently stands in the market.<sup>35</sup>

A third problem with the approach of TKK is that it assumes that in an efficient situation, all operators have the same costs. WIK states that the costs of termination of calls are not equal between the different operators. A number of regulatory authorities support the opinion that the cost differences shall not be taken into account when determining the fees. This follows directly from the definition of FL-LRAIC which is designed to derive of costs of efficient service provision/costs of an efficient operator. This is, however, not identical to the concrete operators acting on the market. There are two important points raised with respect to relevant cost differences in the German market and their implications. In its calculation, WIK assumes that the mobile network operators have spectrum in different spectrum bands. It furthermore assumes that the market shares between the operators, respectively between the groups of operators, deviates strongly. Furthermore, it is argued that the different spectrum allocation<sup>36</sup> impacts the costs. WIK writes:

*“Eine Reihe von Kostenuntersuchungen zeigen, dass die niedrigsten Netzkosten mit der Verfügbarkeit von Frequenzen in beiden Frequenzbereichen dargestellt werden können. Insbesondere sind die Kosten der Flächenabdeckung und der Indoor-Funkversorgung bei Nutzung von Spektren im 900 MHz-Bereich deutlich niedriger als bei Spektren im 1800 MHz-Bereich. In Folge ihrer Frequenzausstattung produzieren daher E-Plus und O2 mit höheren Kosten als T-Mobile und Vodafone. In der Bottom-Up-Kostenmodellanalyse, die die britische Regulierungsbehörde OFTEL durchgeführt hat, zeigen sich diese frequenzausstattungsbedingten Kostenunterschiede (..).”*

Also, WIK argues that companies with a higher market share show a lower level of costs and one may argue that the market share that has been achieved by each operator is based on a specific operator individual success and is therefore subject to change. Operators performing strongly should not be “punished” that they only receive lower termination rates than other

<sup>34</sup> See TKK „Ergebnisse der Konsultation Ermittlung der Kosten der effizienten Leistungsbereitstellung für Terminierung in Mobilfunknetzen, 09.03.2005, pp. 8.

<sup>35</sup> The alternative to use a reference operator with 25 % market shares in order to not take the risk that one or two operators are forced out of the market by the regulation of TKK is not feasible as was demonstrated from the comments of many market players to the TKK consultation in 2004.

<sup>36</sup> GSM 1800 for O2 and E-Plus, GSM 900 spectrum mostly to T-Mobile and Vodafone, whereby O2 and E-Plus are now also enabled to have access to GSM 900 spectrum and T-Mobile and Vodafone received additional GSM 1800 spectrum in the year 2000

companies. There is a special critique on the assumption of some regulators which take it as a given fact that the market shares of mobile operators will be equal some day:

*“Diesen Ansatz verfolgt etwa OFCOM in Großbritannien; die Kosten sind dort bei einem einheitlichen Marktanteil von 25 % und künftig 20 % bestimmt. Diese Betrachtungsweise kann aber dann am Problem vorbei gehen, wenn die Marktanteilsunterschiede auf First-Mover-Vorteile durch unterschiedliche Lizenzierungszeitpunkte zurückzuführen sind.”*

#### 2.1.2.3 Reasons for changing this position

TKK decided in favour of a rather hypothetical approach, using an efficient reference operator for three of the four operators but also collecting data from the operators in the market. This is problematic due to the inconsistent treatment of the operators, the application of economies of scales based on market volumes  $1\frac{1}{2}$  the size of the actual market (4 operators with 39 % market shares each equals 156 %!) as well as the assumption that the efficient costs are equal for all operators, which we know from the WFI study is impossible due to initial frequency allocation. We have concluded in section 1.2 that the Austrian telecommunications act is rather in favour of the use of network operator individual costs (and notifications from a number of other countries also point in that direction - see section 3). Hence, the use of operator specific LRAICs are appropriate for the Austrian mobile operators.

#### 2.1.2.4 Effects of such change (reactions, methodological modifications ....)

The discussion about the use of a reference operator or operator specific efficient costs is closely related to the discussion about one price rule. As long as different MTR are allowed within a country, there has to be a way to determine the MTR based on the efficient level for each operator, and hence, an operator specific LRAIC has to be calculated.

### 2.1.3 Reward new investment

#### 2.1.3.1 Economic reasoning of TKK

One argument which has played a crucial role, especially in connection with UMTS, is that new investment shall be rewarded and also protected for a certain period of time. This shall support and incentivise operators to conduct such investment. It shall avoid “frustration” with respect to investment as this would also be disadvantageous for the national economy.

#### 2.1.3.2 Validity of argument in current situation

Experts have for a long time argued and discussed what length of time to protect such investment is appropriate. However, investment protection is to be seen in a slightly different way than rewarding new investment. The reward of new investment can also be done in competitive markets where market entry is not dependent on a scarce resource which is being allocated by regulation. New and efficient investment in the first place requires secure framework conditions (legal certainty) so that the investor can undertake an assessment

about the viability of entering the market and can establish his business plan on certain expectations with respect to the legal and commercial development of the market. The EU framework favours in its art. 8 sect. 2 of the framework directive efficient investment and therefore also gives some support to this thought. Such investment has to pay off over time and the investor has to be able to recoup its investment. It will do that by charging fees not only on the retail market, but also on the wholesale market. Therefore, there must also be an option to recoup the investment also from the wholesale markets.

Investment is usually undertaken if the “business case” shows a satisfactory payback of the project. In mobile telephony, the outlook for additional operators have become more and more critical as early entrants had achieved strong market positions. Therefore, new investments are analyzed very critically. This started already with the third mobile license in Germany. Already the fact that only two bidders (additionally to the existing operators) were interested in starting a new mobile venture in Germany was a clear indicator for a higher evaluation of the risks associated with such a business. Compared to the previous frequency allocation procedure there were 7 bidders less. For the “D2” license which was issued a few years earlier there had been a total of 9 bidders. A major reason for the reduced number of interested parties can be seen in the higher risks of a late market entry.

*„Im Unterschied zur D2-Ausschreibung traf die E1-Ausschreibung auf ein nur noch verhaltenes Interesse. Von zunächst vier Konsortien verblieben lediglich zwei die ihre Bewerbungen beim Lizenzgeber einreichten. Hieran wird deutlich, daß die Industrie die Profitabilität eines dritte Netzbetreibers angesichts der Risiken nur noch skeptisch einschätzte. Der strukturelle Nachteil des E-Netzbetreibers lag vor allem im Wettbewerbsvorsprung der Konkurrenten bei der Flächendeckung und der Markenbildung. Inwieweit die Netzinvestitionen höher als in den D-Netzen ausfallen würden, war hingegen unsicher: Zum einen würde der DCS-1800 Standard zwar ein Netz mit kleineren Zellen und damit einer größeren Anzahl an Basisstationen erfordern, andererseits könnten aber kostensenkende Skalenerträge aufgrund der größeren Produktionsmenge und außerdem kostensenkende Lernkurveneffekte realisiert werden. eine ernüchternde Wirkung auf die potentiellen Investoren hatte aber auf jeden Fall die Erkenntnis, dass die von MMO in der Bewerbung genannten Investitionssumme von 4,5 Milliarden DM nicht übertrieben war. Es ist anzunehmen, dass die investive Bindung einer derart hohen Kapitalsumme viele vormalige Interessenten abschreckte.“<sup>37</sup>*

The development in Austria points in the same direction. The highest number of applicants appeared when T-Mobile was awarded the license. Since then, the number of applicants has never exceeded the number of three. This shows that the market conditions and the possibilities have become less attractive for every new potential entrant.

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<sup>37</sup> See Tewes / Stötzer, Der Wettbewerb auf dem Markt für zellularen Mobilfunk in der BRD, WIK Diskussionsbeitrag Nr. 151, Bad Honnef, Juli 1995, p. 9.

Winning applicant	Total number of applications
T-Mobile	6 <sup>38</sup>
ONE	1 <sup>39</sup>
Tele.ring	3 (tele.ring Telekom Service GmbH & Co KG, TricoTel Telekom GmbH und UTA Mobil GmbH) <sup>40</sup>

The falling propensity to invest has been durable. As described in 2.1.1, there is still a substantial difference between the operators in market shares and other structural conditions. There will also not be a change in the next coming years so that the difficulties for new entrants will remain. In this situation, it is important for the regulator that new investments are granted possibilities to realise a sufficient return. As possible new entrants never know under the current regulation regime which regulation and obligations will be applied in the future, it is important that the regulator shows that competition is an important goal and that the new entrants and smaller operators receive a fair treatment.

As the regulation of each operator is decided ex-post, that is, after the investment is made, the regulation in itself causes additional risks. By reducing the MTR below the operator specific LRAIC for late entrants (considering the higher risks for small operators), the regulator sends the signal to the investors, that investments in Austria contain a high regulatory risk, as the regulator does not consider operator specific risks and costs that are outside the control of the operators themselves. If this happens, investors' propensity to invest will decrease, as there is a great risk that the regulator introduces prices below the efficient costs for one or more operators, and that a sufficient rate of return on the investments can only be achieved through supra-normal profits. Hence, in order to reward new investments, it is necessary, both in the long run, but also in existing markets, to consider the operator specific situation and efficiency.

### 2.1.3.3 Reasons for changing this position

There is still a need to consider incentives for new investments in regulatory decisions. This does not only apply for new markets, but also for existing markets, as the regulation of these sends signals to potential investors. Regarding the regulation of MTR, this means that the regulator should not set MTR, which forces the operators to achieve supra-normal profits in order to earn an appropriate return on investments. In practice, this means that the regulator must allow for different MTR, when there are structural differences which are outside the control of the operator itself, which causes a higher LRAIC for the specific operator.

<sup>38</sup> [http://www.parlament.gv.at/pls/portal/docs/page/PG/DE/XX/AB/AB\\_01675/daten\\_000000.doc](http://www.parlament.gv.at/pls/portal/docs/page/PG/DE/XX/AB/AB_01675/daten_000000.doc)

<sup>39</sup> [http://presse.one.at/cgi-bin/vps/artikel.pl?id=275&artikel\\_kategorie\\_id=2&sprache=de&preview=](http://presse.one.at/cgi-bin/vps/artikel.pl?id=275&artikel_kategorie_id=2&sprache=de&preview=)

<sup>40</sup>

[http://www.rtr.at/web.nsf/deutsch/Telekommunikation\\_Frequenzvergabe\\_Bisherige%20Auktionen\\_BisherigeAuktionen\\_GSM4Vergabe\\_GSM4Antragsteller?OpenDocument](http://www.rtr.at/web.nsf/deutsch/Telekommunikation_Frequenzvergabe_Bisherige%20Auktionen_BisherigeAuktionen_GSM4Vergabe_GSM4Antragsteller?OpenDocument)

#### 2.1.3.4 Effects of such change (reactions, methodological modifications ....)

The same conclusions as in 2.1.1.4 apply.

### 2.1.4 Economies of scale

#### 2.1.4.1 Economic reasoning of TKK

TKK reasons that there should be a one price rule, and that deviation of economies of scale between the operators are one of factors which could justify not to implement a unified, “single” price in the market. But TKK states that over a longer period of time, the granting of higher termination rates due to less economies of scale would lead to a situation where the regulator fosters inefficient operators to stay in the market, and as this is not rationale, so the one price rule has to be applied.

#### 2.1.4.2 Validity of argument in current situation

There are several aspects to consider regarding economies of scale:

- Are there economies of scale in mobile termination?,
- If yes, what are the reasons for the economies of scale?
- Are the economies of scale relevant for the regulation?

In all telecommunication operations, there is a large proportion of fixed costs for networks.<sup>41</sup> In mobile operations, the network coverage (obligation) is responsible for a large part of the costs (including the network establishment and also the operation). To build sufficient coverage, there is a large number of base stations to be built and especially in rural areas, the capacity of the base stations is not fully utilized.<sup>42</sup> The costs per base station and the coverage as a whole is a fixed cost. The result is a huge proportion of the operators costs which are fixed. As the fixed costs are distributed on the subscribers or traffic minutes, increasing number of subscribers and minutes result in reduced costs per subscriber and costs per terminated minute. Hence, the economies of scale are extensive. Due to the economies of scale and the different size of the operators, which is a result of the different date of market entry, the mobile operators in Austria have different costs.

As the economies of scales exist, the question is if these are relevant for the regulation, and if they are, the “one price rule” cannot apply, as this is one of the reasons according to TKK to not implement the “one price rule”.

The reasons for the different economies of scales for the operators are to be found in the different market entry dates and in the different spectrum range for the relevant operators. Since market entry took place, there was never a chance for a younger operator to become

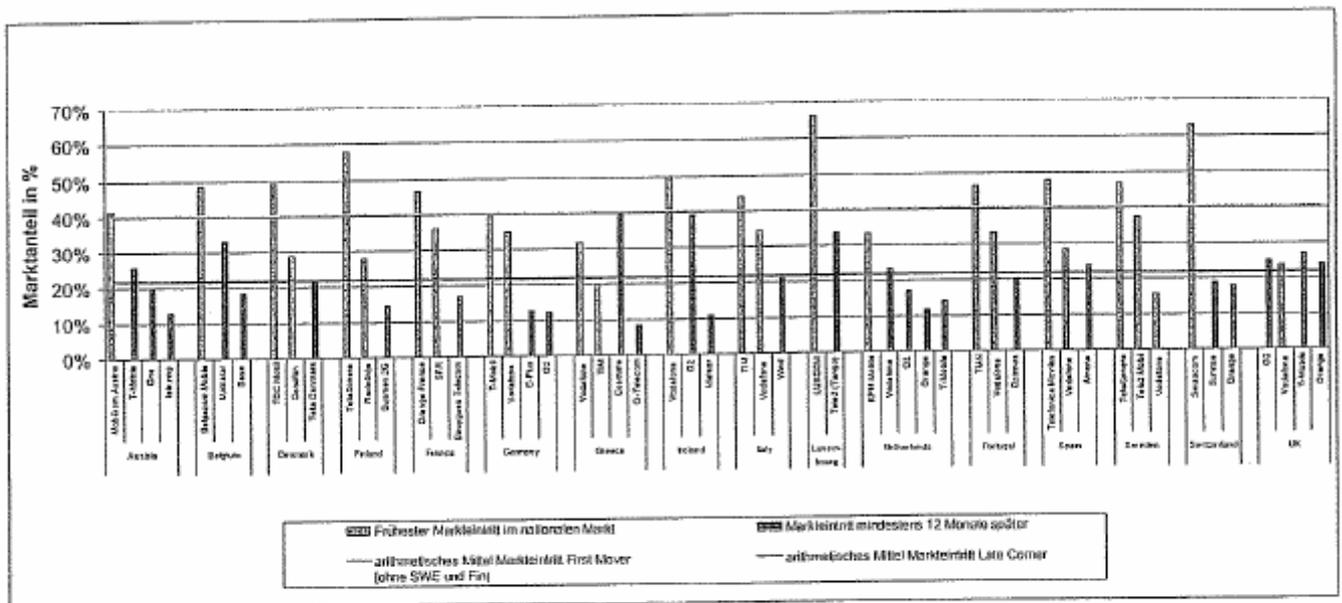
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<sup>41</sup> Still in 2005, the CAPEX of T-Mobile (worldwide) equalled 20 % of its revenue, although all networks of T-Mobile have been rolled-out (see Annual Report of Deutsche Telekom 2005).

<sup>42</sup> See chapter 1.6.

as big as the already active operators. On the contrary, the difference in size of the operators has been very stable which has been demonstrated in section 2.1 above with reference to the “gap” in customer figures and which is also shown from the following graph<sup>43</sup> demonstrating that in the large majority of cases, incumbents have managed to maintain their advantage of being the first to the market.

### Marktanteile der Mobilfunknetzbetreiber und First Mover-Vorteile<sup>1)</sup>



1) Marktanteile im Oktober 2005

Quelle: WIK

Hence, the differences in market positions leading to different economies of scales for the operators are due to the time of markets entry, which is an outcome of regulatory decisions regarding licences. Thereby, the economies of scales are relevant for the regulation. Likewise, economies of scale related to fixed costs are dependent on the spectrum each operator has been allocated. As demonstrated above and in the analysis provided by WFI the GSM 1800 spectrum has an insurmountable cost disadvantage. This means, that, even assuming same market shares, customer figures and traffic, ONE will never be able to come close to the same cost structure as a 900 MHz based operator.

#### 2.1.4.3 Reasons for changing this position

The economies of scales lead to a situation where the operators have different costs per unit produced. As this difference is induced by regulation, the economies of scales will for several years have a discriminative effect on late entrants. Hence, these are still to be considered, so that the one price rule cannot come into effect in the next coming years. Differences in

<sup>43</sup> See WIK-Consult „Wettbewerbswirkungen asymmetrischer Regulierung zwischen Festnetz und Mobilfunk“.

economies of scale which are based on the way licensing and market entry has been treated from a regulatory point of view are a result of regulation, thus, we have regulation induced cost differences.

#### 2.1.4.4 Effects of such change (reactions, methodological modifications ....)

The consideration of economies of scale due to the acceptance of the cost relevance of different sizes of mobile operators would imply deviations in costs and consequently in MTR.

### 2.1.5 First mover advantages

#### 2.1.5.1 Economic reasoning of TKK

By allowing for different mobile termination rates, TKK implicitly assumes that there are differences between the operators which arise from the position of mobilkom and T-Mobile enjoying first mover advantages. However, TKK overlooks the duration / permanency of these first mover advantages. When comparing first mover advantages and disadvantages, mostly the following items are brought into the discussion:

- Early entry and possibility to win a high market share from the beginning,
- possibility to charge higher prices at the beginning of the market and in the pre-competitive phase (as supplier of a premium service),
- allocation of most attractive (cost-efficient) spectrum
- build up of customer base, brand and marketing capabilities which generate a long term advantage,
- easiness of establishing a network due to the lesser awareness of the public with respect to problems of radio emissions and site acquisitions,
- lack of mobile number portability.

Compared to those first mover advantages, there are two second mover advantages which are the reduction of world market prices for equipment and technology on the one hand and the lower license fee on the other hand. The question is in the end how to weigh these factors against each other and especially on how to assess their permanency. The lower license fee is certainly an outcome of the attractiveness and economic viability which is regarded to be smaller for a third or fourth license. Again, even if first and second mover advantages are assessed differently from different operator's perspectives, operator specific cost analysis based on LRIC takes into account the effects from deviations resulting from different points in time of market entry and therefore is able to internalize such effects.

#### 2.1.5.2 Validity of argument in current situation

One of the aspects that has been intensively discussed is whether there are differences between the mobile operators, whereby differentiation of the factors according to "first mover advantages", respectively late mover disadvantages is made. Of course, there is also the

possibility of second mover advantages which come about by a later market entry. The following factors can be discussed with respect to these advantages/disadvantages in order to get a quick and clear picture about the situation of the different mobile network operators currently in the market:

First, a deviation in the economic power, respectively the financial power of each operator may have a significant effect on the success of an operator on the market. This is again significantly influenced by deviations in the point in time of market entry and this is again something that relates to the advantage of the first entrant. An analysis of the development of market shares over time shows that operators that entered the market first within the countries of the European Union up until today have been able to maintain their market share advantage against new entrants, see the graph above. We conclude, as these figures have arisen from a EU wide research that the situation in Austria is a picture of the overall European market situation and very stable. This implies that this first mover advantage is a permanent one. It conforms with the conclusion that TKK finally took at the end of the consultation end 2004 / early 2005 that the assumption that all operators will achieve equal market shares and thus minimize this first mover advantage is unrealistic.

Second, deviating spectrum/license fees to be paid by GSM operators can be a differentiating factor. In Austria, these fees vary between 4 and 1.35 billion ATS. This appears to be a great sum of money, but the differences in revenue according to the difference in size is much bigger, which is shown by the following simple calculation:

- ARPU (average revenue per user) of mobilkom Austria in 2005: 192 € per year.<sup>44</sup>
- Difference in number of subscribers between ONE and mobilkom: approx. 1,5 million<sup>45</sup>
- Approximate difference in revenues according to the difference in market size: 288 million per year (or about 4 billion ATS).

Although this comparison does only cover one year, it is obvious that the late comer disadvantages are much greater than the differences in monetary terms paid for frequencies / licenses. Thereby, it should be kept in mind that those two factors just discussed are of course directly or indirectly derived from regulation that means the date by when the regulator decided to open the market for mobile network operators, respectively their competitors.

Third, a clear first mover advantage is the possibility to quickly win new customers and to build a customer base, leading to revenues, the establishment of a brand etc. Again, this factor is derived from regulation because it is only possible for operators that have been given the possibility to enter the market through a license.

Fourth, early entrants have the possibility to start with higher end user prices for newly introduced products in a “pre-competitive” phase. Again, this is a clear first mover advantage.

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<sup>44</sup> [http://www.mobilkom.at/CDA/frameset/start\\_frame/0,3149,889-889-html-de,00.html](http://www.mobilkom.at/CDA/frameset/start_frame/0,3149,889-889-html-de,00.html)

<sup>45</sup> [www.rtr.at](http://www.rtr.at)

One of the very few second mover advantages is the lower world market prices/procurement prices for system equipment for establishing the network. However, this advantage is outweighed by the higher difficulty to find sites in order to build masts and towers for such mobile networks. The disadvantage here is that landlords have become aware of the commercial interest for sites and that prices have increased for site rents as have the considerations for the protective measures against radio emissions again increasing the second entrant's costs. If one additionally takes into consideration that GSM 900 networks were established before the GSM 1800 networks, and that GSM 1800 networks need many more sites in order to achieve the necessary coverage, this in the end turns into a second mover disadvantage. This is further outlined in the analysis of WFI.

Finally, the date of introducing mobile number portability also has a significant effect on the market. The later mobile number portability is introduced, the more we find that a first mover advantage can be assumed<sup>46</sup> because customers will be reluctant to change their operator if it involves significant transaction costs.

### 2.1.5.3 Reasons for changing this position

There has been a debate about whether and to which extent first mover advantages are still existent in mobile telephony. There are some clear indications that first mover advantages still exist, which can be derived from the fact that early entrants have managed to maintain a clear leadership in customers as well as in revenues as compared to late entrants when looking at the market shares. This has also allowed them to reap the benefits of early market entry in terms of revenues and higher prices. Late entrants have, of course, contributed to a declining market price and also to more competition, but under a commercially more unstable situation. The main problem is that national regulatory authorities sometimes fail to assess the permanency of first mover advantages. As can be shown by the development of the customers between the operators in the period 2004 and 2005, we can see that the process of closing the gap between the small and the large mobile network operators in terms of customers is not accelerating (see section 2.1.). Therefore, we have achieved a situation in which market shares and the distance/gap between operators in terms of customers is relatively stable. Therefore, there is no tendency that the market shares between the mobile operators will develop towards a unified value and an equal market share for all operators.

As these advantages of first movers discussed above do not change much over time, it is required for regulators to consider that first mover advantages are also assessed for the future. First mover advantages do not end by 2008 and determining equal mobile termination rates at the end of this period would neglect that there are remaining differences between the operators with respect to the consequences to different and regulation induced dates of market entry. Two points are important here

- the first mover advantages are permanent

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<sup>46</sup> See *Ruhle/Lundborg/Lichtenberger*. Der neue Regulierungsansatz bei den Mobilfunkterminierungsentgelten, in: *Medien & Recht* Nr. 4/2005, pp. 245 ff.

- the first mover advantages are a result of regulation policy regarding market entry and spectrum allocation. They are not the result of a better management performance.

Again, this is in conformity with discussion in other countries. In its submission to the German regulator on 10 October 2006, E-Plus writes (p. 13):

*“Aufgrund des regulierungsbedingten sequentiellen Marktzutritts der vier Mobilfunknetzbetreiber war es den D-Netzbetreibern, deren Lizenzen vor denen der E-Netzbetreiber zugeteilt wurden, möglich, First-Mover-Vorteile zu nutzen: Sie konnten bereits vor Markteintritt der E-Netzbetreiber ihre Marken etablieren und besonders relevante Kundensegmente – insbesondere Geschäftskunden – erschließen und an sich binden. Zudem war es den D-Netzbetreibern in der Anfangsphase möglich, die Endkundenpreise für Gespräche in die Mobilfunknetze zu bestimmen. Darüber hinaus wurden ihnen hohe Terminierungsentgelte zugestanden. Aufgrund dieser Vorteile gelang es den D-Netzbetreibern – im Gegensatz zu den E-Netzbetreibern – ihre Investitionen zu amortisieren. Den First-Mover-Vorteilen der D-Netzbetreiber standen auf dem Mobilfunkmarkt – anders als auf anderen Märkten – keine durch den früheren Marktzutritt erhöhten unternehmerischen Risiken gegenüber, da die First-Mover-Vorteile nicht aufgrund einer unternehmerischen Chancen-Risiko-Abwägung erlangt wurden, sondern regulierungsbedingt in Folge der Lizenzvergabepraxis entstanden sind. Im vorliegenden Fall sind demnach weder die First-Mover-Vorteile der D-Netzbetreiber, noch die dazu spiegelbildlichen Late-Mover-Nachteile der E-Netzbetreiber den Mobilfunkbetreibern zuzurechnen, sondern regulierungsbedingt und deshalb regulatorisch auszugleichen.“*

#### 2.1.5.4 Effects of such change (reactions, methodological modifications ....)

TKK has failed to recognise that the first mover advantages of mobilkom and T-Mobile will be of permanent duration. The second movers did never have a chance to close in on the attractive market position of the first movers due to the disadvantages in spectrum allocation, point of/date of market entry, market shares etc. The decision to license mobile operators and to open up the market for further competition is a result of regulatory/government decision. Therefore, the regulatory decisions also have to take account of the duration of the effects brought about by these regulatory decisions. There is clear evidence throughout all European countries that later market entrants will not be able to surpass the first entrants in terms of market shares, customer figures, etc. Therefore, this permanent and durable difference in market positions also needs to be reflected in the decision of mobile termination rates. Again, operator specific cost calculations are the best method to take account of this.

#### 2.1.6 Overhead costs

##### 2.1.6.1 Economic reasoning of TKK

TKK points out that the overhead costs (“Gemeinkosten”) are calculated as an equi-proportionate mark-up (EPMU). The mark-up is calculated for an efficient operator and should be forward-looking. There are two other methods to calculate the overhead costs, Ramsey pricing and an unweighted distribution of costs to the different products and ser-

vices. Regarding Ramsey pricing, TKK concludes that this method is difficult to implement in practice. Regarding the unweighted distribution, this is inappropriate<sup>47</sup> according to TKK.

In the decision from 19 December 2005 (Z8/05 and other decisions) regarding MTR, the lowest LRAIC was used for all operators and is set as the terminal value at the end of the glide path. This lowest LRIC was the one of mobilkom. For mobilkom, the overhead costs used were calculated as a mark-up of 15,48 %. This was the average mark-up for all operators, i.e. a figure that was not specific to any of the operators. The spread of values of such a mark-up between the operators was substantial.

#### 2.1.6.2 Validity of argument in current situation

Several regulatory authorities have examined the use of Ramsey pricing, but none has concluded so far to implement it. The main problem is that the elasticities that shall guide the pricing are not observable. Regarding the unweighted distribution, this does not consider the size of the business units and hence, the smaller services or business units would have extremely high mark-ups. Therefore the TKK is right in its judgement about these methods.

In Germany, the regulator is considering to introduce a top-down cost model to distribute the common costs by a so called process cost model. The implementation has not yet taken place and the reactions of all market players have been very critical.<sup>48</sup>

The EPMU is the most common way in Europe to consider overhead and common costs. The advantage is that it is easy to calculate. The problem with EPMU is mainly the value to be used. The more detailed and comprehensive the cost model for the other costs is, the less the mark-up has to be.

The problem with the way the Austrian regulator has applied the overhead cost is that it is not consistent with the way the network costs are determined. By calculating LRAIC that are operators specific, also the overhead mark-ups have to be operator specific. Otherwise there is a great risk that costs are “being overlooked” or considered twice.

Another inconsistency is that when the operator specific LRAIC are calculated, also the mark-up has to be calculated operator specific in order to consider the operator specific level of efficiency.

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<sup>47</sup> TKK “Ergebnis der Konsultation – Ermittlung der Kosten der effizienten Leistungsbereitstellung für Terminierung in Mobilfunknetzen”, März 2005.

<sup>48</sup> See documents published on the homepage of the German regulator BNetzA ([http://www.bundesnetzagentur.de/enid/8d012b3cc7f0f8a4e2ce673092284fa8,0/Regulierung\\_Telekommunikation/Branchenprozessmodell\\_Telekommunikation\\_2fw.html](http://www.bundesnetzagentur.de/enid/8d012b3cc7f0f8a4e2ce673092284fa8,0/Regulierung_Telekommunikation/Branchenprozessmodell_Telekommunikation_2fw.html))

### 2.1.6.3 Reasons for changing this position

As the current way to determine the common costs is characterised by inconsistencies, the method has to be changed. Thereby the use of an EPMU is still the right method, but this has to be calculated operator specific in order to consider the operator specific level of efficiency. This does not mean that different EPMUs should be used for each operator. In case that the structural differences, induced by regulation, do not exist, the result is an equal EPMU for all operators. Still, as the market size is a relevant and regulatory induced difference between the operators, and economies of scales exist by the common costs to a certain extent, operator specific EPMUs are most likely to be optimal.

A difficult question regards how to calculate an appropriate EPMU. This has to be done according to accounting information from the operators and according to benchmarks with operators in other countries and also other industries.<sup>49</sup> Thereby, the interdependencies with the cost model to calculate the LRAIC has to be considered.

### 2.1.6.4 Effects of such change (reactions, methodological modifications ....)

TKK should calculate new EPMUs considering regulatory induced differences by the common costs and based on the accounting information. The differences to how the common costs have been calculated before lie in a stronger consideration of efficiency and the structural differences. In order to meet these requirements, the common costs have to be determined in a more detailed way.

The effect will probably be more differentiated MTR, which better reflects the welfare effects and secure the long run competition as efficiency is promoted for all operators without the risk that the MTR are requiring more efficiency than what is possible in the long run.

## 2.1.7 WACC

### 2.1.7.1 Economic reasoning of TKK

The cost of capital is calculated as the weighted average cost of capital (WACC) and for the cost of equity the capital asset pricing method (CAPM) is used. The WACC is calculated for each operator in order to calculate the operator specific LRAIC, but as the same LRAIC (the lowest LRAIC of the operators) is applied at the end for all operators, the WACC of mobilkom (because the LRAIC of mobilkom is the lowest one) is used for all operators.<sup>50</sup> Again, identical to the approach in 2.1.7, the value applied is not carrier specific to each individual operator.

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<sup>49</sup> This type of benchmarking differs from the benchmarking of MTR in so far as it only looks at operator internal circumstances for deviations in overhead costs. This is comparable on an operator level even between operators in different countries as it does not face the same problem as e.g. a benchmarking of MTR in different countries, which cannot properly address topographical differences etc.

<sup>50</sup> See TKK "Ergebnis der Konsultation – Ermittlung der Kosten der effizienten Leistungsbereitstellung für Terminierung in Mobilfunknetzen", März 2005. AND Decision Z 2-10/05, Z 7,8,8,11,13,14/05 from 19th of December 2005

### 2.1.7.2 Validity of argument in current situation

The actually calculated WACC is not public, as this is the WACC of mobilkom and it is not included in the decision. The problem with the WACC is that the WACC of mobilkom at the bottom line is used for all operators. If the “one price rule” did not exist (see 2.1.1), no changes according to the methodology would have to be made, as then operator specific WACC values would apply.

The problem with the same WACC for all operators is, that the operators have different business models, act in different markets (according to the market definition with one network equalling one market), have different subscriber groups (residential versus business customers, prepaid versus postpaid), have a different type and volume of financing and face structural differences (frequency allocation, market size, market entry date). This leads to operator specific risks which imply different WACC (through the input values beta by CAPM and the risk premium on debts).

In regulation though, the efficient costs should be regarded and not the current costs. The only reason to calculate different WACC would be that there are structural differences induced by regulation. These can exist though because e.g. the late comer disadvantages and dramatically differing technology positions (see above) might lead to higher risks of the late entrants.

### 2.1.7.3 Reasons for changing this position

The logical consequence is to calculate the WACC considering the operator specific level of efficiency. In case there are regulatory induced differences in the level of efficiency, e.g. due to a higher risk for late comers, operator specific WACCs have to be determined. This would be a direct reflection of the legal analysis in section 1.2. and likewise a consequent application of the acceptance of the differences between operators in market positions requiring to integrate carrier individual situation.

### 2.1.7.4 Effects of such change (reactions, methodological modifications ....)

The effects of WACCs determined under consideration of structural differences between the operators, would be an abandoning of the one price rule (see 2.1.1). Specifically the effects arising from the conclusions to common costs also apply for the calculation of WACCs. Hence, there are positive welfare effects and effects on the long run competition.

## 2.1.8 Different production technologies / costs

### 2.1.8.1 Economic reasoning of TKK

TKK does not consider the differences between the operators with respect to the production of mobile termination services by stating that in a competitive market, different production costs would not matter because the operators/suppliers would need to adapt to the market price, irrespective to their costs. If the market/competitive price would be below the production costs, then the costs will have to be reduced or the operator will have to leave the market sooner or later.

### 2.1.8.2 Validity of argument in current situation

This again relates to the argument of the “one-price-rule”. However, it is only valid to a very partial extent. Again, it holds true that the TKK uses different assumptions about the market structure (from monopoly to perfect competition) to reason its different assessments that are forming the basis for its conclusions. As a second important matter, it needs to be stated that also in competitive markets, different costs due to different production technologies may very well be valid and also visible in the prices. An important point here is again the similarity of services.

As already outline in section 2.1, the assumption of similarity of services is not correct. There are observable differences for the end user which form a part of his decision to buy certain services. Therefore, it is reasonable to assume that different production technologies and different costs may very well be valid in such markets. This refers to retail and wholesale (termination) markets. TKK seems to overstate the importance of “perfection” in such markets.

Another compelling argument is that different spectrum leads to different costs. The WFI study proves that 1800 MHz-based networks in the Austrian market under prevailing conditions to date and likely future conditions results in a significant structural cost difference to 900 MHz-based networks. These conditions are a result of frequency allocation by the regulator.

TKK itself has considered this factor. In all discussions about mobile termination rates it states that there might be cost differences, but that they are unimportant in the end because in a competitive market, it would not be possible to recoup higher costs due to different production technologies. On the other hand, the TKK has noted the massive cost differences between different types of networks. In its decision F2/05-76 regarding the transfer of spectrum from tele.ring/TMA to T-Mobile, TKK specifically states:

*“Die Verfügbarkeit von Frequenzen bzw. verschiedener Spektren an Frequenzen bestimmt wesentlich die Produktionskosten von Unternehmen, beeinflusst ihre Preisgestaltungs- und Expansionsmöglichkeiten sowie das Innovations- und Qualitätspotenzial mobiler Dienste. Die Verfügbarkeit von Frequenzen als zentrales Produkti-*

*onsmittel zur Erstellung mobiler Dienste ist somit für alle wesentlichen Parameter unternehmerischen Wettbewerbsverhaltens ausschlaggebend.<sup>51</sup>*

This clearly indicates that the Austrian regulator has identified different spectrum as a causal factor for cost differences. Therefore, there can be no doubt that there is agreement about the fact that different networks with different spectrum allocations (different amounts of GSM 900 and 1800 spectrum) will have different costs. This conclusion TKK drew further implies that it would absolutely disproportionate if the regulator on the one hand finds cost disadvantages for late entrants (induced by regulation) and on the other hand states that they “don’t matter”. In such a case TKK would leave its role as a neutral “arbiter” on the market.

Regarding the impact different spectrum allocations have on the costs of an operator, not only the information contained in the proceeding F2/05 can be used, but also other information published by the TKK in previous years. In a case which reflected upon spectrum allocation to operators for specific cases (K41/98), TKK had to decide whether it was justified to give spectrum for free to specific mobile operators, whereas other mobile operators did never come into a position to receive additional spectrum. On the difference between GSM 900 and GSM 1800 spectrum, TKK writes:

*“Die physikalischen Ausbreitungsbedingungen sind für Funkwellen im Bereich 900 MHz günstiger als im Bereich 1800 MHz. Aus den theoretischen Überlegungen (...) ergibt sich, dass die maximale Zellfläche einer GSM-900-Basisstation etwa 1,89 mal so groß ist, wie die maximale Zellfläche einer GSM-1800-Basisstation. Dieses Ergebnis wird durch eine detaillierte Betrachtung mit dem empirischen Okumura-Hata-Modell bestätigt. Die (...) analysierten weiteren Faktoren (stark gebirgiges Gelände, Oberflächendaten, Antennenabmessungen, Antennen-Diversity, Gesprächspausenunterbrechung, Frequency Hopping, Überlappung der Funkzellen und hierarchische Funkzellen) können sowohl bei GSM-900 als auch bei GSM-1800 negativen oder auch positiven Einfluss auf die Ausbreitung bzw. die Zellgröße und damit auf die notwendige Anzahl von Basisstationen haben, es ergibt sich daraus kein wesentlicher allgemeingültiger Vorteil für GSM-900 oder GSM-1800. (...) In Gebieten mit dichter Netzstruktur ergibt sich daher kein wesentlicher Unterschied zwischen GSM-900 und GSM-1800. Lediglich in ländlichen Gebieten ist das Verhältnis der Zellflächen und damit das Verhältnis der notwendigen Anzahl an Basisstationen weiterhin 1:2,07. (...) Trotz dieser Unschärfen kann ein genereller Trend erkannt werden: Ein GSM-900-Netz braucht in einer frühen Ausbaustufe (zu Beginn des Netzbetriebs) weniger Basisstationen (etwa Faktor 2), mit zunehmender Teilnehmerzahl wird der Unterschied geringer. Heute befinden sich im Netz der max.mobil auf Grund der hohen Teilnehmerdichte und auch auf Grund eines – im Vergleich zur tele.ring – flächendeckenden Netzausbaus mehr Basisstationen als bei tele.ring.” (pp. 98 f).*

The findings further mention that the total cost curve of max.mobil (former brand of T-Mobile) shows an increasing slope, whereas the same curve for tele.ring at that time shows a decreasing slope. TKK concludes that the network of tele.ring is more efficiently established than that of other operators.

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<sup>51</sup> See F2/05-76, p. 12.

TKK differentiates very easily and with strong conviction between the networks and the spectrum allocation, thereby differentiating between those factors which cannot be influenced separately by a mobile network operator (such as topography, etc.) and those factors that can be influenced by an operator himself. One of these aspects is the date of market entry.

*“Ein früher lizenziertes Unternehmen hat Nachfrage-Vorteile gegenüber später in den Markt eintretenden Unternehmen. Diese basieren vor allem auf Wechselkosten im Zusammenhang mit einer bestehenden Kundenbasis (mit einem hohen Anteil an “wertvollen” Businesskunden). Bis zum Markteintritt von tele.ring konnte Maxmobil bereits einen Kundenstamm von 1,6 Mio. Teilnehmern aufbauen, das sind immerhin 21 % der langfristig akquirierbaren Teilnehmer. Insgesamt sind zu diesem Zeitpunkt bereits 60 % des langfristigen Potenzials bei den drei bestehenden Betreibern gebunden.” (p. 99)*

The debate on whether to consider costs differences between GSM 900 and GSM 1800 networks has experienced different approaches across Europe. Also, authorities may have changed their minds over time when assessing this topic. For example, the UK regulator in a report on the calculation of LRIC-fees in the United Kingdom<sup>52</sup> states that there is a significant reason to argue for a difference, respectively a differentiation of LRIC termination fees between combined GSM 900/1800 MHz networks and “pure” GSM 1800 networks. Oftel (as the name of the authority was at that time) therefore was in favour of a differentiation in mobile termination rates. The reason for this differentiation lies in the economic depreciation in order to calculate a development (path) of costs. With economic depreciation, the depreciation follows the usage of a certain good. If there is a lower usage in the early years and a more intensive usage in the later years, the depreciation is conducted according to the usage in the early years with a low percentage value and in the later years with a higher percentage value. This “movement” of depreciation has an effect on the GSM 1800 MHz networks to a much stronger extent than for the combined GSM 900/1800 MHz networks. The reason for this is to be found in the characteristics of the used spectrum. 1800 MHz networks have a lower maximum cell radius and in order to cover the same area it is necessary to establish a higher number of cells. Therefore the usage of each cell is lower in the earlier years. Due to this, the economic depreciation moves towards the later years so that for the early years, there is a higher cost burden for GSM 1800 networks.

In the expert opinions drafted for TKK and in the statements of TKK, there is a clear tendency that the major aim of the NRA is to come towards a uniform market price and therefore to arrive at reciprocal fees. Whether this is a feasible goal depends largely on whether the preconditions for such a development are existent. The move towards the unified market price and the application of the one price rule are questionable given the current facts. Reciprocity does not necessarily require that all market participants have exactly the same market share, however, it is possible to determine rates reciprocally when the market shares only deviate from each other to a small extent (as it is currently the case for mobilkom and T-Mobile). However, to regulate the small operators according to the same conditions as the

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<sup>52</sup> See Oftel: Wholesale Mobile Voice Call Termination – Proposals for the Identification and Analysis of Markets, Determinants of Market Power and Assessing of SMP Conditions; Explanatory Statement and Notification, annex F; 19.12.2003.

bigger operators, especially in the face of a proven significant production technology and cost difference, may force the smaller operators into an economically different situation.

#### 2.1.8.3 Reasons for changing this position

It is a well accepted fact, and clearly demonstrated by the WFI study, that production technologies of the operators in Austria differ and that these differences imply significantly different costs. Due to the fact that neither the “one price rule” nor the assumption of a perfectly competitive market apply, TKK’s conclusions that cost differences cannot be considered in a competitive situation are incorrect. In addition, the termination markets are defined as separate markets and hence, technological differences may cause different market prices because the markets are not 100 % identical. Cost differences should be considered thereby allowing for network operator individual costs to be taken into account to a larger extent.

#### 2.1.8.4 Effects of such change (reactions, methodological modifications ....)

The consideration of different technologies in the cost calculation would support the content of the Telecommunications Act to base regulation on operator specific (individual costs). The technology differences are induced by regulation and thus a differentiating element to take into account.

### 2.1.9 Duration of foreseen MTR determination

#### 2.1.9.1 Economic reasoning of TKK

TKK has decided on the length of the glide path differently at different points in time. In the first rounds in 2004, TKK favoured an approach with a glide path up until 2011 / 2012. After comments of the EU commission that the length of the glide path was not reasoned sufficiently, TKK “surrendered” and decided to terminate the glide path at the end of 2008. These different dates imply a massive change in the effects of regulation. An explanation as to which economic considerations motivated TKK to adapt the length of the glide path was not given.

#### 2.1.9.2 Validity of argument in current situation

In its more recent publications on comments on notifications from member states, the EU Commission has carried forward the position that if glide path solutions are to be implemented, these glide paths should not last for multiple years but rather have a defined end date. A sound reason should be given for asymmetrical mobile termination rates – otherwise, reciprocity should be aimed at for the end of the glide path. The Spanish regulator notified a proposed decision, by which it planned to let the glide path end in 2008. The EU Commission did not comment on that, thereby seemingly approving such an approach, but in the end the Spanish regulator decided for an approach to extend the glide path to 2009. The UK recently launched a consultation which foresees determines mobile termination rates until 2010/11, and the German regulator, for the first time now intervening in the mobile termination market

based on cost calculations, has to take a decision on how to deal with the current spread of 1.4 cent per minute between the operators.

The length of a glide path on one hand serves to give clarity and certainty to market participants. On the other hand, there is an inherent problem, that cost predictions cannot be long term due to changes in the market. Therefore, long term glide paths contain the risk of a “virtual prediction” which may be overtaken by reality. As the Austrian approach shows, a new dispute is to be taken every two years which also questions the applicability of the old values from the glide path if the two figures cover similar periods for the future. This could lead to an amendment of the glide path and new considerations about the level of LRIC.

#### 2.1.9.3 Reasons for changing this position

As has been demonstrated above, there are major cost differences between the different types of operators in the Austrian market and they are of permanent character. Therefore, operator individual cost calculations are the most feasible approach. Such calculations cannot be made for a long period of time into the future. The Austrian Telecommunications Act foresees a period of two years which also has proven to be useful e.g. when determining fixed network interconnection rates. Considering the changes that have taken place over the last 15 months only, a longer outlook would probably not be able to assess cost developments properly.

#### 2.1.9.4 Effects of such change (reactions, methodological modifications ....)

The changes in the process to arrive at MTR will not be significant. Such a change mainly deals with the period of validity of MTR and the timing and conditions for a new decision.

## 2.2 Summary / Overview

The arguments discussed in section 2.1 with respect to the economic reasoning of TKK to apply the current method of MTR regulation can be summarized as done in the following table. Thereby, we try to filter the arguments of which many relate to the “one price rule”. A critique of TKK’s approach does not imply that the model and the calculations should be abolished. Quite the contrary, - a number of elements from TKK’s approach can be used, but they need to be combined with the acceptance of carrier individual costs and characteristics as element of MTR regulation. That will be outlined in sections 3 to 5.

<b>Subject</b>	<b>Economic reasoning by TKK</b>	<b>Comment and Recommendation</b>
Terminal value – one price rule	TKK has decided on the one price rule, i.e. in favour of equal, reciprocal MTR for all operators at the end of the glide path.	Introduction of operator specific MTR because the one price rule is a theoretical construct not congruent with the reality due to different market and structural conditions largely induced by regulation.
	The one price rule is the outcome of a fully competitive market.	Introduction of operator specific MTR based on operator specific cost elements because the conditions for full and perfect competition assumed by TKK do not exist in reality.
	Application of the implementation of one LRAIC (the lowest of all operators) for all instead of operator specific LRAIC	Operator specific LRAIC is legally but also economically preferable to the extent that differences exist which are induced by regulation (spectrum allocation, time of market entry) or derived thereof. Hence, smaller operators must be granted higher MTR due to the permanent disadvantages compared to the larger operators.
	TKK considers cost differences due to, inter alia frequency allocation, but under the one price rule, differences are ignored	These differences, which are significant and mainly incurred through regulation, must be considered and the one price rule must be abandoned
Economies of scale	TKK states that economies of scale can only apply for a limited period of time and at the end of the glide path, this time has elapsed.	As the late mover disadvantages are still present in the market and will be for a certain time, economies of scale must be considered for the future. Hence, smaller operators must be granted higher MTR permanently.
First mover advantages	TKK has taken the position that the first mover advantages will be ineffective from 2009.	As there will still be first mover advantages in 2009, due to the rigid market and market shares, late comer disadvantages must be considered after 2009 and the MTR in 2009 and onwards cannot be the same for all operators.
Similarity of products / services	TKK has taken the position that termination services are homogeneous and that therefore, there can be no differences in price	Equal prices can't be found in any market due lack of perfection. The real world conditions deviate strongly from the assumption of "perfect competition". As neither mobile retail nor wholesale products are similar, there is also no necessity for equal MTR
Terminal value – definition of cost orientation	The TKK argues that new investments should be rewarded for a certain period of time	To reward new investments also means that investment already made must be rewarded in order to protect investors and create investor confidence. Also the period of consideration of investments already undertaken by late entrants has not yet elapsed.
Overhead costs	TKK calculates a mark-up (EPMU) based on the average overhead costs of the operators	The overhead costs should be calculated operator specific.
WACC	As TKK uses the LRAIC for mobilkom for all operators, also the operator specific WACC for mobilkom is used for all operators	The WACC must be calculated operator specific in order to consider the regulatory induced disadvantages (if these exist)
Duration of glide path	The TKK has decided that the glide path will end at the end of 2008.	The reductions for ONE with a glide path ending 2008 are overproportionate and not related to ONE's costs.

### 3. Mobile termination in Europe

#### 3.1 EU Commission requirements to MTR regulation

Within the framework of the 23 notifications on MTR so far, the EU commission has developed a position on the regulation of mobile termination rates. Thereby, the EU commission reflects upon the approaches in different countries. In the sequel, it will be analyzed which guiding principles and major cornerstones of the EU commission can be derived from its comments to the numerous national notifications.

In its approach, the EU commission has been very consistent regarding the application of the EU framework so far focusing on issues such as cost-based MTR, the use of cost models and the development of MTR towards reciprocity, where appropriate. On the other hand, the EU commission also has dealt extensively with the question of cost deviations due to regulation induced differences between operators and always accepted if cost differences were properly argued in order to justify deviations in MTR. The commission itself has noted that differences in spectrum allocation and different points of time of market entry are the most crucial factors explaining permanent differences in market positions and costs

In 3.2 and in annex 1 the comments of the EU commission in the article 7 procedures for specific countries will be described in detail. Thereby, there are three areas of interest with relevance for the regulation of MTR in the Austrian market:

- The methods used to calculate costs for the tariff approval of MTR
- The difference between MTR within a country between different operators and the reasons for these differences
- The pace of the introduction of cost oriented tariffs, i.e. the way glide paths (if they are selected as instruments) are implemented.

With respect to the first bullet point, the Commission states that the costs of an efficient operator must be the basis for the approval of MTR (see the German and French notification). The Commission also says that cost models should be used in the German case, but according to the Finnish notification, it seems that the Commission considers an “appropriate” cost accounting to be sufficient. In the Estonian and the Danish case, the commission also has accepted benchmarks in order to set tariffs, but in these cases, only countries which regulate the MTR according to an LRIC approach should be included in the benchmark and specific comparability of the benchmark has to be justified. Hence, the Commission has a preference for cost models, but if no cost models are implemented, cost accounting can be used and accepted but are not preferred, benchmarks are also a possible method to approve the MTR.

Regarding the difference between MTR (second bullet point above), it is the position of the EU Commission that the MTR can be different for the operators within a country as long as there are good reasons to grant one or more operators higher MTR. Such reasons are higher

costs due to factors which are not under control of the operators themselves, e.g. different frequency allocation and late entry in the market which leads to less market shares and less economies of scale (see Commission comments on the French, German and Dutch notifications). If this position of the Commission is applied for Austria, the reasons for higher MTR for ONE have to be examined in detail which is done in various chapter of this document as well as in the analysis of WFI.

Altogether, the picture that the EU Commission gives from the European countries is largely, but not completely clear. Summing up, one can state that the EU commission tries to show a certain guideline by which it suggests to regulate these markets. The EU commission policy can be summarised as follows: The EU Commission

- favours cost control obligations and price regulation in general as instruments on the wholesale level in their comments on the notifications.
- supports the use of cost models to determine the LRIC of mobile termination thereby allowing benchmark approaches only under very strict circumstances to avoid a deviation from cost orientation,
- never objects to asymmetry and even suggests it in cases where differences can be justified and relate to factors outside the control of the operator such as differences in spectrum allocation, differences in the time of market entry and consequently differences in market shares.

The comparison with the other EU countries shows that a variety of approaches is used throughout Europe in regulating MTR. The factual situation as of today shows a consideration of factors by which the operators differ and thus demonstrates that a differentiation of MTR in the various countries is justified. The most important facet is that despite the general comment by the commission to attempt to achieve reciprocal rates and by its interventions to refuse to accept very long glide paths, the EU commission nevertheless so far has always accepted if countries have come forward with justifiable arguments for MTR differentiation. Details / Country examples are contained in section 3.2.

### **3.2 Individual cases from EU Countries and EU commission's comments according to the article 7 procedure**

The EU Commission has over time dealt with notifications from almost all EU member states regarding market no. 16 (termination in individual mobile networks). It has received notifications from many countries, demonstrating the results of their market analyses and their proposals for remedies as they all have found significant market power to exist. The EU has confirmed the view of the NRAs with respect to significant market power and commented on the various different remedies proposed. Some of the most recent comments are of interest and shall therefore be highlighted in order to underline how the EU Commission thinks (as described on a general level in section 3.1.) and how it assumes the framework is applied correctly with respect to price control and cost orientation remedies. Due to the length of the description of the process and discussion on each country's notification, the findings from the country-by-country-analysis have been moved to annex 1.

Deriving the implications for Austria, the examples from other EU countries do support an approach which deviates from the current regulation applied by TKK. Examples from various countries demonstrate that there are and will be (in the future) differences in the MTR values. The reasons, which are also accepted by the commission refer to those arguments which can be derived from the previous regulation – different spectrum allocation, different points in time of market entry, substantially different market shares.

With respect to rate comparisons, e.g. conducting a benchmarking of the nominal MTR values it should be remembered that Austria has some major differences in topology and population distribution compared to other countries. This implies that there is a tendency to higher costs for any Austrian mobile operator. This was already addressed in TKK's statement in the procedure K41.

*“Die (...) analysierten weiteren Faktoren (stark gebirgiges Gelände, Oberflächendaten, Antennenabmessungen, Antennen-Diversity, Gesprächspausenunterbrechung, Frequency Hopping, Überlappung der Funkzellen und hierarchische Funkzellen) können sowohl bei GSM-900 als auch bei GSM-1800 negativen oder auch positiven Einfluss auf die Ausbreitung bzw. die Zellgröße und damit auf die notwendige Anzahl von Basisstationen haben, es ergibt sich daraus kein wesentlicher allgemeingültiger Vorteil für GSM-900 oder GSM-1800. (...)*

### **3.3 Cost models, MTR differences and glide paths in Europe – some practical evidence**

According to the European Framework, all EU member states have to analyse the markets for mobile termination, thereby designating dominant operators and in case it is necessary, also implement tariff regulation. Until now, the market analyses in 23 out of 25 countries have been completed and in all countries so far, some sort of tariff regulation has been introduced or is currently being implemented.

The question which arises for the Austrian environment is if the regulation in other EU member states can provide examples of how the regulation can be improved in Austria. In order to examine this, the following areas of interest have been covered:

- What has been decided in the market analyses, definitions and remedy decisions carried through by the national regulators in the EU (Article 7 Notifications)? Which remedies have been implemented regarding mobile termination rates? (see 3.3.1 below)
- Which cost methodologies and cost standards have been used? (see 3.3.1 below)
- How is the tariff regulation implemented, e.g. are glide paths implemented and which domestic tariff differences apply? (see 3.3.2 below)
- Which are the current and future approved mobile termination rates? Which are the differences between the operators and how big are the differences between the operators within the same country? (see 3.3.3 below)

All 25 EU member states were examined. They have all implemented the European regulatory framework, have a relatively comparable economic situation, few technological discrepancies (i.e. GSM and UMTS technology) and they all apply the calling-party-pays principle, which means that the caller pays for the call but the receiver doesn't. Other advantages are the relative standardised information, which means that the input data for the study is homogeneous and last but not least, twelve countries have the same currency rate as Austria. These are the reasons why the EU member states are optimal for an international benchmark study. In total 79 operators in 24 countries (EU-25 except Austria) and their mobile termination rates have been gathered. The analysis in section 3.3. focuses on country-specific approaches to potentially be benchmarked whereas section 3.2. outlined the EU's reaction to notifications received.

Basis for the input of the study are the notifications of the national regulatory authorities (NRAs), according to the so called Article 7 procedure. In addition, the NRAs have been contacted for more detailed information.

### 3.3.1 How mobile termination rates are regulated in EU countries

According to the remedies implemented or in implementation, there is some sort of price regulation in all countries, although in 6 out of 23 countries, the smallest operators and/or the new market entrants have exceptions regarding the tariff obligations, which leads to asymmetric termination rates within these countries:

Country	Exception from strict form of price regulation
Cyprus	Areeba has to offer fair and reasonable instead of cost orientated prices
Denmark	The MVNO and the new UMTS operator are freed from cost orientation so far.
Greece	Q-Telecom has to offer fair and reasonable instead of cost orientated prices
Latvia	Telekom Baltija has no tariff obligation
Sweden	The very smallest GSM operator and the new UMTS operator have to offer fair and reasonable prices instead of adhering to cost orientation obligation
UK	The smallest GSM operator is freed from tariff regulation

All countries have implemented cost orientation as obligation and of those who haven't done this for all operators in the market, fair and reasonable prices as obligation is the main alternative. Thereby, the question arises what cost orientation actually means. In 17 out of 23 countries, cost orientation is implemented as the long run average incremental costs (LRIC). In the countries which have not implemented LRIC, benchmarks with other countries (which mainly use LRIC) are conducted to approve the MTR and in a couple of countries no deci-

sion has yet been made according to the cost standard. Hence, LRIC is the standard definition for cost orientation in the EU.

LRIC is a theoretical cost standard which is not based on actual measurable costs, although actual costs can be the basis to calculate the LRIC (“input data”). In order to put this theoretical cost standard into practice, twelve countries have developed and implemented a cost model and another three countries are about to implement one in the future. The other countries have implemented other ways to determine the level of LRAIC.<sup>53</sup>

Countries where the NRA has implemented a cost model(s)	Countries where the NRA will implement a cost model in the future	Countries where Benchmarks have been used so far to approve MTR
Austria	Portugal	Denmark
Belgium	Lithuania	Estonia
Cyprus	Latvia	Ireland
France		Germany <sup>54</sup>
Czech Rep. <sup>55</sup>		
Greece		
Spain		
Sweden		
The Netherlands		
Finland <sup>56</sup>		
UK		
Hungary		

As the costs are modelled using a cost model, the question arises if the costs of the existing operators or the costs of a reference operator should be calculated. Calculating the costs for a reference operator means that the average market situation and conditions are assumed, e.g. regarding market shares in countries with four operators, that the average market shares of 25 % (100 % / 4 operators) are used as input in the cost modelling.

Based on these findings, there are three structural ways of implementing cost models. The first one is to implement a cost model which models the costs for a hypothetical operator with an average market situation and conditions. The second opportunity is to create one cost model, which calculates operator specific costs and the third possibility is to implement one

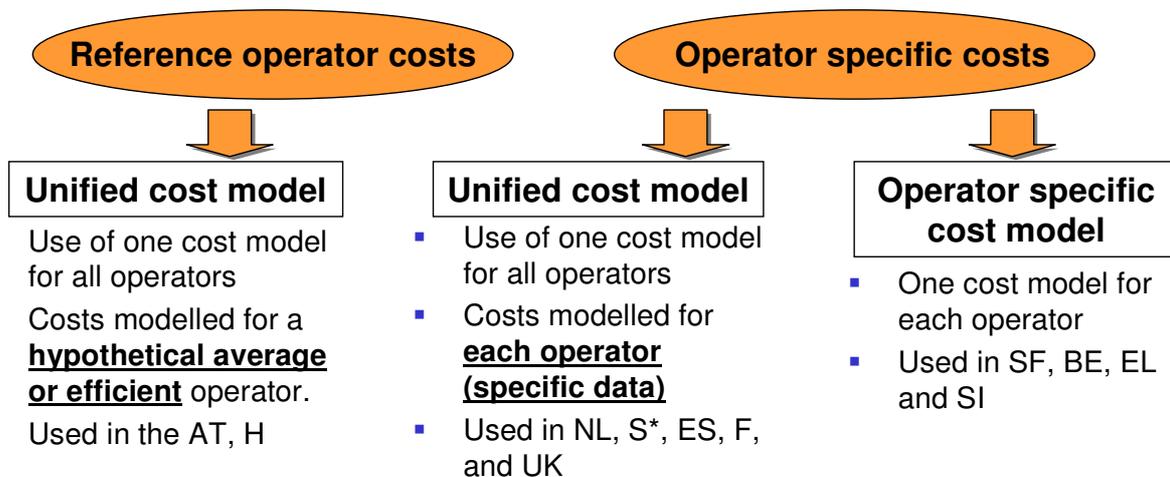
<sup>53</sup> As mentioned above, a total of 17 countries uses LRIC.

<sup>54</sup> A decision on the mobile termination rates is expected on the 8th of November 2006

<sup>55</sup> Calculating historic costs

<sup>56</sup> Calculating the current costs

cost model for each operator. The following graph illustrates these possibilities and gives examples for countries using the respective approach.<sup>57</sup>



### 3.3.2 Implementation according to glide paths

The next step of the study, after the basic methodology has been examined, is to benchmark the implementation strategies in the different countries, that is, how are the specific mobile termination rates approved. Thereby, two questions are of special interest: which are (1) the optimal termination rate in the market and (2) how to get there. We will start to discuss the latter one.

In most cases, the NRAs regard the MTR before regulation is implemented to be too high, in many cases more than double as high as they should be according to the regulatory authorities.<sup>58</sup> Therefore, the NRAs are afraid that an immediate reduction would cause disruptive effects. The solution is to implement a so called glide path. This means that the MTR are reduced in several steps over a time period, which is typically about 2-3 years.

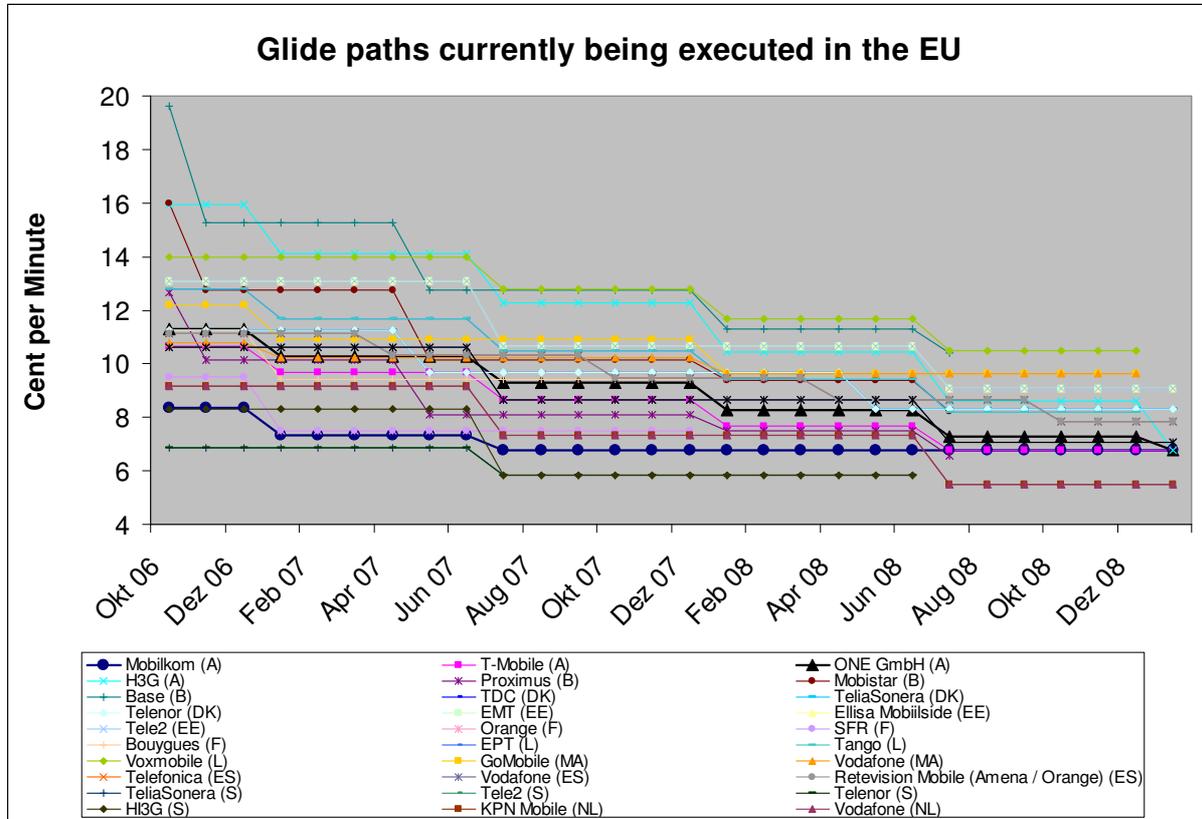
Such glide paths have been implemented in 17 of the 20 countries where the termination rates have been approved under the regulation of the new regulatory framework. In the countries where no glide path has been implemented, the reasons mentioned are that the MTR are already the lowest in EU (Cyprus), regulation is made according to HCA standards (Czech Rep.) and CCA standards (Finland) and that the level of efficiency is already implemented.

Although almost all NRAs agree that an immediate reduction to cost orientation would be too quick, there is little consensus about the optimal number of reduction steps or the size of each step. There are countries with three reduction steps and there are countries like Spain with another seven reduction steps with the last one in spring 2009. The diagram below

<sup>57</sup> In Sweden (see \*) the highest LRIC of the three biggest MNOs is applied. Abbreviations for countries as used according to international standard. (e.g. SI = Slovenia, EL = Greece).

<sup>58</sup> E.g. in Belgium, France, Hungary and Spain, the MTR are almost reduced by 50 % from the beginning to the end of the glide path.

shows all the current glide paths in EU which are currently being executed. Thereby, there is a large spread of the MTR and also the reduction steps are very different. Still, the reduction steps usually amounts between 10 and 20 %:



Many, but not all countries have implemented glide paths. The problem whether glide paths at all fit together with the LRIC cost standard is not discussed anywhere to our knowledge. In many countries it seems as if glide paths have been selected as a “practical solution” to overcome the gap between the real cost values and the LRIC values. However, in Austria at least, the telecommunications act does not give room for such a solution.

The other question regarding the implementation of tariff regulation and glide paths are the terminal values. These are normally set as the value regarded as cost oriented according to LRAIC. Considering the discussion above about operator specific cost models and unified cost models, the NRAs do not only have to calculate the LRAIC value, but also decide if it is appropriate to approve different MTR within the same country. As all NRAs define the market to be network specific, that is, each network is a separate market, it is obvious that the MTR can be different within a country as they are charged for services in different markets. On the other hand, it can be found that the conditions are the same for all operators and that efficiency means that there can only be one efficient price. In Sweden, the NRA is reasoning that the markets are related at that therefore, the operators are still competing (although there are separate markets).

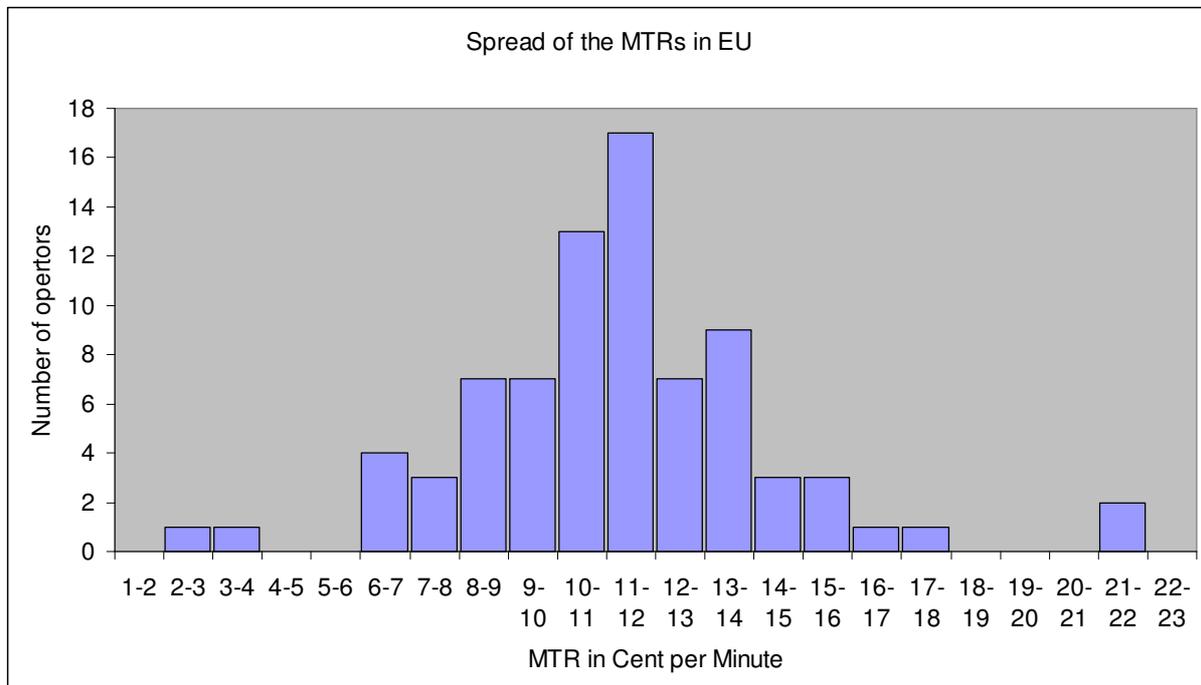
Summing up the results of the findings from the study regarding glide paths, the following statements can be made:

- Glide paths have been used in almost all countries.
- Most current glide paths end in 2007 and 2008.
- The typical reduction steps amounts 10 to 20 %.
- Most countries have operator specific MTR, granting smaller operators, younger operators and operators with structural disadvantages higher MTR.

The main conclusion thus is that there is no obvious reason why the late entrants should be regulated down to the level of incumbents in a short period of time and why the date 2008 envisaged by TKK could not be amended in light of the changes in the market development justifying a different type of regulation.

### 3.3.3 The level of MTR and differences between operators

By discussing glide paths and terminal values, the MTR in Austria have to be compared to the MTR in the benchmarking countries, in order to determine if the reduction steps and the terminal value in Austria are appropriate. According to the results of our analysis, such comparisons are though very problematic. Considering the spread (2,16 to 21,4 Cent per Minute) and the standard deviation (2,96)<sup>59</sup> of the MTR, it is obvious from a statistical point of view that the results are not significant.



<sup>59</sup> A standard deviation of 2,96 means that about 32 % of the values differ more than 3,03 Cent per Minute from the mean.

If benchmark values are calculated in spite of these statistical obstacles, the results are that the MTR in Austria are on an average with one MTR (mobilkom) being well below average, two operators around the average and one operator (H3G) well above the average. However, as already outlined above, the nominal values are not necessarily useful to be applied because Austria has e.g. higher costs due to its topography in general and therefore a comparison of methodologies and approaches is more useful.

	October 2006	End of 2007e
EU: Mean (Except Austria)	11,08	10,05
EU: Spread (Except Austria)	2,16 – 21,35	2,16 – 21,35
EU: Standard deviation (Except Austria)	2,96	2,70
mobilkom MTR	8,34	6,79
T-Mobile MTR	10,66	8,66
ONE MTR	11,28	9,28
H3G MTR	15,95	12,28

*The values for 2007 are estimates. In countries without glide path or where the glide path ends before end of 2007, the last approved MTR is applied.*

It is interesting in the table above to see, that the MTR will be reduced by about 1 Cent until the end of next year, although, the values for end of 2007 used in the table are probably too high, as they do not regard the MTR reductions that will be decided between October 2006 and the end of 2007. Still, for ONE for instance, this result implies that the reduction is almost twice as big as the average tariff reductions in the EU.

As the benchmark though, gives little significant information because the values display a huge spread, structural differences can be observed. In the table below the averages for different group of operators are compiled. The first value includes all operators except for the Austrian ones. The second and the third value show the averages according to frequency allocation. The fourth, fifth and the sixth value shows the averages for the first entrant in the respective countries, the second entrants and the late entrants (the rest). The last four values show the MTR with respect to the market shares of the operators.

Group of MNOs	Sample	MTR Average October 2006
All MNOs	All MNO except AT	11,08
1st Entrants	All MNO except AT	10,60
2nd entrants	All MNO except AT	10,69
late movers	All MNO except AT	12,06
Market shares <15%	All MNO except AT	10,69
Market shares 15%-25%	All MNO except AT	11,00
Market shares 25-35%	All MNO except AT	11,43
Market shares >35%	All MNO except AT	9,83

From the table, following differences can be observed:

- The late entrants charge 1,46 Cent (13,8%) more than the operators with the longest history within each country.
- The results regarding market share are difficult to interpret, although the operators with more than 35 % market shares have significantly lower MTR compared to the other operators.
- Calculations were also made to compare “1800 MHz-only” operators with 900/1800 MHz operators but the sample was too small for a reliable result.

Although the spread of the MTR make these results less significant, indications can be seen that the frequency allocation, market entry order and the market shares have an impact on the termination rates in the EU.

Another way to examine the differences in EU according to structural reasons to allow some operators to charge higher termination rates is by looking at the regulation within each country. In the table below, the differences in MTR within each country and the reasons stated by the NRAs are listed:

Country	Reason(s) for the spread	Spread of the MTR
Belgium	Reflects the cost base of each operator.	Mobistar is allowed to charge about 25% more and Base (1800) between 25-59% more than Proximus.  (Decision of regulator in discussion / Cartel Court)
Denmark	UMTS operator + MVNO has to charge reasonable prices	24% and 7% higher MTR for the two smallest operator
Finland	Reflects the cost base of each operator.	Additional charge of 24%, 47% and 91%
France	Low market shares and less economies of scale	Additional charge of 18% (future development: 25%)
Luxembourg	The new entrant is allowed to charge higher MTR due to low market shares.	The surcharge for Voxmobile (1800) rises from 0% to 28 % at the end of the glide path.
Slovenia	The second and third operator have less obligations due to their weak positions in the market	Si.Mobil charges 30% more than Mobitel
Netherlands	The operators with 1800 MHz spectrum are allowed to charge more.	The surcharge is 16%, increasing to 29 % at the end of the glide path. The decision of the NRA has been lifted, though.
Germany	De facto – came about without regulation (NRA accepted prices ex post with benchmarking)	13 % surcharge for smaller 1800 networks. Dispute decision to come on 8th November
UK	The operators with 1800 MHz spectrum are allowed to charge more.	The surcharge is 12% (ongoing new consultation)
Spain	Flexibility for operators to design their tariff structure in intercon-	All operators have the same MTR at end of glide path but Amena (1800) is allowed

	nection.	to invoice a minimum of one minute irrespective of factual duration of call which leads to an increased MTR of approx. 10-20%
Italy	The different infrastructural situation, with specific reference to the different spectral equipment to 900 MHz and 1800 MHz; the situation of the market and market shares, the perspectives of development and the levels of quantifiable network externalities; the specific level of operating risk of the late entrant.	Currently, WIND (1800) is allowed to charge 15 % more than the two biggest MNO
Latvia	The newest entrant is currently entering the market and there is also a CDMA network operator. Both are at the moment allowed to charge higher MTR	The MTR of these operators are not disclosed
Greece	The smallest operator has to offer fair and reasonable prices (new entrant). All other rates are according to operator specific bottom up LRIC without any additional reasoning of the difference.	Additional charge of 10 % (Infoquest was 1800 operator, recently merged with 900 operator)
Cyprus	New Entrant and/or small operator	Areeba charges 46 % more than the incumbent

The findings according to this table supports the findings from the calculations of average MTR above, that is, small operators, operators with “suboptimal frequency spectrum” (in the sense of more or solely GSM 1800 spectrum involving higher costs) and new entrants are allowed to charge higher termination rates. The surcharge for operators with 1800 MHz spectrum amounts to 12 to 29 %. Regarding the surcharge according to market shares and market entry order, it is difficult to draw conclusions on how high this normally is, as the spread of the surcharge is between a couple of percent and up to almost 100 %. Typically though, the surcharges for size and market entry order are between 20 and 30%.

Adding to the above, the following table more clearly points out the situation in the specific countries with respect to spread and recognition of different spectrum as relevant for deviations thereby focusing on the GSM operations only (excluding UMTS only operators). The limitation of the following table towards GSM is the main difference when comparing its results to the previous table which also covers UMTS operators.

Country	All operators with combined 900/1800 MHz networks	Some operators started as pure 1800 MHz networks	NRA recognizes differences for 1800/900 MHz networks	NRA recognizes differences due to market share/entry	MTR % Diff. Figures in brackets represent future development
Austria		√	NO	NO	28-41 (0)
Belgium		√	√	√	26 - 55 (25 - 59)
Germany*		√	√	√	13
Greece**		√	√	√	32 (19)
Italy		√	√	√	15
Luxembourg		√	√	√	0 (up to 28)
Netherlands		√	√	√	16 (29)
Spain		√	√	√	9 (0 / 10 to 20%****)
UK***		√	√	Historically	12
Ireland		√	Under review	Under review	32
Finland		√	√	√	24 – 91
France		√	√	√	18 (25)
Denmark	√				0
Sweden	√				0
Portugal	√				0

\* Decision in process. Historically large operators agreed reciprocal rates and recognised differences for smaller operators.

\*\* Historically differences recognized. The 1800 network has recently merged with a 900 operator.

\*\*\* UK has historically distinguished between pure 900 and 900/1800 networks. Only market in EU where market shares have converged. Prices are currently under investigation

\*\*\*\*Amena allowed 60/1 charging increment which results in an estimated 10-20% difference above the nominal rate.

This table shows that Austria is the only country of the EU 15 with an 1800 MHz-based network that does not recognise differences in technology cost or late entry induced by regulation. The last 3 countries have specific reasons:

- Danish rates were agreed reciprocally prior to regulation
- In Sweden, the 900 operators (who all later received 1800 spectrum) were in place by 1992
- In Portugal, all networks started as 900/1800. Rates are fixed reciprocally pending application of the cost model.

Summing up the results of the findings from the research regarding the level and the differences in termination rates, the following statements can be made:

- International quantitative benchmarks calculating average or best practice benchmarks do not lead to long term reliable results, due to the rapid change and the huge spread of the MTR. Also, the mere comparison of tariffs has a tendency to compare regulatory policies and not costs. Especially the fact that the Austrian market has some characteristics that imply higher network costs, a benchmark of nominal figures is not useful to determine MTR.
- The Austrian MTR are, generally spoken in the middle, though the MTR of mobilkom is well below the average and the MTR of H3G is well above average.

- In EU, it is typical that small and medium sized operators (with regard to market shares), operators with unfavourable spectrum and a market entry as the third, fourth or fifth operator charge significantly higher MTR.

### **3.4 Derivation of applicable methodology in Austria from international benchmark**

The research on the regulation of MTR in Europe brings substantial knowledge and experience on ways to regulate these tariffs. The question is how this knowledge can be applied on the Austrian regulatory and market situation. In 3.3 above, numerous statements were made according to the regulation in EU. In 3.4, an applicable regulation model for Austria will be derived.

#### General statements according to market definition, analysis and remedies

In 3.3 the results of the benchmark were that only voice is regulated and that mostly UMTS is included. According to the market analysis of the market 16 in Austria (M15/03 and M13/06), this is already the case in Austria. Also the statement above, that LRIC is the cost standard used to determine the right tariff levels applies to the Austrian tariff regulation. Hence, the regulation of MTR in Austria is, on this level, congruent with the regulation in the rest of the EU. However, where Austria deviates from accepted EU practice and the law is with respect to how LRIC is applied (usually operator specific), and whether regulation-induced conditions such as frequency allocation and resulting production cost and market entry effects are adequately taken into account. As we will show below, the differences and the alteration to be considered relates to the way the tariff regulation is implemented.

#### Statements about cost models and cost orientation

From the benchmark, two statements regarding cost models and cost orientation were derived:

- International quantitative benchmarks calculating average or best practice benchmarks do not lead to long term reliable results.
- Cost models can be implemented calculating the costs of a reference operator or operator specific costs. In the case of the latter, there can be one or multiple cost models.

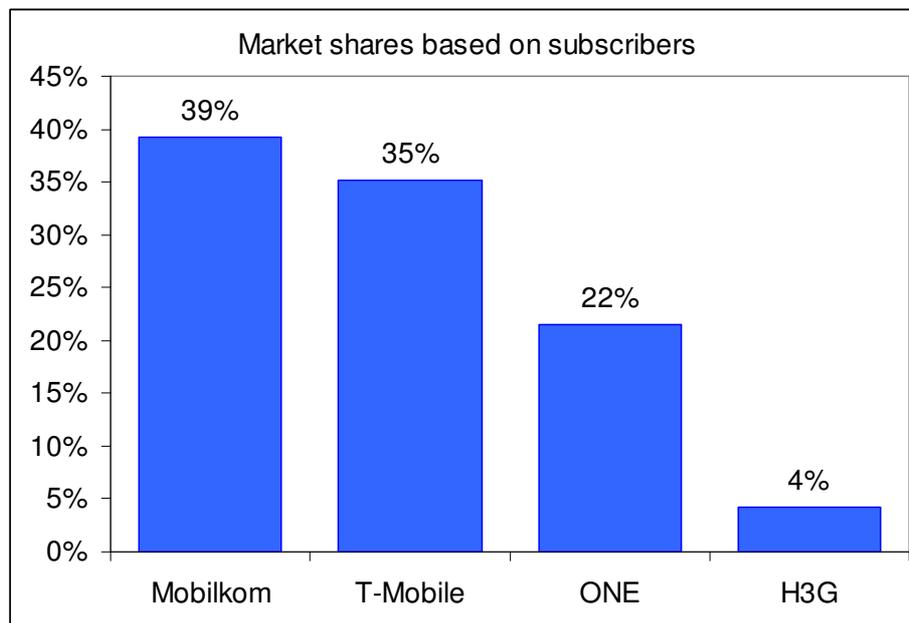
Regarding the first issue, Austria has already implemented a cost model to calculate costs and hence, there is no need for change on this aspect. Though, according to the second statement, there is only one cost model used in the Austrian cost calculations and that is a cost model calculating the costs for a reference operator (based on the situation of the biggest operator mobilkom). Due to the content of the Telecom Act and due to the structural differences between the mobile operators within Austria, the method currently used to calculate the costs is neither legally nor economically appropriate, as it does not reflect where / which operators have similarities and where structural differences exist.

### Statements about operator specific or unified MTR

In order to find out if structural differences in Austria exist which motivates operator specific MTR, the outlook in the rest of the EU shows, that:

- Most countries have operator specific MTR, granting smaller operators, younger operators and operators with structural disadvantages higher MTR.
- The operators with 1800 MHz-based networks receive higher MTR than the 900/1800 MHz operators.
- The late entrants receive higher MTR than the earlier operators within each country.
- Operators with more than 35 % market shares have significantly lower MTR compared to the other operators.
- In EU, it is typical that small and medium sized operators (with regard to market shares), operators with spectrum implying higher cost of network rollout and operation and a market entry as the third, fourth or fifth operator are entitled to significantly higher MTR.

When these results are applied to the Austrian situation, it is clear that a unified (“one-for-all”) MTR is contrary to the way other NRA regulate the termination rates. First, the market shares of the Austrian mobile operators are spread between 4% and 39 %. As the benchmark shows that the operators with at least 35 % market shares have substantially lower MTR, it would be in line with the European regulation to allow ONE to charge higher MTR.



Source: [www.rtr.at](http://www.rtr.at) for Q2/2006 (MVNOs are not considered)

Another structural difference in Europe and in Austria regards the frequency allocation. In the table below, the asymmetric frequency allocation in Austria is shown:

Operator	GSM-900 MHz	DCS 1800 MHz	Total
Mobilkom	17.0	15.0	32.0
T-Mobile	12.8	24.8	37.6
ONE	3.2	29.0	32.2
Total	34.8	74.8	109.6

Source: [www.rtr.at](http://www.rtr.at) from 26.4.2006

As can be seen in the table, all GSM operators have about the same amount of spectrum in total. The difference between the operators is the small amount of 900 MHz spectrum that ONE has. ONE has only 10 % of its spectrum in the GSM 900 MHz band while mobilkom and T-Mobile have 53% and 34% respectively. The results from the benchmark show that this asymmetric allocation of spectrum is a motivated reason for the regulatory authority to grant ONE higher termination rates. This is demonstrated in the analysis of WFI explaining the significantly higher production cost of using this spectrum and in the decisions of other NRA in Europe which grant higher MTR to operators which are disadvantaged on the spectrum side.

Despite these findings for Austria, mobile network operators focussing on 900 MHz spectrum in other countries argue that the technical disadvantages of 1800 MHz operators is far from that extensive as they have argued. In the German case, they argue that the 1800 operators have profited from higher mobile termination rates over time and that there always has been some kind of asymmetrical rates. They also argue that due to the more extensive spectrum allocation for E-Plus (two times 22.5 MHz as compared to two times 12.4 MHz) 1800 operators already have some kind of compensation for the less advantageous spectrum in the 1800 range:

*“Ob die theoretisch denkbaren Kostenvorteile aufgrund unterschiedlicher Frequenzen (d.h. zwischen 900 MHz und 1800 MHz) wirklich in der Praxis zum Tragen kommen, hängt von der spezifischen Situation in jedem Land ab. In Ländern mit vielen Ballungsgebieten, wie z.B. Deutschland, ist es fraglich, ob Unterschiede in der Frequenz zu wesentlichen Kostenunterschieden führen. Die zusätzliche Zellaufteilung aus Kapazitäts- und/oder Qualitätsgründen führt dazu, dass die theoretischen Vorteile der größeren durch die 900 MHz bedingten Zellstandorte in der Praxis kaum zum Tragen kommen.“ (T-Mobile position in the procedure, p. 12)*

From this we can derive that in countries with less urban areas and with less agglomeration of population, the cost differences between 900 and 1800 MHz may play a more decisive role. Therefore, the local situation in Austria regarding the distribution of inhabitants and the topography have an important impact on costs.

The last reason in the EU to grant higher termination rates is the market entry order. A late market entry causes lasting disadvantages with higher costs for termination as outcome. In order to compensate for this, the MTR of the late entrants are higher in the EU. As the mar-

ket entry date of ONE and H3G took place several years after the market entry of mobilkom and T-Mobile, this is an additional reason to grant ONE and H3G higher termination rates.

The difference in MTR between mobilkom / T-Mobile and the later entrants should be assessed by the cost model used to calculate the LRAIC. By using this cost model, it is essential that the differences in the operator specific LRAIC are considered by using operator specific data, thereby taking account of structural differences as the market entry date, market shares and the frequency allocation – i.e. all factors for which the regulatory policy of the 1990s has the responsibility but which extends its effects until today.

## 4. Summary and conclusions - How should TKK regulate mobile termination in the future?

### 4.1 Wrong assumptions implying wrong results in TKK's current approach

According to the results of this analysis, changes according to the approach of TKK regarding regulation on MTR are necessary. The main reasons are that the assumptions of TKK for the regulation of MTR which the authority has applied so far do not correspond to the Austrian Telecom Act and are furthermore not in conformity with basic economic principles. Also, an international comparison shows that the way TKK has implemented MTR regulation deviates from other countries and that a number of changes are justified and required thereby reflecting on the provisions of the Telecom Act on the one hand and on the competitive situation as well as the changes during the last two years which have had an impact on the positioning of specific operators.

Regarding the assumptions applied by TKK, there are three major issues to be discussed:

- The one price rule and the determination of one MTR for all operators
- The definition of cost orientation and the implementation of LRAIC
- The use, implementation and structure of a glide path

The major problems according to the regulation applied by TKK arise from the one price rule and the goal to achieve a uniform MTR for all operators at the end of the glide path. This is a theoretical construction which has no basis in reality because it assumes perfect competition and perfect substitutability of products. The flaws of this concept have been outlined in section 2 in depth.

Another obstacle to the assumptions introduced by TKK is that the operators are facing different structural conditions. These are mainly results of regulation in the past, e.g. the time of market entry (decided through the award of concessions / licenses by TKK) and the frequency resources (as provided and regulated by TKK). Therefore, the approval of a unified MTR not considering the regulatory induced consequences, especially significant production cost differences is inconsistent with the regulation in the past and would punish the disadvantaged operators for characteristic elements of their business models which are outside of their control.

Regarding the cost orientation and the definition of the LRAIC, the determination of the overhead costs and the cost of capital is according to the methodology correct, but the application of the cost of capital of mobilkom for all other operators is not. Here, the same problems arise as by the one price rule, especially regarding full or perfect competition. Therefore, the approach of TKK takes into account carrier specific / individual costs insufficiently and does not live up to the contents of the Telecom Act. The one price rule is intertwined to a large extent with a regulation based on the costs of an efficient, hypothetical operators and neglects individual costs.

With respect to the glide path, despite the fact that it is applied by many countries, it is predefined to end at reciprocal rates out of the same economically wrong assumptions as the one price rule. Rather, the individual costs elements will require to rethink this approach in order to arrive at a reasonable solution.

#### **4.2 Conclusions from international comparison**

The conclusions from an EU wide comparison of regulatory approaches are that the Austrian selection cost models as a tool and the remedies are congruent with the regulation in other EU countries. However, opposed to the regulation in other countries, where there are structural differences between the operators, there is only one cost model in Austria calculating the costs of one operator and which is used to set the MTR for all operators (and this operator happens to be the regulatorily-advantaged incumbent). In other countries with differences between the operators, the costs are modelled operator-specific (with one unified model, though but with operators specific input data reflecting the specific operator's cost situation). Thereby, different costs arising from deviations in spectrum allocations, points of time of market entry and market share are reflected in other EU member states.

According to these findings, the conclusions to be drawn are that operator specific MTR based on the operator specific LRAIC instead of the one price rule has to be applied. Thereby, the operator specific LRAIC will differ with respect to those facets where differences induced by regulation exist. Furthermore, by implementing operator specific LRAIC, the use of a glide path is not feasible any longer (neither economically nor legally).

#### **4.3 Differences between Austrian mobile operators to be considered in MTR regulation**

It has been stated throughout the text that treatment of operators should be equal where the conditions are equal and that MTR regulation should be different where the conditions are different. From the Austrian market the following can be concluded.

Regarding mobilkom and T-Mobile, we find a great deal of similarities between the operators. First of all, the market shares and the customer figures in absolute terms are similar, so that there is no justification to differentiate between the operators in terms of size. Taking into account Mr. Pölzl's statement after the merger of T-Mobile and tele.ring that now it would be possible to "attack the market leadership of mobilkom", there is clear evidence that T-Mobile will try and close in on mobilkom in terms of size and even surpass them.

Second, spectrum allocations cannot be a reason to treat the two companies differently because their spectrum portfolio is comparable. mobilkom has a total spectrum of 32 MHz, whereof 17 MHz are in the GSM 900 band and 15 MHz in the 1800 band. T-Mobile currently has a total ownership of 37.6 MHz of spectrum, e.g. even more than mobilkom. T-Mobile has 12,8 MHz in the 900MHz spectrum band. This implies that both companies have a very simi-

lar structure with respect to the amount of spectrum they own and can use, and also the distribution between GSM 900 and GSM 1800 does not indicate that either of the companies is disadvantaged from a technical and economic point of view. Thus, there is no reason to assume cost differences.

Another factor to be looked at is the time of market entry of the two companies. As identified, the time of market entry is dependent of the time when a license has been awarded. This is of course induced by regulatory measures, such as tenders, allocation procedures, etc. Indeed, T-Mobile had a slight disadvantage in terms of time of market entry, as they could not enter before the end of 1996, whereas mobilkom had already been active in the market with its GSM 900 network for about two years and with its previous analogue network even before that (however, the latter one did not reach very high customer figures, so it can be regarded as irrelevant). Certainly, mobilkom carried forward some of these first mover advantages over time, but T-Mobile was lucky to enjoy the phase of significant growth of the mobile market and thereby was able to grasp a high market share rather early on. Therefore, and especially after the merger with tele.ring, T-Mobile had closed in on mobilkom and the disadvantage of a later market entry has levelled out over time and therefore cannot be regarded as a major differentiating factor today, justifying higher costs for T-Mobile. Thus, the arguments speak in favour of an equal treatment of mobilkom and T-Mobile with respect to calculation of the LRAIC for MTR.

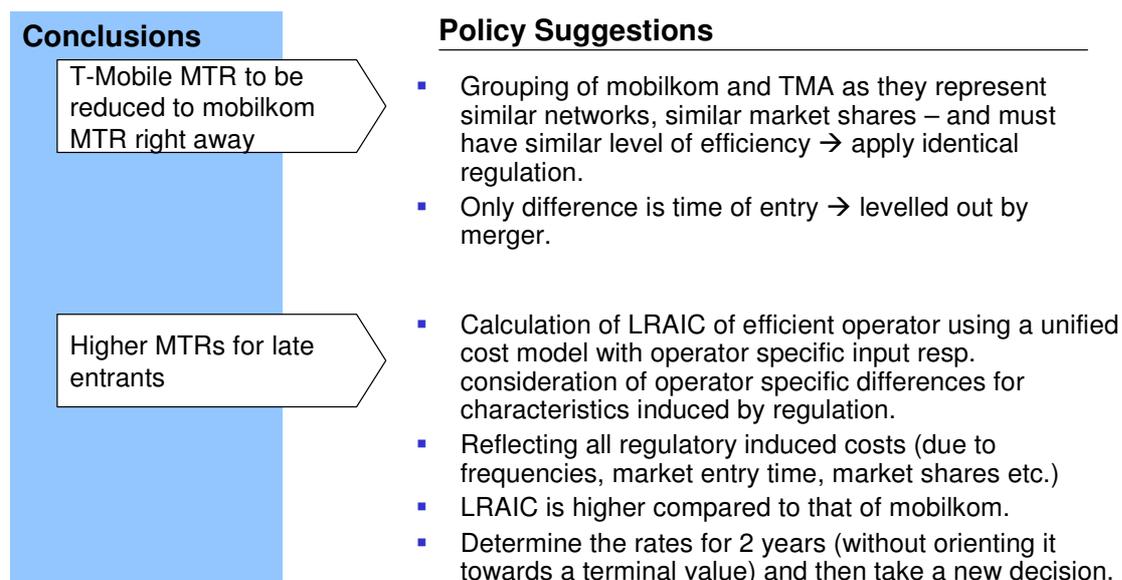
Opposed to mobilkom and T-Mobile, there are sufficient structural differences between mobilkom and later entrants. One difference is to be seen in the spectrum that has been allocated to the operators. While mobilkom is using large amounts of both 900 MHz and 1800 MHz spectrum, ONE has to rely almost exclusively on 1800 MHz spectrum, which causes significantly higher costs (see supporting evidence in the analysis carried out by WFI). ONE's initial license required 90% population coverage before any additional 900 MHz frequencies were made available. Therefore, ONE had to fulfil its coverage obligation with the 1800MHz spectrum as additional GSM 900 spectrum as not made available before 2002. Not only the licence conditions forced ONE to roll out coverage with 1800 MHz spectrum, but also the market and the growth in demand in the period 1998 to 2001 forced ONE to build out its network coverage based on 1800 MHz spectrum. Across Europe, this is confirmed as almost no operators have less than 98 or 99 % coverage. Therefore, the possibility to acquire GSM 900 spectrum in 2002 was too late for any significant cost reductions as 900 MHz helps mainly with coverage rather than capacity.

A second difference regards size and market shares. mobilkom has managed to achieve a stable and almost constant subscriber base of more than 3 million. ONE has managed to get close to 2 million customers, but also this figure has been constant over the last years. Therefore, the "gap" between the two operators in number of customers has stayed relatively constant over several years. Hence, mobilkom has a significant advantage compared to ONE when referring to overall size of the company. This difference in size is extensive enough to imply cost differences in providing mobile termination.

A third differentiating factor is the time of market entry. As described above, mobilkom entered the market in 1994, whereas ONE launched its services at the end of October 1998. Thus, the time difference between the two is four years and at the time of market entry of ONE, the total number of customers in Austria had already reached 2.3 million<sup>60</sup>. Thus, additionally considering that mobile number portability was not available at that time, ONE faced a major disadvantage in terms of the customer potential that was still available in the market. This disadvantage has become permanent, and the first mover advantage that mobilkom has enjoyed over time has not become smaller, but at least stayed at the same level. This can also be seen in the development of the gap in customer figures between the two companies. Thus, the advantage of mobilkom today prevails compared to ONE in terms of spectrum (and thereby also in network costs), market entry point and customer figures. On all factors which are induced by regulatory measures and decisions, mobilkom has had a more favourable setting and is thereby enjoying a better market position as of today. It is evident that the higher costs that ONE faces due to the regulatory decisions taken in the past need to be taken account of and therefore, ONE cannot be regulated according to the costs of an hypothetical efficient operator based on a regulatorily-advantaged mobilkom described above. Instead, ONE must be regulated according to the operator specific LRAIC, thereby reflecting differences induced by regulation, including spectrum allocation, date of market entry and market shares/subscribers. In this respect, regulation must also take account of elements contained in the Telecommunication Act referring to the associated risk of the investment undertaken and how to ensure that the investment is sufficiently considered in light of para 42 of the law.

#### 4.4 Regulation induced differences must be reflected in MTR determinations

Regarding the proposed reductions of the mobile termination rates and the operator specific termination rates the following policy suggestions are made:



<sup>60</sup> According to ITU statistics

The policy suggestions contain the need for differentiation between the Austrian operators with respect to the regulation of their mobile termination rates. Thereby, the legal rule is applied that things which are equal should be treated equally and things which are different should be treated differently.

Although ONE has criticised the approach of the authority taken in the past regarding its assessment of mobile termination markets and rate regulation, it needs to be stated that the model applied by the TKK does not need to be amended completely for an appropriate regulation in the future, ONE has pointed to a number of factors that need a critical revision. Thereby, the main points should be treated as follows:

- (1) The approach in general to use a model which is abstract from the concrete costs of an individual mobile operator is acceptable to some extent where the operators face the same conditions, such as the equal treatment of UMTS costs and the consideration of UMTS costs to the largest possible extent as far as these costs refer to voice communication is feasible from the point of view of ONE.<sup>61</sup> On top, however, those elements where the operators are different need to be modelled and calculated separately and reflected in the MTR determination. These differentiating factors relate to regulatory decisions of the past still showing substantial effects as of today and consequently also impact other important elements to be considered when regulating MTR such as the investment and the risk the different operators face.
- (2) Therefore, the adaptation of the model of the regulatory authority is required to take account of at least two, prospectively three groups of operators with different costs. mobilkom and T-Mobile forming one group of equally sized operators with very similar production possibilities for which there is no reason to differentiate the mobile termination rates. ONE forms another group, where due to its differences in size and technologies it is required to take account of the different costs arising from this situation.

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<sup>61</sup> Thereby, it needs to be taken into consideration that UMTS licenses/spectrum were awarded at the same point in time for all operators in the same amount and therefore that no operator has an advantage due to different allocation of spectrum or due to different points of time of market entry.

## **Annex: Country-by-country analysis of MTR regulation and notifications to the EU Commission**

### **Italy**

In its decision on MTR in Italy, the national regulatory authority went for non-reciprocal rates of the operators. The implementation of the decision of MTR explicitly did take into consideration some specificities of the operators in relation to aspects of the different infrastructural situation with specific reference to the different frequency allocation of 900 MHz and 1800 MHz; the situation of market with first mover advantages, the development and the levels of quantifiable network externalities and the specific level of risk of late entrants. With this, the national regulatory authority clearly recognises the late comer disadvantages. The decision was not based on a cost model which is, however, under development for future decisions.

The EU Commission explicitly had no problem with the defined difference in MTR as it was clearly justified by the NRA stating in the footnotes that it is clear that NRA considered the 900/1800 difference explicitly in setting the rate for WIND. Additionally, there is an explicit and detailed discussion by the regulator regarding the different network costs by using 900/1800 MHz frequencies and the market entry and economies of scale.

The conclusion can be drawn that the EU Commission accepts a difference between the MTR within a country, if the differences are clearly justified.

### **Germany**

In the case DE/2006/0421, the EU Commission on 20 July, 2006, sent its comments to the German regulator with respect to the proposed remedies regarding voice call termination in individual mobile networks in Germany. Thereby, the German regulator had intended to oblige the mobile network operators to conduct an ex ante price control for access and collocation, according to sect. 31 of the German Telecommunications Act, which refers to “Kosten der effizienten Leistungsbereitstellung”, i.e. the costs of efficient service provision. The price control obligation was one of several obligations, whereby we do not analyse other obligations than price control and cost accounting obligations.

The EU Commission strongly emphasises that the findings of BNetzA are that there are allocative inefficiencies and that they can only be solved by regulation. The concept that has been presented by BNetzA according to which the mobile network operators shall file their tariffs for approval with BNetzA does, according to the EU Commission, not guarantee legal security for a longer period of time and also does not guarantee transparency for users and operators. Therefore, the EU Commission invites BNetzA to decide about the filings of the mobile network operators in a speedy manner. In order to secure the interests of consumers, the commission requests BNetzA to immediately develop a cost model for the calculation of termination rates for mobile network operators. Such a model should take account of the fact that the operators have different cost structures which relate to different technological cir-

cumstances of their networks. Hereby, the EU Commission especially refers to the allocation of spectrum in the 900 MHz and the 1800 MHz band, which leads to different requirements within the networks. The EU Commission also refers different cost structures back to scale effects which are different in the networks and which are a result of deviating market shares. However, the commission also states that operators over time should become more efficient, especially when they gain market shares. With respect to the cost model that the EU Commission demands from the German regulator, it states that this has to be notified to the EU Commission according to art. 7 of the framework directive.

The German notification and the comments are interesting for three aspects:

- First of all, the EU Commission explicitly states that it favours cost models in order to determine mobile termination rates (and it does not touch upon the issues of benchmarks which seem to be favoured by the German regulator itself).
- The EU Commission explicitly states that cost differences due to spectrum allocation and due to market shares are a reason for cost differences.
- When referring to the different cost structures of the operators, it is implicitly obvious that the EU Commission also requests BNetzA to take account of the different cost information that shall be supplied by the operators.

### **Finland**

With respect to the mobile termination rates in Finland, it is interesting to note that regarding the question whether there is a difference between GSM 900 and DCS 1800 MHz networks when it comes to tariffs and possible justifications, the authority stated that all network operators have frequencies for both spectrum bands, 900 and 1800 MHz. The Finnish regulator believes that this does not as such cause any difference in the termination rates, however, every operator has a single termination rate which for the national network operators must be cost oriented and thus takes into account the possible effects different frequencies might have. This implies that the different spectrum allocation is not considered by the authority as such to be a deviating factor in terms of costs and rates, but that the individual costs of each operator form the basis of the decision about mobile termination rates and therefore implicitly the different technologies used (900 versus 1800 MHz) have an effect on the termination rates in Finland.

The EU Commission makes the comment in the Finnish case, that not all originations for the termination in mobile networks are included. In Finland, the calls from the fixed networks not made through indirect access (carrier selection and carrier preselection) are excluded from the cost orientation obligations for mobile termination.<sup>62</sup> The commission also makes the comment, that the MTR should be regulated according to an appropriate cost accounting methodology.<sup>63</sup> The way the MTR are regulated, namely that the operators file their proposed

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<sup>62</sup> See the EU Commission's comments to the Case FI/2006/0403 from 16th June 2006

<sup>63</sup> See above.

tariffs to the NRA, and the NRA examines if the MTR are cost oriented according to the cost information delivered by the operators, seems not to be sufficient for the European Commission. A definition of what an appropriate cost accounting system is, is not mentioned by the Commission. As the Commission favours cost models (see section on other countries), this is certainly the preferred solution, but an approval based on standardised cost information is according to the comments on the Finish notification acceptable.

### **Netherlands**

In the case no. NL/2006/0420, the EU Commission commented on implementation of remedies: tariff levels for mobile call termination related to case NL/2005/0215 by letter of 20 July, 2006 to the Dutch regulator. The Dutch regulator intended to set the mobile termination rate based on a bottom up forward looking long run incremental cost model, whereby this model calculates the cost model of a hypothetical efficient entrant with a 25 % market share on the respective spectrum used (900/1800 MHz versus 1800 MHz) without taking into account any actual cost differences between mobile network operators. This implies that the only differentiating factor the Dutch regulator takes account of when applying its glide path for the period 2006 to 2008 is the spectrum allocation, whereby in the Netherlands, there are operators which have a mixed spectrum allocation of 900 plus 1800 MHz spectrum, as well as “pure” 1800 operators. For the time being, the difference in rates between the “classes” of operators is 1.4 cent, and the Dutch regulator foresees tariff reductions in steps of approximately 1.8 cent up until July 2008, when a level of 5.5, respectively 7.09 cent is going to be reached. During all these steps, the difference between the types of network operators with different spectrum increases from 1.4 to 1.46, further to 1.53 and finally to 1.59 cent per minute. The commission had no comments to the decision of the Dutch regulator, meaning that it feels that it is in full accordance with its policy. Therefore, it is extremely interesting to note here that the commission did not criticise that there is a rate differential based on different spectrum allocations.<sup>64</sup>

What is especially interesting here is that the MTR difference comes about solely by differences in spectrum allocation. The Dutch regulator assumes that each operator has 25 % market share implying that advantages / disadvantages from early / late market entry are not included. If they were considered, this implies that the MTR difference must be higher than the results for the Netherlands. This is an important indicator for quantitatively assessing the rate differences due to different spectrum allocation.

### **Spain**

Another recently decided case was ES/2006/0471 regarding voice call termination on individual mobile networks in Spain, where the EU Commission sent its comments to the Spanish regulator on 30 August, 2006. The Spanish regulator had proposed to reduce mobile termination rates to certain target prices in a framework of two years, thereby starting on Octo-

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<sup>64</sup> The decision of the Dutch regulator OPTA has been lifted by the Dutch Trade and Industry Appeals Tribunal and there is now an unregulated state.

ber 1<sup>st</sup>, 2006. The mobile termination rates would be brought down to 6 cents to all operators, whereby they would start from different values as of today but would on April 1<sup>st</sup>, 2008, experience exactly the same nominal level. The tariffs are derived from a cost model based on long run incremental costs with a top down approach. The only comment the EU Commission had to this proposal was that the Spanish regulator foresees a minimum charging period of one minute for the smallest mobile operator. The argument of the commission is that such minimum periods for invoicing are passed on to the end user which implies a certain lack of transparency. Thereby, it is interesting to note that the EU Commission does not critically comment on the issue of a top down model of cost calculation being used, even if it explains in a footnote that “top-down means that the model uses as cost inputs the historical audited costs of each operator.” This implies that again operator individual information and even the historical data (and not forward looking data, respectively hypothetical cost information) is used to determine mobile termination rates.

When publishing its final decisions (eg. RE-06-09-28-04) on Spanish MTR, the national regulatory authority, CMT, did change two important aspects. The first significant modification was the prolongation of the glide path by one and a half year until September 2009. Out of the decisions, no explicit explanation can be derived for doing this. The second main aspect was that the regulatory authority did increase the terminal value for MTR by one cent to reach 7 cents instead of 6 cent.

Allowing Amena to have a minimum charging period of one minute at the interconnection level is upheld by the Spanish regulator despite the comments of the EU commission. The argument is that the NRA finds nothing in the law that forces them to refuse it and that operators should have flexibility. It can clearly be stated that this billing alteration increases the effective price of Amena by approx. 13%-20% per minute. By considering the effect of an average call length of 85-110 seconds. This will again lead to operator specific MTR. The Spanish case thus shows that there can be different ways to allow and to maintain deviations in MTR.

## **Belgium**

In the case of Belgium (case BE/2006/0433) regarding voice call termination on individual mobile networks in Belgium (SG-Grefe (2006) D/204472), the EU Commission commented on the notification of the Belgian national regulatory authority by letter of August 4<sup>th</sup>, 2006. In its notification, the Belgian regulator had proposed a glide path down from the current rates of the mobile operators which show a quite significant spread between 12.66 cent per minute for termination for the largest operator, as well as 19.60 cent for the smallest operator, which should show a downward trend up until July 2008, whereas there still would be a substantial difference between the largest operator (proposed termination rates 6.56 cent per minute) and the smallest operator (proposed rate 10.41 cent per minute). However, the percentage reductions would be approximately equal (between 64.9 and 48.6 percent) and the nominal decrease would be largest for the smallest operator. The calculation is (as in the case of Spain) based on a model that uses long run incremental costs, but also a top down approach meaning the use of historical accounting data. Additionally, the Belgian regulator has under-

taken an analysis of the future development of market shares and traffic and assumes the equivalence of market share of the three MNOs by 2017.

The spread that becomes visible between the rates of the different operators is especially interesting.

*“In particular, IBPT indicated, in reply to the NCA’s concerns, that the model reflects the fact that Belgacom Mobile, Mobistar and Base entered the market in 1994, 1996 and 1999. Moreover, the respective costs of the three SMP operators are different. This situation requires a different treatment, in light of the principles of economic efficiency, sustainable competition and consumers interests and protection.” (p. 3)*

The fact that different times of market entry have to be taken into account in this analysis of the Belgian regulator is interesting to note when we come to the Austrian case.

The EU Commission comments on the notification that an LRAIC model combined with a top down approach leads to a result where a large asymmetry in mobile termination rates between the three mobile network operators would continue to exist throughout and beyond the period of the review. It is hardly understandable that this criticism is mentioned here because the same approach in terms of modelling and cost data used applies to the Spanish case where such comments were not issued. It is not certain that it is a systematic critique issued by the European Commission or it is just a critique that comes from the expected results that the EU Commission sees in this development. The commission repeats its position that asymmetry of fees is acceptable if there is an adequate justification

*“It recognises that, in certain exceptional cases, an asymmetry might be justified by objective cost differences which are outside the control of the operators concerned. Possible justifications could be represented by the cost differences between the operation of the GSM 900 network and a DCS 1800 or by substantial differences in the date of market entry.” (p. 5)*

Again, these circumstances are found in the Austrian market. The market entry dates of mobilkom, T-Mobile and One are very similar to the market entry dates in Belgium and likewise there is a difference in spectrum allocation between GSM 1800 and GSM 900.

The commission (as opposed to other notifications comments) in this case expresses its expectation that differences related to technology will be small. Therefore, the commission believes that the spread in the Belgian case is too big and invites the Belgian regulator to quantify the differentiating factors more clearly. The EU Commission continues its criticism and states that the foreseen glide path is too long in order to be acceptable. The EU Commission thereby upholds its position that the glide path should be completed within the foreseeable future in order to come to symmetrical termination rates. Therefore, the commission also wants to bring the glide path development in Belgium forward in time. Very clearly a statement can be found with respect to the expectations of the EU Commission:

*“In this regard, the commission invites the IBPT to determine the level of the MTR of each operator:*

- *So as to reach symmetry between Proximus and Mobistar within the period of the current review (i.e. by 2008). This is justified by the consideration that these operators have been present in the Belgian market for more than ten years, used the same technology and their relevant cost structures are converging, as shown by the IBPT’s own analysis. (...)*
- *So as to reach symmetry between all operators shortly after the timeframe of this review, unless IBPT were of the view that objective cost differences outside the control of the operators as discussed in the previous paragraphs justify the maintenance of a small degree of asymmetry. This would in any case imply that the termination rates of Base would have to be reduced more steeply already during this period of review.” (p. 6)*

It is interesting to note that the EU Commission differentiates with respect to its demand for asymmetry between the two large operators on the one hand, which it addresses specifically regarding symmetrical weights and that the commission allows the smaller operator to maintain a small degree of asymmetry for a longer period of time. Drawing the conclusions from the Belgian case, one can safely assume that a prolongation of non-reciprocal rates for MTR for 3<sup>rd</sup> and 4<sup>th</sup> operators would not constitute a problem to the EU commission if justified properly and if the preconditions defined by the EU commission are met.

## **Denmark**

The Danish authority notified its decision on 29 June 2005. Thereby all operators were designated as enjoying SMP, but only the three biggest operators have to offer cost oriented prices. Hi3G and Tele2 are dependent on national roaming and have a very small proportion of the termination traffic. The tariffs of the three biggest operators were set using a benchmark with Sweden, Finland and Norway and a glide path over two years has been decided. The reason for using a benchmark was that there is no cost model implemented for mobile termination in Denmark. The development of such a model is though in discussion according to the notification.

The comment of the European Commission on the notification was, that the national authorities must consider carefully the countries selected for the benchmark. Thereby, the Commission especially stresses that in the current situation for mobile termination in Europe, only countries should be included, which have approved the MTR based on appropriate cost accounting models and cost accounting data:

*“The Commission considers that if a NRA decides to impose price regulation on the basis of a comparison with other countries, it should carefully select the objective criteria and clearly justify the reasons for which it believes that the relevant market(s) in these countries are, on the background of those criteria, most suited as the basis for the comparison, taking into account differences between conditions prevailing on the relevant market(s) in the countries compared and its home market. Furthermore, under the current circumstances of the provision of mobile call termination, only where the prices for mobile termination have been set on the basis of an appropriate cost*

*accounting model and relevant cost accounting data to reflect cost orientation, can the prices can be considered as appropriate to serve as a basis for comparison.” (see comments of the European Commission from the 12<sup>th</sup> of August 2005 regarding the Danish notification DK/2005/0204)*

## **France**

In the decision no. SG-Greffe (2006) D/204966, the EU Commission commented on the case no. FR/2006/0461 “price control obligation related to voice call termination on individual mobile networks in metropolitan France” by letter of 4 September, 2006. The French regulator had ordered a decrease of the pricing of mobile termination rates for the three mobile operators active in the French metropolitan market, whereby the decreases should be as follows: reduction from 9.5 cent per minute in 2006 to 7.5 cent per minute in 2007 for Orange and SFR and a reduction from 11.24 cent per minute to 9.24 cent per minute for Bouygues. This implies that in both cases, the operators have to reduce their termination rates by two cents, but that also the differential between the two mobile network operators remains at the same absolute level (1.74 cent per minute). The decision of the French regulator is based on information about the cost structure of the mobile network operators, although price information was not completely delivered by the operators. The EU Commission comments on the rate differential as follows:

*“The Commission considers that MTR should normally be symmetric and that asymmetry requires an adequate justification. It is recognised that, in certain exceptional cases, an asymmetry might be justified by objective cost differences which are outside the control of the operator’s concern, for instance owing to cost differences between the operation of the GSM 900 network and DCS 1800 network or to substantial differences in the date of market entry. Nonetheless, the fact that a MNO entered the market later and that it therefore had a smaller market share can only justify higher termination rates for a limited and transitory period. The persistence of higher termination rates cannot be justified after a period long enough for the operator to adapt to market conditions and become efficient and could even discourage smaller operators from seeking to expand their market share. The Commission has indicated in a number of cases that it is necessary to ensure that the asymmetries do not remain in force for too long and that the MTR of each MNO should be brought down to the cost of an efficient operator as soon as possible. In this regard, the Commission invites ARCEP to determine the level of the MTR of each operator so as to reach symmetry between all operators as soon as possible after the planned one-year interim period, unless ARCEP at the stage is of the view that objective cost differences outside the control of the operators justify the maintenance of a certain degree of asymmetry. In this case, the Commission invites ARCEP to justify the asymmetry, based on a cost model which takes into account costs of an efficient operator and the complete processing of adequate accounting information to be provided by all three MNOs.” (pp. 3).*

Regarding the efficient operator, the EU Commission adds in a footnote that

*“given the EU wide importance of such a model, the Commission would like to encourage this work to be conducted in close co-operation with the European regulators Group to arrive at a coherent approach that takes into account the work of other NRAs.”*

The interesting information contained in this document is that the EU Commission mentions two specific cases which justify that the cost differences are also applied in the rate differences. These are the differences brought about by different spectrum allocation as well as by different periods, respectively different time of market entry. Although the EU Commission mentions that different points in time of market entry cannot justify rate differences for “ever”, it accepts the difference that the French regulator is planning to order. Thereby, it needs to be noted that Bouygues entered after winning an auction in late December 1994 the French market in May 1996. Thus, the situation is comparable to Austria in that respect that a third operator with even a longer history in the market than ONE is entitled to receive higher MTR. There were two well established competitors, Orange and SFR to whom licenses were awarded almost 4 years earlier in March 1991. In this respect, Bouygues Telecom suffered considerably from late market entry. Additionally, Bouygues Telecom, as third operator, was equipped with pure 1800 MHz frequencies to roll out its network leading to higher investment in the network. These differences in cost structure due to the spectrum allocation is considered in the pricing of the termination rates. To be able to improve the coverage in rural areas, Bouygues Telecom was assigned additional E-GSM and GSM 900 MHz frequencies for rural areas at a later stage. This implies, that the national regulatory authority had recognised the negative cost effects Bouygues was facing with regard to the frequency allocation as well as to the market situation. Bouygues Telecom can therefore be compared to ONE in Austria.

It is also interesting to note that the EU Commission only in the future expects a cost model calculation and that it takes no specific decision about which costs are used to determine the mobile termination rates. On the one hand, it requests the regulator to calculate the costs of an efficient operator, but also requires to take into account the accounting information provided by all three mobile network operators. This is a strong indication for the use of mobile operator individual cost data for the determination of rates.