Body of European Regulators for Electronic Communications

BEREC

BoR (10) 24b

Consultation Report

to the Common Statement "Next Generation Networks Future Charging mechanisms/ Long term termination issues"

This BEREC document BoR (10) 24b constitutes an Annex to the BEREC Common Statement "Next Generation Networks Future Charging mechanisms/ Long term termination issues".

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This BEREC document BoR (10) 24b constitutes an Annex to the BEREC Common Statement “Next Generation Networks Future Charging mechanisms/ Long term termination issues”. A previous version of the document has been consulted as Draft Common Position “Next Generation Networks Future Charging mechanisms/ Long term termination issues” (ERG (09)34) between 14 October 2009 and 10 December 2010. Interested parties were invited to comment on the 11 questions, each related to a particular chapter of the document . The Consultation Report is structured along these questions as raised in the Consultation Document, summarising the consultation responses first, followed by BEREC considerations.

Question 1 *(Section 1)*: Do you agree that in a multi-service NGN environment, in which different services use a shared transport layer, different interconnection regimes for different services could create arbitrage problems? If yes, could you describe the problems that you foresee or that have already occurred. If no, what prevents these arbitrage problems in your view?

Question 2 *(Section 1 & 2.2)*: What is the influence of the separation of transport and service for the interconnection regime and in particular the charging mechanism and in what way are NGNs and BaK related?

Question 3 *(Section 3.2)*: How would you define the boundary for the application of BaK and where should it be located (i.e. points of interconnection where BaK is applicable)?

Question 4 *(Section 4.2)*: What is your conclusion on the relationship between the charging mechanism and penetration, usage and price level?

Question 5 *(*Section 5.1.3*)*: How does BaK affect regulatory certainty and the risk of legal disputes?

Question 6 *(Section 5.2.1.3):* How do different wholesale charging mechanisms impact on the number of unwanted calls? Do you expect (other) effects on consumers/consumer groups? Where possible, provide a quantitative assessment of the expected effects.

Question 7 *(Section 5.2)*: How do you assess the quantitative relevance of call and network externalities?

Question 8 *(Section 5.3.5)*: How would your business be affected by a move from CPNP to BaK? Please explain the expected impact on prices, volume of supplied services and profit.

Question 9 *(Section 6.1)*: Do you agree with the conclusion that operators/users in the BaK domain will subsidise traffic coming from outside the domain (regardless of the legal aspect)? Are there any mechanisms to prevent this and how will they work in your view, in particular to avoid arbitrage?

Question 10 (Section 6.3): Do you see any implementation problems for a migration period towards BaK? How could such problems be addressed?

Question 11 *(Section 7)*: Does the draft CP miss any other relevant issues?

In total 30 comments were received, one of them was confidential:

1. 3 Group
2. Association Française des Opérateurs de Réseaux et de Services de Télécommunications (AFORS Télécom)
3. BITE Lithuania
4. BOUYGUES TELECOM
5. British Telecom Group plc
6. Cable and Wireless plc
7. COLT Telecom Group Limited
8. Deutsche Telekom AG
9. Dutch Association of Major Business Telecommunications Users (BTG)
10. European Telecommunications Network Operators' Association (ETNO)
11. European Cable Communications Association (Cable Europe)
12. European Competitive Telecommunications Association (ECTA)
13. Fastweb S.p.A.
14. France Telecom Group
15. GSMA Europe
16. Hellenic Telecommunications Organisation S.A. (OTE S.A.)
17. mobilkom austria group
18. NGNuk
19. Portugal Telecom Group
20. QSC AG
21. SFR
22. TDC A/S
23. Tele2 AB Sweden
24. Telecom Italia
25. Telefónica S. A.
26. Telenor Group
27. TEO LT, AB
28. Vodafone Group Services
29. WIND Telecomunicazioni S.p.A.

Section 1 & 2

Question 1 (Section 1)

Do you agree that in a multi-service NGN environment, in which different services use a shared transport layer, different interconnection regimes for different services could create arbitrage problems? If yes, could you describe the problems that you foresee or that have already occurred. If no, what prevents these arbitrage problems in your view?

Consultation Responses

Overall, there are diverging views as regards the possibility of arbitrage problems if there are different interconnection regimes for different services.

No arbitrage problems

Several respondents claim that different prices or interconnection regimes for different services could coexist without arbitrage **(BITE, 2; OTE, 7; FT, 5; similar BT, 3; Tele2, 5; TI, 7ff.; ETNO, 7; WIND *more implicit*, 1)**. It is argued by several comments that in an all IP world it is possible to technically identify different services although services will be using a shared network layer **(mobilkom austria, 1, 3; similar OTE, 7; TI, 9; FT, 5; ETNO, 7)**. The ability to distinguish different classes of service is referred to as QoS-aware IP interconnection **(ETNO, 7)**. A respondent reasons that public safety requirements (interception, emergency services) even require such a distinction between services **(mobilkom austria, 3)**.

One of the comments negating arbitrage problems argues that in traditional networks different services use a common transmission network and are kept in separate transmission channels. Accordingly, it is the same in NGNs, with the separation being accomplished via usage of different VLANs or MPLS tags **(C&W, 9f.)**. Similar, another operator also favours to transport QoS-assured voice in dedicated capacity via separate VLANs as it is considered too expensive to mark different services in order to allocate them to different QoS classes **(BT, 3)**. And another operator - arguing that voice under CPNP and voice paid transit/peering co-exist without arbitrage - stresses the differences in terms of functionality (e.g. CLI) and network and management costs **(Vodafone, 23)**.

Referring to the increased offer of mobile flat rates in France making VoIP usage less attractive, the alleged risk of VoIP arbitrage is viewed as mainly theoretic **(Bouygues, 7)**. One comment backs up his claim for service-specific interconnection regimes by referring to the need for balanced traffic volumes **(WIND, 1)**.

One comment states that SIP telephony is a service on the Internet and that there is no logic for additional per minute charging given that the Internet connection is already paid. Moreover, mandatory use of ENUM for each telephone number and issuing numbers to end-users instead of operators might render the choice between BaK and CPNP irrelevant **(BTG, 1)**.

Similar, one comment identifies ownership of the number as a bottleneck which may call for ENUM **(ECTA, 3f)**.

Arbitrage problems possible

Some affirm that different IC regimes for different services could lead to arbitrage problems e.g. between regulated and non-regulated services **(ECTA, 3; similar Cable Europe, 9; Fastweb, 4; QSC, 2; SFR, 2; Telefónica, 11; Telenor, 2, 10)** the latter expressing doubts as regards the recommendations provided by the ERG).

It is argued by one company that arbitrage problems may occur only, when NRAs attempt to determine corresponding termination rates by (efficient) cost. Simple and symmetric termination rates may rather facilitate the development of new services. BaK is viewed as preventing any arbitrage as it avoids incentives for maximising traffic inflow or to signal a higher quality **(QSC, 2)**.

It is agreed that the separation between infrastructure and service layer is a main feature of IP networks. Arbitrage from VoIP operators – exploiting IC price differentials – is limited is limited due to the different quality provided **(ECTA, 3; Fastweb, 4)**. Moreover, as pointed out by one, the possibility to leverage the termination monopoly is considered the main anti-competitive issue **(Fastweb, 4)**.

BaK might increase arbitrage by preventing the collection of QoS payments, this problem could be avoided with minimal and symmetric termination fees **(ECTA, 3f.)**. Similar, another comment calls maintaining a value to the termination to ensure a level playing field between VoIP and vertically integraged operators **(Fastweb, 5)**.

Arbitrage under BaK may also arise, when a provider sets up two calls, one to the calling and one to the called party, and connects the calls. In this case there are no payments for the use of the networks involved **(Telefónica, 11)**.

Sustainability of different charging regimes

According to one comment different prices for services that are direct substitutes (switched telephony, VoIP) are not sustainable. Differences in regulatory treatment of the services is viewed as holding backing innovation. Many mobile operators react by blocking VoIP and IM services **(3G, 5, 8, 12)**.

Assuming that IP-based triple play will be the most common service, different interconnection regimes for voice respectively Internet traffic or TV do no make sense **(TDC, 5)**.

Another operator states that it would be totally unacceptable to have different charging regimes for TDM and NGN interconnect because of the potential for arbitrage **(BT, 2)**.

The existence of several charging models is viewed as a competitive stimulus and not a danger. If BaK was superior then it would an outcome of market dynamics. This might happen In the long run, when all-IP networks have replaced current networks and all-IP services are widespread **(TI, 7)**.

Some respondents see a risk of arbitrage and free riding if unauthorised providers asymmetrically seek interconnection on BaK terms **(PT, 13; similar ETNO, 7f.; FT, 9; SFR, 1; TI, 25, Telefónica, 13)**. This could be e.g. broadcasters, content providers/distributors, providers of IPTV or VoD but also government administrations or *ad hoc* subsidiary, established for benefiting from BaK **(ETNO, 7f.)**.

Some respondents claim that the focus of the ERG on voice is too strong **(NGNuk, 1)** in particular as the ERG claims to look at IP interconnection in general **(DT, 4)**.

BEREC Considerations

BEREC considers that it would be preferable to have single charging mechanism for all services as it would not only reflect the multi-service nature of NGNs, but also avoid any arbitrage problems, e.g. between regulated and unregulated services.

If it was intended to carry over CPNP to NGN voice services this would imply different regimes for different services as a change of the charging mechanism cannot necessarily be expected for the unregulated part of IP-networks applying BaK, peering and transit. Such an approach would require that it is possible to clearly distinguish between different services and also that usage of services can be measured. In order to avoid arbitrage problems, it would therefore be necessary to mark different services or to transport them separately. Unless these preconditions are met there is a high risk of arbitrage problems.

Question 2 (Section 1 & 2.2)

What is the influence of the separation of transport and service for the interconnection regime and in particular the charging mechanism and in what way are NGNs and BaK related?

Consultation Responses

Relation NGN - BaK

Several comments challenge the ERG's reasoning that the migration to NGNs also provides an opportunity to change the charging mechanism. Different from this view the migration to NGNs does not necessitate such a change of the regime **(TDC; 6, similar TI, 8; Bouygues, 3f.; BT, 3; Tele2, 6)**. Charging systems are viewed as in principle technology neutral, since service characteristics influence specific charging model applicability, thus co-existence of different charging models instead of a one-size-fits-all approach is likely for NGNs. **(TI, 7f; similar Bouygues, 4, ETNO, 8, PT, 14, WIND, 2)**. The form of transmission technology de-

ployed by networks for voice services and interconnection is said to have no bearing on the interconnection regime **(Vodafone, 24, 27)**. Similar, another comment claims that the technology change towards NGNs is not a driver for BaK but rather an opportunity to review commercial arrangements **(C&W, 10)**. BaK is not per se related to a specific type of network. Neither do NGNs have to follow a pure Internet model nor does the Internet follow a pure BaK model **(Telefónica, 12, similar SFR, 12, 13; TI, 8)**. Instead, the Internet relies on a variety of commercially negotiated charging arrangements and not solely on BaK **(GSMA, 5; similar SFR, 12, 13; TI, 8)**.

Another operator reasons instead that the separation highly influences interconnection charging mechanisms and that NGNs and BaK are related as charging between operators is not applied **(BITE, 2)**. And an association stresses the service agnostic nature of NGNs and that charging for transport will inevitably follow Internet rules **(BTG, 1)**. The separation of layers will increase competition (service offers from content/application providers vs. from network operators) and will lead to new innovative services **(3G, 12)**.

It is argued in one comment that there has to be *one* charging for PSTN and NGN and that the separation of transport and service does not necessarily make any difference at all **(BT, 3)**. Related, some respondents do not view BaK as being exclusively associated with NGNs but applicable for the PSTN as well as mobile networks **(QSC, 3; similar: Cable Europe, 9; ECTA, 5)**.

Considering that the ERG document concentrates on voice only, it is argued that there is no basis for a multi-service NGN to benefit from a single charging mechanism. Instead, different charging mechanisms could be optimal for different services **(DT, 4; similar NGNuk, 1, Telenor, 11)**.

As voice will constitute only a small fraction of traffic, minute based pricing might become less relevant and alternatives such as BaK or capacity based charging could emerge **(ECTA, 4)**.

Separation transport / service

Several comments stress that transport and service layers are closely linked with each other.

Accordingly, a strict separation of transport and service would destroy the advantages of managed NGNs **(DTAG, 9)**. A linkage between service and transport layers is considered a precondition for assuring QoS **(DT, 10, similar ETNO, 8; FT, 6; Telenor, 11; Telefónica, 12 ; TI, 10)**. It derives from this linkage that there is no relation to BaK **(TI, 9)**. Moreover, the linkage viewed as precondition for meeting the objective of Art. 8 FD (e.g. maximum benefits for users in terms of choice, price, quality) as well as network security and integrity all of which could not be met by the public Internet **(DT, 10, similar ETNO, 8; Telefónica 12)**. According to this view BaK does not provide incentives to invest in infrastructure and QoS but leads to a free rider problem instead **(DT, 10, ETNO, 7f; PT, 14; OTE, 8)**. Furthermore, some

comments refers to ETSI/TISPAN's definition of service oriented interconnection which includes also transport related information **(OTE, 7, similar: TI, 9)**.

Some stress that the NGN transport layer has to be service aware **(C&W, 10, similar Vodafone, 24, 27; Telenor, 11; TI, 9)**. Moreover, voice interconnection by definition cannot be service agnostic at the network level and even if it was it would not imply BaK **(FT, 6)**. It is claimed that the NGN transport layer does not know that the application using a media stream is voice but it does know that the quality of the media path has to be compliant with a set of parameters which will support voice. In contrast to this, the importance of the separation (transport/application) is seen in the ability to more closely link costs to causes, allowing a more finely honed termination regime, with per call set up prices driven by call-server costs and per minute prices driven by transmission **(C&W, 10)**. Similar to this reasoning some claim that the separation of transport and service will not propagate into the interconnection interface, thus, there will not be separate transport PoI and service PoI **(Bouygues, 7; similar ETNO 7; PT, 14)**. And another operator calls for separate approaches for interconnection at the transport and the service level because this is considered relevant for assuring QoS and interoperability **(WIND, 2)**.

One respondent does not see the separation generating such a profound distinction in the interconnection regimes as his own NGN concept is based on session border controllers. On the other such a distinction between transport and service interconnection might hold for hand non-security sensitive application **(QSC, 2 f)**.

Other arguments

One of the respondents considers the ERG report to be based on IMS whereas it is not likely that this will be implemented (in the same way) by all operators **(Bouygues, 7)**.

More generally, one respondent points out that the industry moves from vertical networks towards access independent service provisioning and that regulation should ensure that competition between different technologies is not distorted **(GSMA, 2f.)**.

BEREC Considerations

Given that currently different networks (PSTN, Mobile and IP-networks) are governed by different charging mechanisms (CPNP resp. BaK/Peering/Transit),[1] BEREC considers that the convergence towards multi-service NGN IP-networks necessitates a discussion on the appropriate charging mechanism for these networks. BEREC upholds its view already expressed in the ERG Common Statement (ERG (08) 26rev1) that it seems plausible to continue applying the charging mechanism of the networks that are not phased out.

1 See Ch. B.2 (ERG (08) 26rev1) for a description of interconnection arrangements in PSTN and mobile networks as well as in existing IP-network furthermore outlining the differences between interconnection in PSTN and IP-based networks.

Although NGNs and BaK are related in the sense that the mechanism of BaK is widely applied for Internet traffic worldwide the applicability of BaK is not limited to IP-based networks only. It could also be applied for circuit-switched networks.

BEREC acknowledges that interconnection in IP-based networks is not exclusively based on BaK. Next to BaK, applied for termination, the unregulated mechanism of peering and transit apply for IP backbones.[2] Nevertheless it is important not to blur the differences between CPNP and charging mechanisms applied in IP-networks. Different from BaK CPNP allows an operator to exploit the physical termination bottleneck because it entitles the terminating operator to receive a payment out of his position of control over the bottleneck.

Concerning the separation of transport and service BEREC refutes the statement that it advocates a strict separation without any linkage between them. BEREC supports the separation as expressed in the NGN concepts of ITU-T and ETSI-TISPAN. The concept of separation does not imply complete independence of transport and service layers. Even with a logical separation between the layers, there could be co-ordination and interaction between them. The separation enables the provision of transport and service by different parties ultimately promoting the development of innovative services. This requires the availability of open and standardized interfaces between the functional levels. However, should the existing vertically integrated approach be favoured by the industry in the transition from PSTN to NGN then the current approach to regulation may also need to be transferred to the NGN world.

BEREC does not share the argument that the NGN transport layer has to be service aware. Instead, separate transport classes are conceivable which are independent of service because they can meet the requirements of various services at the same time.

Section 3

Question 3 (Section 3.2)

How would you define the boundary for the application of BaK and where should it be located (i.e. points of interconnection where BaK is applicable)? (Section 3.2):

Consultation Responses

General claims

A large number of operators stress the high level of uncertainty about the future interconnection architecture in NGN environment, since migration is still at its very beginning **(TDC, NGNuk, OTE, BT, Tele2, mobilkom austria, TI, Telefónica, Bouygues, ETNO, FT**). Sev-

2 See ERG (08) 26rev1, Ch. B.2.2

eral comments claim that NGN will require less points of interconnection (PoIs) than legacy-based networks **(BTG, OTE, BT, Tele2, 3G, TI, Bouygues, ETNO)**. In particular, certain effects, such as the decrease in transport costs due to use of IP, may drive this reduction in the number of PoI **(Bouygues, 8)**.

Minimum number of PoI

Some operators point out that without a minimum set of PoIs from where BaK is applicable, some arbitrage practices could occur **(OTE, BT, DT, ETNO)**, especially:

- During the transition from legacy networks to NGN, if CPNP and BaK regimes coexist, it could lead to arbitrages between both networks **(BT, 4)**.
- A large number of PoIs near the customers is the only solution to hot potato routing and free riding issue **(ETNO, 9)**.
- The operators interconnected to all PoIs inside the BaK domain could offer arbitrage models to smaller operators that have invested less in infrastructure **(DT, 8)**.

For an association **(ECTA, 5)** and some operators **(TDC, 4, QSC, 3)**, the minimum number of PoIs to qualify for BaK should be set according to the location of the bottleneck, i.e. the non-duplicable network element.

Nevertheless, one mobile operator **(WIND, 3)** warns that the obligation to interconnect at all PoIs to be in the BaK domain could represent an unjustified “entry barrier” for new entrants. Another operators stresses the implications for regulatory costs *(see Q5 for details)* as termination rates need to be determined for those operators not fulfilling this requirement **(DT, 6)**.

Applicability of a boundary

One incumbent wonders how to conciliate one BaK boundary for two existing overlaid networks for voice services *i.e.* PSTN and NGN **(TI, 11)**.

Several (mobile) operators point out **(Tele2, DT, GSMA, Vodafone, TI, Bouygues)** the risk of asymmetry of treatment between fixed networks (with local BaK boundaries) and mobile networks (with essentially national BaK boundaries). In particular:

- The current mobile termination model does not reflect the distinction between origination/transit/termination as in the fixed model. As a result, an economic exchange (transit) will be necessary for mobile termination, even if BaK is applied **(TI, 11)**.
- BaK boundary for mobile operators could be set at national level both for incoming and outgoing calls, so that they do not have to bear transit costs for both incoming and outgoing traffic **(Vodafone, 9)**.

Implications

Because of the need to define the boundary, some operators consider that BaK will lead to a shift from economic regulation to technical regulation **(Tele2, GSMA, mobilkom Austria, SFR)** increasing the risks of legal disputes **(Telenor, ETNO, SFR, WIND)** without reducing regulatory complexity **(NGNuk, BT, DT)** *(see Question 5)***.**

One association considers that BaK will involve fewer incentives for operators to invest in PoIs taking into account that incoming traffic will not mean more revenue **(ETNO, 10)**.

Some operators claim that, if BaK is applied, the boundary should be defined through commercial agreements giving priority to market based solutions. Regulatory intervention should only apply if necessary **(TDC, TI, Telefónica, 13, Cable Europe)**. Moreover, regulators do not necessarily have the appropriate level of information to decide on the right boundary **(WIND, 9)**.

BEREC Considerations

BEREC agrees with the need to define the boundary to make BaK applicable. In case operators do not come to an agreement on the definition of the boundary, this task falls upon NRAs. However, at this stage, BEREC does not consider it neither necessary nor appropriate to define the boundary or to provide specific rules regarding this boundary. Yet, BEREC stresses that, contrary to PSTN, for which the interconnection boundary has to take historic architecture choices into account, NGNs are still in an early stage of development, so it offers an opportunity to anticipate.

Besides, BEREC points out that the need to define an interconnection boundary already exists in CPNP. In particular, when applying the EC recommendation on termination rates, NRAs will have to define a generic efficient operator with an NGN core, both for fixed and mobile. Thus, the evolution of the interconnection boundary because of the transition towards NGN is not specific to BaK and should be addressed in any regime.

As most operators, BEREC considers that the number of PoIs will globally decrease in the next few years taking into account the decrease of the transport cost and the potential increase of non-traffic related costs in a full-IP network environment.

As confirmed by the responses to the public consultation, the boundary of BaK could have a lower limit (setting a maximum to the number of PoIs required to provide BaK). Such a lower limit should not be too low to address the SMP termination bottleneck but setting this limit too high would be intrusive. The role of NRAs is to ensure that operators, in particular incumbents, do not recreate unjustified entry barriers for new entrants and alternatives by setting a very low boundary but technological evolution and efficiency considerations should also help prevent it, independent of the charging mechanism. As far as fear of free riding is concerned, BEREC reminds that payments would probably still exist in BaK for auxiliary services (such as gates or collocation).

On the other hand, there may not be a necessity to determine an upper limit (minimum number of PoIs from where BaK is applicable) except for security and redundancy considerations.

However, another difficulty arises from a risk of asymmetry with BaK between fixed and mobile operators as far as transit services are concerned. Indeed, mobile termination traffic is usually delivered at national level whereas fixed termination traffic is usually delivered at local or regional level, which means mobile operators have to bear transit costs for both mobile-to-fixed and fixed-to-mobile calls. In case the number of PoIs remains higher for fixed networks, this implies that those costs are to be recovered on the mobile retail market. Possibly some kind of reciprocity in the number of PoIs between fixed and mobile operators could be appropriate in the future.

Section 4

Question 4 (Section 4.2)

What is your conclusion on the relationship between the charging mechanism and penetration, usage and price level?

Consultation Responses

Retail Charges

Most responses covered the potential impact of the wholesale termination regime (or of the level of termination charges) on retail prices or retail price structures.

Price Flexibility

On whether BaK allowed greater retail price flexibility opinions were divided. Some argued that the retail price structure is influenced by the level (and potentially structure) of wholesale charges **(ETNO)**, others were more sceptical. Some argued that this is not currently a concern as bundled packages are currently available across Europe and, hence, are not dependent on BaK **(Colt)** or that retail price flexibility is not currently a problem in the mobile market **(Telefónica)**. **Telenor** argued that preserving customer choice is an important regulatory objective rather than stimulating specific types of retail tariffs.

WIND, SFR and **FT** argued that BaK limits the commercial freedom and customer welfare, as can only support semi-flat pricing schemes, while CPNP allows also prepay. **ECTA** argued that the exact structure of retail prices is influenced by various factors not just the termination regime. Others raised concerns about the potential that wider pricing plans may just create more confusion for customers **(Colt)** or that mobile operators may introduce fixed daily access fees or time bound top-up, which would reduce price transparency **(Tele2)**.

Level of prices/waterbed

Opinions were also divided on the impact BaK would have on the level of prices. Some **(GSMA)** argued that BaK will lead to higher prices and **(Telenor, GSMA, OTE, ECTA, ETNO, SFR, AFORST)** that the waterbed effect could increase call charges, bundle sizes, introduce minimum monthly spend on prepay, or reduce handset subsidies. Others **(3)** do not accept the waterbed argument and argued that high MTRs keep retail prices high and support on-net/off-net price differences which distort competition.

Structure of prices

According to the **GMSA** and **Fastweb** BaK will lead to lower call prices including lower FTM prices (depending on the degree of pass-through). However, this may lead to traffic increases, so operators may have to increase other retail tariffs components **(DT)** including higher access fees **(Fastweb)**.

Current prepaid plans may no longer be sustainable and mobile operators may have to raise call prices or impose minimum monthly spend requirements **(GSMA)**.

Most agreed that the structure of prices may change with flat rate packages being more prevalent under BaK and low termination charges as the current trend in both the European fixed and mobile sectors shows **(ECTA, Cable Europe and DT)**. **3** argued that consumers prefer flat tariffs and pointed to the evidence from sectors where they are available (e.g. fixed broadband). Others **(WIND)** argued that choice and success of pricing schemes are determined by specific market circumstances and that there is no strong commercial reasoning or market evidence to suggest RPP and full flat schemes are inevitable. If customers only receive calls, operators will either have to adopt RPP or define flat rate independent of traffic type (incoming/outgoing) **(Portugal Telecom)**. RPP could also arise **(Telefónica)** as in all known cases so far, BaK is associated with retail RPP **(Telenor)**. **3** argued that RPP is unlikely, as it would be deeply unpopular.

Inferences from the US

Some challenged the inferences we made from the US example. **C&W** argued that US retail offers are dominated by family plans and would not transfer well to Europe where consumers are used to individual plans. **FT** argued that in US differentiation between plans comes from the number of FTM minutes and other services. Therefore, there is no evidence that imposing BaK on fixed and mobile would lead to same outcome as in US.

Others argued that in the US prices are higher than in Europe. **Fastweb** noted that in US fees to access mobile and fixed networks and ARPU which can be extracted from customers are higher than in the EU. **OTE** pointed to the Teligen data analysed by Ofcom that showed that prices in US and Canada were higher in relative terms for low and medium usage profiles and lower for high usage profile. **Telecom Italia** and **Tele2** referred to the OECD Communications Outlook showing that US prices for a basket of mobile services are the highest

for low and medium usage profiles and are higher than the large majority of EU countries for high usage profiles. **Tele2** argued that total price (not just price per minute) is the important metric.

Impact and evidence on usage

Some respondents agreed that BaK will in principle expand usage. **3**, citing its experience in Hong Kong, argued that the removal of the price floor set by termination for call charges will reduce the average price of making calls which will increase usage. **BTG** and **C&W** agreed that low (or zero) MTRs will increase the use of a phone service as lower prices will increase consumption. **QSC** commented that enabling fixed operators to include calls to mobiles in their bucket plans will increase usage. **ECTA** agreed that the primary driver of usage in US is certainty of a flat rate for a certain number of minutes and low call prices if this allowance is exceed.

Others disagreed that this was a foregone conclusion. Some stakeholders questioned the implicit conclusion that more usage is necessarily better for consumers. **FT** claimed that the consumers' utility function for a number of minutes probably is not linear and marginal utility of a minute of call declines with the number of minutes. Therefore, doubling MOU would not double total utility as ERG's consultation may suggest. **C&W** argues that the ERG has not done an evaluation to prove that growth in usage would be economically beneficial.

C&W expressed doubts as to whether widespread bundling will significantly increase volume growth. It cited evidence from VoIP in France suggesting that there is a customers' preference for fixed price call bundles over per-call and per-minute billing, but this did not lead to an increase in the total volume of calls made. **Bouygues Telecom** claimed that the French case contradicts the ERG's conclusions because mobile voice usage significantly increased after 2005 when France moved from CPNP to BaK.

Vodafone, **Telecom Italia** and **OTE** claimed that the ERG analysis of ML data ignores past history of calling patterns and pointed to the fact that very high minutes of use per capita in the US are a relatively recent phenomenon which means that their high usage is not obviously causally linked to BaK.

Some **(DT and Portugal Telecom)** drew attention to the fact that if RPP were introduced (though DT claimed this was unlikely) would dramatically reduce call volumes **(DT)**.

Others were critical of the data analysis undertaken as the comparison should not be limited to mobiles only **(FT)**. **Telecom Italia** argued that there are cases suggesting a different outcome than that of the ERG - e.g. Brazil where a shift from a partial BaK regime to CPNP reversed a declining MOU trend to an increasing one.

Other questioned the impact that a shift in regime may have for the fixed sector. **BTG** in the UK argued that FTRs are already low and, hence, we can expect probably little effect on FTF calls – other than fixed consumers making more calls to mobiles if MTRs were reduced. **TEO**

Lithuania also noted that MTRs in excess of FTRs mean calls to mobiles provided by mobile networks are cheaper than those provided by fixed and that there is no longer any positive impact of this on penetration which is saturate.

Impact and Evidence on Penetration

Some respondents broadly agreed with the conclusions that the claim that BaK would lead to lower (mobile) penetration does not emerge clearly from the data as Hong Kong and Singapore have a similar level of subscriptions to European countries. The US was fund to have lower subscription penetration but the difference was much smaller when considering ownership. **3** did not agree that introducing BaK would have a negative effect on penetration and agree that the relevant measure is number of unique users not number of SIMs (lower SIM penetration may be more efficient). **ECTA** noted that there does not seem to be a strong correlation between MTRs and mobile penetration and that the latter was lower in the US than Europe, but it was at similar levels in Hong Kong and Singapore (although these are very densely populated, urban areas). **ECTA** also stated that a major impact on penetration would come from reducing MTRs in accordance with the Recommendation – moving to BaK later on should have little additional effect. **BTG** explained the lower penetration of mobile in US with fact that fixed networks in the EU subsidise mobile networks through asymmetric termination rates. Some argued that a number of factors make a decline in penetration unlikely if BaK was introduced. **3** and **TEO Lithuania** argued that slower subscriptions growth is the only conclusion that can be drawn from BaK countries and that it does not imply that consumers would give up their mobile once they have experienced it. 3 further noted that since the cost of maintaining a customer on the network is low, operators are likely to find ways of charging low users to avoid them giving up their subscription. **ECTA** also noted that mobile penetration is already very high in Europe.

Bouygues Telecom agrees there is no correlation between penetration and interconnection regime but considers the ERG analysis seriously biased as the difference in penetration between countries in same area varies substantially (a range of 90-160%) and, hence, penetration depends also on other market characteristics than interconnection regime.

The majority of respondents was critical of our conclusions and focused on the comparison between the US and Europe. Many argued that mobile penetration is higher in Europe than the US due to BaK and that the difference is substantial contrary to what argued by the ERG **(Telenor, Vodafone, Tele2, OTE)**. **Portugal Telecom** argued that this difference was sufficient to conclude that BaK leads to lower penetration. **Tele2** stated that the current regime in Europe has enabled 80million (16%) more consumers to gain access to mobile than would have under BaK. **Tele2** claimed that the analysis of French case was incorrect and that, if France had not switched to CPNP, penetration would have only been 75%, compared to the current 93% (equivalent to 11million extra subscribers). **Colt** criticised the use of a single data observation and argued that the ERG needs to consider trend in penetration before and after the switch from BaK to CPNP to properly evaluate the impact.

Many stakeholders also stressed the concerns that BaK would lead to low(er) usage consumers (that many equated to prepay customers) to be put at a disadvantage and, hence, they will be the most likely to drop out **(Telecom Italia, Bouygues Telecom, Tele2)**. Many **(Telefónica, C&W, Tele2, ETNO)** also argued that, therefore, a switch to BaK would raise issues of public policy and social equity as well as economic efficiency. **Telenor** argued that mandated BaK may be against most of the EU's objectives about e-inclusion and accessibility for all. According to **Telefónica**, prepay has done more to bring otherwise unserved people onto networks than all universal service schemes put together.

Comments on ML Data

Most respondents criticised the data used and the analysis undertaken by the ERG.

Some stakeholders questioned the ML dataset used for the analysis. **Telenor, C&W, ETNO** claimed that the use of ML data is questionable without further qualitative assessment (since it was created for another purpose) and it would expect ERG to build or commission its own dataset. **BTG** argued that the interrelationship between price, usage and penetration is complex and international comparisons are necessarily somewhat inconclusive. **BITE** claimed that it is impossible to conclude that penetration, pricing and usage are positively related to BaK. They mention the case of Lithuania where interconnection charges are average compared to those of other EU countries but mobile penetration is one of the highest (140%) and price level is one of the lowest in the EU.

Others commented that the adjustments made to the data – e.g. RPM and MOU - were dubious and debatable. **FT** argued that several studies have attempted to adjust ML data (Ofcom, Frontier) and all used different procedures and came up with significantly different adjustment coefficients (a range 60-80%). **FT** argued that Frontier's figures are probably closer to reality. **Bouygues** disagreed with the adjustments undertaken and argued that the adjustment to the MoU to address the on-net minutes double counting should be a 50%, rather than 20%, adjustment. Similarly, it argued that for RPM handset subsidies or inclusion of data in European flat offers artificially increases minute cost compared to US.

In terms of level of prices **FT** argued that alternative data sources show mobile services are more affordable in EU countries, hence, that ERG choice is "rather opportunistic".

Many stakeholders criticised various aspects of the data and analysis undertaken:

- **FT** and **Vodafone** argued that the analysis did not take into account differences GDP per capita or disposable income while many **(FT, Vodafone, GSMA, Mobilkom Austria, C&W, Tele2)** pointed out that the analysis does not control for country specific fixed effects;

- Many also argued that the comparison was too weak to draw any strong conclusions. **Telenor, Vodafone, GSMA, Telecom Italia and ETNO** argued that three observations (two countries, one city state) are too small a sample to draw conclusions. **WIND** ob-

served that conclusions based on only two datasets (one of which should be used with 'extreme caution') is inappropriate. **Vodafone** criticised the use of a cross-sectional dataset and argued that proper analysis would take account of longitudinal time dimension. **Mobilkom Austria** argued that the analysis uses casual observations (with no statistical validity) and graphs which are both selective and do not control for confounding factors. **Vodafone, GSMA and Mobilkom Austria** criticised the ERG for ignoring more rigorous published econometric analysis (including that commissioned by Ofcom). Hence according to C&W the analysis is too simplistic;

- Many also criticised the choice of countries compared. **SFR, FT, Vodafone, DT** argued that the only comparable countries should be included. The case for including small and highly urban (e.g. Singapore, Hong Kong) is weak as they have less in common with EU countries than cities like London and Paris. **SFR and Tele2** argued that Canada is more comparable to EU (e.g. GDP per head) but it was excluded deliberately and this undermines the conclusions drawn from the analysis. Inclusion of Canada suggests that differences are not related to interconnection regime **(GSMA, Tele2)**;

- Many argued that the US is not a BaK country **(FT, DT, Telecom Italia, ETNO)** and others went further to argue that BaK is not used in any of the three countries used in the study **(Telenor, GSMA, Telecom Italia, C&W, Tele2)**. **Bouygues Telecom, ETNO and SFR** argued that the correct comparison is between LRIC CPNP and BaK and not FAC CPNP and BaK.

BEREC Considerations

Retail Prices

BEREC remains convinced that the type of termination regime (and in particular the level of termination rates) has a significant impact on the way retail tariffs are structured. The impact on the overall level of the tariffs is much more complex to ascertain.

BEREC agrees that price flexibility or the ability to structure tariffs in a certain way is not in itself a regulatory objective. However, the inability to provide tariffs that could increase consumption of voice telephony services is an important factor to affect consumers welfare and, hence, a key consideration in this assessment. BEREC does not agree with the comment that BaK would reduce price flexibility as prepay will become less relevant (or unsustainable). Currently high termination rates seriously prevent operators from launching fixed fee tariffs, while prepay types of tariffs would still be possible under BaK.

BEREC agrees that a waterbed effect may exist and hence reductions in MTRs may be countered by some increases in retail tariffs, though it is unlikely that this effect will be complete. Also the waterbed effect and evidence of its existence relate to the impact of reductions in termination rates for FTM calls on mobile retail charges. The effect when all fixed and mobile termination rates are reduced (to zero under BaK) is unclear as a decline in MTR for

all types of call will reduce the perceived costs of calls that terminate off-net. BEREC believes that this will reduce call charges for off-net calls, though BEREC shares the view that other fixed types of charges are likely to increase. The overall retail structure will change but it is unclear whether the overall prices will reduce.

On the inferences that one can make by looking at countries with low or zero MTRs such as the US (but also Hong Kong and Singapore), BEREC believes that the main message is that the structure of retail prices will be very different. BEREC does not believe that a discussion as to whether overall prices are higher in the US or Europe is very helpful and could be resolved by a simple comparison of price data. This would require a much more complex analysis and is beside the main issue discussed here. The important aspect to consider is whether lower termination rates will benefit consumers in the long run. The first step to assess this is to understand how the retail price structure will change. As a result this will provide incentive for consumers to adjust their consumption of (voice) telephony services.

Impact and evidence on usage

BEREC has considered all the comments referring to other examples claiming that usage may not increase by a shift to BaK or low termination rates. BEREC remains unconvinced that if the marginal price of calls is substantially reduced – because of the more widespread offer and take-up of flat rate tariffs – usage per subscriber may not go up. It is possible and discussed below that if the shift in termination regime will reduce take-up this may have a negative impact on usage. However, for those that continue to hold a (fixed or mobile) subscription it seems likely that usage will increase. As the price of a service decline unless demand (or supply) is totally inelastic consumption and output will increase.

Indeed, it is important to note that the data provided are expressed in MoU per capita and not subscribers. This is therefore a measure of output that already considers that the level of take-up may be different between countries with different wholesale termination regimes (or termination levels). In other words it is a measure of output that takes into account usage and take-up.

BEREC accepts the point that if consumption were to double the utility that consumers derive may not double as the marginal utility is probably decreasing with consumption. However, this does not invalidate the conclusion that higher consumption is good for consumers (unless driven by distortions or generates negative externalities).

The data used has to be interpreted with caution. However, BEREC believes that it still shows that usage is higher in countries with low (or zero) termination rates.[3]

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3 This is in line with the study "*The effects of lower Mobile Termination Rates (MTRs) on Retail Price and Demand*" (Growitsch, Marcus, Wernick, April 2010, http://papers.ssrn.com/sol3/papers.cfm?Abstract_id=1586464. This paper reviewed theoretical findings on the relation between MTRs, prices and mobile consumption and also conducted an empirical assessment. The study concludes that: *"... lower MTRs tend to re-*

A stakeholder observed that the US MoU has increased only in the last few years and hence it cannot be causally related to BaK. BEREC believes that the increase in usage in the US was largely driven by the widespread introduction of with flat rate tariffs which effectively had removed the constraints on usage cause by charges for incoming calls. Currently US tariffs have charges for incoming calls but these become relevant only beyond a large amount of minutes, thus, they are no longer an effective constraint. Once US operators switched to flat rate tariffs MoU increase substantially, and this change was only possible because termination rates were very low.

Others have been critical of the fact that the analysis was limited to mobiles while others contended that a regime shift will not have much of an impact on the fixed sector where termination rates are already very low. BEREC agrees that the differences are more marked the larger is the difference between termination rates. This is clearly the case for any international comparison of mobile termination. BEREC also agrees that the impact on the fixed sector will be limited (other than for a reduction in MTRs which will lower the price of making fixed to mobile calls). The lower the termination rates the more modest will be the impact in terms of consumer benefits.

Prices

BEREC is aware and recognises that the ML data for RPM are subject to a number of caveats and have to be treated very carefully and any inference one could make are uncertain. Because of the differences in the revenue composition across countries this is probably the least reliable data information in the ML dataset.

Some stakeholders suggested that the data by Teligen is a more reliable and that it shows that US prices are more expensive that European ones. BEREC is aware of the existence of this data set and its result. However, BEREC do not believe that this is less immune from serious drawbacks if it were to be used for international comparisons.

For example, it is well known that price indices do not work very well when usage varies significantly over time and across countries. For example, the ML data indicate that current MoU per user in the US is above 600 per month, while the "high" user Teligen basket records 1,800 MoU per user per year (i.e. about one fourth of the current average MoU per user for the US). Another potential concern relates to the fact that the basket remains constant over time while usage may not. In particular, as mobile termination rates have declined over the period covered by the data, the retail price structure is likely to have changed accordingly with increasingly large bundles of minutes and higher subscription fees and lower usage charges. This means that if in the early period the basket may have included both a subscrip-

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sult in lower retail price, with a highly significant coefficient of -0.70…with high significance ..lower MTRs (presumably operating through the mechanism of lower retail prices) tend to result in greater consumption of mobile services (greater call initiation) in terms of minutes of use per month per subscription."

tion and a call charges component, in more recent years the basket may include only a subscription fee. Critically it may be the case that the bundle of inclusive minutes may become larger than the minutes included in the basket. This means, for example, that the cheapest tariffs available may include more minutes than those in the basket. This may result in overestimating the price index for countries that have low or zero termination charges.

Overall, BEREC is aware of the shortcomings of the available data sets and the complexities of making comparisons between them. However, as pointed out already, BEREC still believes that overall lower termination rates translate into lower retail rates per minute inducing higher usage.

Penetration

BEREC sticks to its view that the existing data does not necessarily show a clear difference in (mobile) penetration that could be ascribed to the termination regime or the level of termination rates. The data used is far from ideal because it is about subscription penetration. As in CPNP countries or countries with high termination rates is generally cheap to have a mobile phone but expensive to make calls many consumers have multiple subscriptions. This explains penetration levels well beyond 100 percent. Ideally one would need to have ownership figures. However, these are not easily available and critically they are not easily comparable across countries. For example, the data mentioned by Vodafone to compare ownership penetration between the US and Europe is from two separate sources and hence may have been collected using different methodologies and be strictly not comparable.

BEREC believes that it is possible that a switch to BaK will reduce subscription penetration as it may be no longer economical to have multiple subscriptions. BEREC is less convinced though that it will affect to any significant extent ownership. Two main factors explain this. First, it has been reported by the UK CC that the cost of maintaining subscribers on the network are in the order of a few pence per month. This provides mobile operators with incentives to retain their subscribers even if they make a limited use of their mobile phone. Second, mobile operators are very skilled and used to engage in retail price discrimination. Therefore, it appears likely that price discrimination would help them to minimise the impact that the drive towards flat tariffs could have on ownership. In other words, operators have an incentive to retain customers that do not make many calls and the have the ability to retain them by ensuring that marginal subscribers will not give up their subscriptions.

Hence, once factoring out the impact of other variables that may affect mobile ownership BEREC believes that it is unlikely that the wholesale termination regime will have a material impact on penetration. Therefore, BEREC remains convinced that there is no clear-cut relationship between termination regime or rate level and the rate of mobile ownership.

Comments on ML data

Some stakeholders stated that the ML dataset was build for a separate purpose and, hence, it is not correct to use it for international comparison like the one performed by BEREC is aware of the limitations of the ML dataset and has taken account of this attempting to adjust figures accordingly. It is the most suitable data set available to perform this type of international comparisons. However, BEREC does not believe that the fact that it was collated for financial analysis creates any concern for using it to our purpose.

Many have claimed that the adjustments performed are biased and incorrect. BEREC does not believe that there is one adjustment of the data that is more precise than another. However, for MoU BEREC adjusted the data on the basis of what was the estimated overestimation of usage in the US by ML itself. BEREC believes that this is the most objective way of adjusting the data. Having said that, BEREC is aware that the data is subject to some degree of uncertainty and that the degree of the adjustment is uncertain.

Many respondents claimed that the choice of countries was selective and therefore the results and inferences biased. Many questioned the exclusion of Canada; others argued that Singapore and Hong Kong are city states and hence should be excluded. Some argued that there are no real BaK countries. BEREC agrees that we have been selective in choosing the countries for this comparison. However, this choice broadly conforms to what others comparisons have done in reaching the same conclusions. The exclusion of Canada was due to the lack of clarity as to what was the exact regime in place. On the other hand BEREC has not included Korea that although is a CPNP country has very low mobile termination rates and, hence, its performance if very similar to that of other BaK countries. BEREC agrees that other than Singapore none of the countries labelled as BaK have mandatory BaK and in some cases there are positive MTRs. However, this needs to be interpreted as countries with either low or zero MTRs.

BEREC disagrees that the comparisons are too weak to draw any inferences. Having seen all the responses BEREC remains convinced that the overall conclusion remains valid. This is because the indications that come from the data seem to be aligned with the underlying economic logic (although BEREC is aware and understands that the size of the claimed differences could be debated). BEREC believes that low or zero termination rates lead to a retail price structure that provides incentives to expand usage. The evidence also suggests that ownership is unlikely to be negatively affected by a switch to BaK although subscription penetration might. The clearest data indication that low termination rates may expand output comes from the adjusted MoU on a per capita basis which is a measure of overall output that takes into account both usage and penetration.

Section 5

Question 5 (Section 5.1.3)

How does BaK affect regulatory certainty and the risk of legal disputes?

Consultation Responses

The majority of respondents think that the regulatory risk of legal disputes will be the same or even higher than with BaK. A wide range of arguments have been put forward, being the more relevant the following:

Many operators claim that, instead of leading to less regulation, the introduction of BaK would imply a shift from economic to technical regulation, specially regarding the definition of BaK boundaries and the minimum number of PoIs **(BT, Tele2, Telenor, DT, Vodafone, Mobilcom Austria, Telefónica, COLT, Bouygues, WIND, FT, ECTA, SFR)**.

Secondly, many operators point out that BaK does not mean the end of cost accounting tasks for NRAs and operators, as cost-oriented pricing models will still be needed for other regulated services such as origination, WLR, LLU and leased lines **(BT, Tele2, DT, Vodafone, TI, COLT, C&W, ETNO)**.

Thirdly, some operators acknowledge that CPNP initially resulted in quite high regulatory costs, but they also reason that now these costs have decreased, because NRAs and operators have built up knowledge and experience with cost calculation. Changing the principles for price regulation to BaK will probably lead to new legal disputes **(Telenor, mobilcom austria, COLT)**.

In addition, other operators predict that there will be new regulatory tasks involved in preventing SPAM and SPIT (**PT, C&W, WIND)**.

The opposite position is taken by one users association **(BTG, 2)**, one mobile operator **(3G, 13)**, one operator association **(Cable Europe, 10)**, and one incumbent **(TEO, 2)** agree with ERG (i.e. BaK reduces regulatory cost and increases regulatory certainty). Slightly different, an alternative operators reasons that it is not the charging mechanism as such that effects regulatory and legal certainty but how effectively it is regulated and if necessary enforced. In the long term, however, zero termination rates would increase regulatory certainty **(QSC, 3)**.

Apart from the previous main comments, the following arguments are raised by one or two respondents:

- When two interconnected operators cannot use price to adjust their interconnection agreement, they use interconnection capacity as a negotiation tool. Thus, it could lead to congestion at PoIs and potentially legal disputes **(Telenor, 8, ETNO, 10, WIND, 9)**

- It is unlikely that Member States could move uniformly to BaK, and if some MS move to BaK ahead of others, they would suffer a loss in revenues and this situation could even lead to disputes between operators at international level **(GSMA, WIND)**.

- Actors currently not interconnected (for instance some big business retail customers) could seek to take advantage of BaK establishing interconnection with operators. This issue will raise the regulatory question of who will be authorized to interconnect **(Telenor, FT)**.

- Regulating the transition to BaK will be long and arduous **(BT, Tele2)**.

- BaK increases the probability of disputes between operators and consumers **(BITE, TI)** (because the actual legal disputes among interconnected operators could be translated to retail end users with their network operator).

- The merits of any move to BaK should be considered primarily in terms of the economic and competitive efficiency of any such change, and should not be predicated on the basis of the regulatory costs involved **(COLT, PT)**.

- On the operators side, the burden is not expected to decline because of the increasing complexity of mediation/billing systems needed to fight new fraud opportunities **(Bouygues, WIND)**.

- Again on the operators side, BaK will not minimise transactions costs of interconnection billing as there will still be the need to bill other traffic such as transit, origination, free phone and premium rate services **(Telenor, TI)**.

- All the effects of BaK cannot be foreseen, there will be unpredicted decisions from market players and some of these will need intervention from NRA **(Telefónica)**.

- Regulatory and legal certainty depends on how effectively a charging mechanism is regulated and enforced by NRAs, and not on the charging mechanism itself **(QSC, ECTA)**.

- When winners and losers are created, which is almost certain with the introduction of BaK, then is likely that some will seek to litigate **(Telefónica, 9)**.

- BaK will require further regulation on retail prices to the effect that MNOs may no discriminate between prices for on-net and off-net calls **(Vodafone, 3)**.

BEREC Considerations

On the one hand, BEREC acknowledges that the implementation of BaK may require the intervention of NRAs in order to define some technical parameters such as the BaK area and the maximum number of PoIs. In addition, during a transition period some disputes between

operators may arise. However, this theoretical increment in the tasks of the regulator will be temporary.

On the other hand, although it is true that there are other services that will remain cost-oriented, the fact is that NRAs across Europe are currently developing a cost model only to calculate termination rates according to the EC Recommendation. That is, there are clear and substantial regulatory efforts devoted only to determine termination rates. All these efforts would disappear with BaK regulation. Also, it should be noted that NRAs determine prices for other services other than termination just for fixed incumbents. The only mobile service subject to price regulation is termination. That is, the introduction of BaK certainly would eliminate all the cost accounting regulatory tasks related with mobile operators.

BEREC believes that the balance of the aforementioned effects is in favour of the adoption of BaK: after an adjustment process that would probably require close monitoring and some interventions from NRAs, a BaK regime would put an end to all the regulatory tasks that are currently involved in setting termination rates, despite the fact that cost accounting will still be need for other regulated services.

Question 6 (Section 5.2.1.3)

How do different wholesale charging mechanisms impact on the number of unwanted calls? Do you expect (other) effects on consumers/consumer groups? Where possible, provide a quantitative assessment of the expected effects.

Consultation Responses

Unwanted calls (including SPIT)

The majority of the respondents argue that BAK could or will lead to a higher level of unwanted calls, especially Spam over IP Telephony, SPIT **(AFORST, 2; ECTA ,7; ETNO, 14; Orange, 11; SFR, 2; Telefónica, 16; Vodafone, 15;)**.

BT however acknowledges that interconnection costs compared with the costs of labour are low **(BT, 7)** but find that termination rates is the best deterrent to SPIT **(BT, 7; QSC, 4; Telefónica, 16)**.

If BAK is introduced BTG expects that all BAK countries would adopt consumer protection laws within a short timeframe **(BTG, 2)**. Telecom Italia states that specific do-not-call-lists have to be implemented in a BAK-regime **(Telecom Italia, 18).**

A majority of the respondents bring up the problem of SPIT originating outside the EU BAK-area **(ETNO, 14; WIND, 10)** and that the problem of SPIT can not be ignored in an IP world where calls are hard to trace **(Mobilkom Austria, 5)**.

Telenor argues that increasing SPIT will make customers become reluctant to give out their telephone number, and that the usefulness of the telephone service will decrease **(Telenor, 12)**. SPIT will become an even larger problem if RPP is introduced such that customers have to pay to receive calls **(OTE, 10)**.

A significant part of the respondents claim that the issue of spit needs to be examined more closely, e.g. analyse experience in currently existing US BAK domain and the previous system in France **(ECTA, 7; BT, 7; Cable&Wireless, 14)**.

Two respondents do not believe that voice spam is likely to be any more of a problem under BAK than it is already for fixed network with existing low termination rates. Occasional complaints of SPIT to fixed numbers are dealt with through existing regulatory framework which can be enhanced or strengthened **(3 Group; Cable Europe, 10)**.

Furthermore, one respondent argues that a replacement for micropayments would be required **(Cable&Wireless, 14)**

Other expected effects on consumers/consumer groups

Only few respondents gave their opinion on this subject.

GSMA states that it is likely that different types of customers may be affected in different ways based on their individual call usage **(GSMA, 9)**.

GSMA furthermore states that changes for retail prices are difficult to predict. However, operators may no longer be able to offer the same level of handsets subsidies going forward **(GSMA 7)** and may be forced to remove some current monthly price plans which are no longer viable to offer, or raise call prices or impose a minimum monthly spend requirement in order to cover cost **(GSMA, 7; Tele2, 25)**.

High usage customers could potentially gain from BAK, while BAK is likely to adversely affect low usage customers that mainly receive calls. **(GSMA, 10)**. A few respondents argue that some pre-paid users maybe will have to forfeit their mobile phones and some would-be users will not adopt **(Tele2, 26; Vodafone, 17)**. BTG however argues that even low usage mobile users will add to revenue in a BAK regime and minimum charges are already present in the market **(BTG, 2),** such that marginal consumers probably will be served.

According to GSMA a minority of its members believe that there would not be a significant adverse impact for any group of consumers and that BAK will deliver a more efficient pricing structure and promote competition to the benefit of consumers generally **(GSMA, 10)**.

BEREC Considerations

Unwanted calls

Although a majority of the respondents indicated that unwanted calls (including SPIT) - specifically voice SPAM - would or could increase, BEREC does not see evidence to consider this a credible risk. BEREC refers to the assessment in the CS of which the important points are the following. First, the fact that the telecommunication cost of calling are already low compared to the labour cost of a call centre, does not lead a significant change in the cost structure for marketing calls from which a significant increase in unwanted calls could be expected. Second, these unwanted calls could be blocked by consumer protections measures (do-not-call-lists) that are increasingly introduced in several member states, i.e. in The Netherlands. Third, there is no evidence that SPIT significantly increases due to BaK in the countries the use BaK. Although BaK countries usually have an unregulated form of BaK, this does not make the absence of a significant increase in SPIT in these countries less relevant.

Automatically generated machine calls from outside the EU could be a problem in theory since the would be more difficult to block by legislation and sending these calls can be done at extremely low cost. Through a BaK regime the price of placing calls for a firm that only makes machine calls, could become very low and this could trigger the use of this type of marketing calls. However, BEREC considers the risk of this as low based on the fact that these calls that the Analysys Mason (2008) study shows these calls do not cause significant problems in BaK countries in reality.

As far as micropayments are concerned BEREC is not aware that regulated termination rates are used for micropayments. This can only work if terminations rates are significantly above cost. If operators want to use termination rates for micropayments, they can use termination on number ranges for which termination is not regulated now and under BaK.

Other expected effects on consumers

BEREC recognizes that it is likely that different types of customers are affected in different ways based on their individual call usage and generally the retail price structure can change. This is discussed in section 5.3 of the CS and will also be discussed under question 4.

Question 7 (Section 5.2)

How do you assess the quantitative relevance of call and network externalities?

Consultation Responses

Several of the respondents states that measurement of either call or network is virtually impossible **(Vodafone, 11; Bouygues Telecom, 11; OTE, 10)** or very difficult **(BT, 7)**.

Cable Europe supports the ERG's main conclusions on externalities. Externalities are either internalized in BAK or have a reduced impact on economic welfare **(Cable Europe, 11)**.

Call Externalities

Respondents argue that call externalities can be either positive or negative **(Orange, 12)** and call externalities are already internalised **(Telenor, 12)** because people divide the calls between them **(Telecom Italia, 19)**. Furthermore Vodafone argues that if call externalities exist they would already be internalised in the termination rate of the operators **(Vodafone, 13)**.

Several respondents refer to a consumer survey from Jigsaw Research on behalf of Ofcom and conclude that customers in EU are not willing to pay for incoming calls and this is an evidence of small or none-existing calling externalities **(Vodafone, 11; ETNO, 14; Telefónica, 17)**.

Orange argues that there is no empirical evidence of call externalities and therefore termination rates should be set at cost **(Orange, 12)**. However QSC argue that BAK better approximates the distinct utilities of the two parties of a call **(QSC, 4)**.

3 Group states that call externalities are positive and optimal termination rates therefore are likely to be below the cost of providing termination **(3 Group, 13)**.

Network externalities

Telenor states that network externalities are still important in mature markets where elderly people and children still need to connect **(Telenor, 12)**.

Some of the respondents agree that termination rates are not an appropriate instrument for increasing or maintaining subscription level **(BT, 7)** which is also concluded in a report from UK's Competition Commission **(3 Group, 13)**.

Telecom Italia states that CPNP is better fitted to give the right remuneration to operators who see a marginal customer but Telecom Italia does not asses the significance of network externalities **(Telecom Italia, 19)**. A couple of respondents states that lower penetration in US and Canada indicates that CPNP is more likely to internalize network externalities **(Mobilkom Austria, 6)** and that penetration like in the US and Canada will be the likely outcome of BAK **(Tele2, 18)**.

However 3 Group argues that network externality is exhausted in most if not all member states **(3 Group, 13).** Furthermore, BTG states that marginal consumers will still be profitable **(BTG, 2)**, indicating that penetration will not suffer and network externalities will not be important in setting termination rates.

BEREC Considerations

Call externalities

BEREC agrees that measuring call externalities is difficult, but does not make it impossible to estimate the rough level of the utility of receiving a call compared to initiating a call. The fact that US mobile operators (using RPP) do not differentiate in the price between outgoing and

incoming traffic, show the call externality is very significant in general. BEREC agrees (as also mentioned in the CS) that call externalities can sometimes be negative (unwanted calls) and that call externalities are sometimes internalised by users.

BEREC does not follow Vodafone's reasoning that if there where call externalities, this would put a price pressure on termination rates (which would then not need to be regulated). This mechanism does not work, first because the higher termination rates of operator A are generally not directly passed through in higher retail rates for calling users on network A. The termination rates are passed through in higher retail calling rates in general, but not in rates for calling to specific operators. Second, in order to work this would require hyper rational users that know and consider everything. It would require users to know the different termination rates, understand there use and effects, estimate the effect of different termination rates on the amount of calls they receive and then value this all and make a total evaluations of all retail and wholesale tariffs involved. It is not reasonable to expect that even a small number of users could do this.

Contrary to what DT seems to have read, BEREC has not mentioned RPP as the appropriate or even the logically following retail regime corresponding with BaK. On the contrary, BEREC explicitly explains there is no direct relation between BaK and RPP (see Ch. 5.3.1). See also BEREC's response on the issue of "customer confusion" (Question 11): if users really do not want to pay for incoming calls, operators will probably use other tariff schemes. Contrary to what DT claims, figure 3 shows that when the utility of the caller is generally greater than the utility of the called, CPNP is not necessarily more efficient.

Network externalities

BEREC views the responses are reflected in its assessment and the conclusion in Ch. 5.2.2.

Question 8 (Section 5.3.5)

How would your business be affected by a move from CPNP to BaK? Please explain the expected impact on prices, volume of supplied services and profit.

Consultation Responses

Investment incentives

A majority of respondents **(OTE, TELE 2, Telenor, DT, most members of GSMA, Vodafone, mobilcom austria, TI, Telefónica, COLT, PT, C&W, ETNO, FT, AFORST, SFR)** disagrees with ERG and thinks that BaK will have a negative effect on investment incentives, especially when BaK is applied irrespective of symmetry of the interconnection partners. The main arguments presented are:

- The introduction of a BaK regime does not provide incentives to invest in networks due to the fact that the costs of the termination service will only be sustained by the terminating operator and the returns on investment will be lower **(TELE 2, TI, most members of GSMA, TI, Telefónica, COLT)**. Similar, several respondents reason that lacking investment incentives may raise QoS problems such as lower quality for off-net calls and congestion **(Telenor, OTE, Vodafone, TI, Telefónica, C&W, ETNO, WIND, FT, ECTA, SFR, AFORST)**.

- No network operator will have an incentive to increase his costs through investments in his own network if he could use the networks of the others under BaK for free (i.e. BaK encourages operators to determine their network design so as to shift costs on other operators) **(OTE, Telefónica, ETNO)**.

- Moving cost recovery to retail will be very difficult due to strong competition at this level **(Telenor, C&W, ETNO)**.

- In one operator opinion's **(DT, 15)**, due to asymmetries which are partly caused by regulation, there is no zero-sum game on the level of total fixed and mobile termination services.

- By introducing BaK, ERG brings uncertainty and sends a wrong message (network usage "for free") in a period where major private-sector investments are vital **(Telenor, DT, TI, Bouygues)**.

The opposite position is taken by an association **(Cable Europe, 7)** stating that BaK has a positive impact on investment as current fixed to mobile asymmetries might be distorting the incentives to invest in converging services and NGNs by fixed operators.

Hot potato routing

Regarding the connection between investments and hot potato routing, one operator **(3G, 8)** argues that it is important to ensure all participants in the BaK regime have made a sufficient investment in order to avoid free riding and "hot potato" routing. Other respondents **(DT, ETNO)** claim that the ERG proposal to solve the hot potato routing problem (i.e. determine the optimum number of PoIs of the BaK regime) would stimulate inefficient investments. According to **DT**, a large number of PoIs is required to solve the hot potato routing problem. On the other hand, NGNs will be characterised by a smaller number of PoIs compared to today's PSTN. In **DT's** view, if the regulator imposes the number and the location of PoIs that would lead to an artificial, non efficient network structure and thus to higher costs.

Mark-up

Many respondents also commented on the ERG's proposal to introduce a mark-up to the originating traffic of the CPS operator, in order to prevent a distortion where the introduction of a BaK method of interconnection charging would remove the cost of termination to CPS operators.

Several respondents make the point that cost accounting systems will need to be retained and maintained in order to determine a fair price for CPS (originating and mark-up). This will reduce if not eliminate the potential cost reductions that ERG associates with BaK (**Telecom Italia, PT, Tele2, VF, DT, ETNO**). One operator noted that such a mark-up would also have implementation and other business costs associated with it (**PT**).

One respondent believes that a new [retail] commercial model will be required for CPS under BaK because call termination revenue streams would cease (**BT**).

The same respondent believes that the location of the boundary will impact on the existing model of CPS, and in any case it is unclear how the CPS model would work in an NGN environment, therefore it would be more appropriate to delay any migration to BaK until after the migration to NGN (**BT**).

Another respondent believes that a mark-up on the origination rate would only lead to an unchanged net cash flow between all operators if traffic is symmetrical. This is not generally the case, and therefore the proposed mark-up would lead to market distortions, to the disadvantage of alternative operators. In any case, it is fodder for regulatory and legal disputes (**DT**).

One respondent believes that the proposed mark-up would negatively affect the competitive conditions of CPS operators versus incumbents, especially if such higher costs were not accounted for in a price squeeze test for retail voice calls (**WIND**). Another respondent notes that such a mark-up would also reduce the incentive to climb the ladder of investment, so it should be created in such a way that would incentivise CPSOs to invest in the optimisation of their network termination costs. This might allow reductions in the cost to both regulators and industry of price control related cost modelling and dispute settlement (**ETNO**).

BEREC Considerations

Investment incentives

Since the NRAs began to reduce termination charges (especially mobile), operators have used many of the arguments above to claim that the reduction of termination charges adversely affects incentives to invest. However, NRAs have been cutting down mobile termination rates for several years and the investment levels of operators have not decreased.

In addition, it should be noted that investment incentives of the operators should come from the expected profitability of its customers, not from termination. Due to the existence of call externalities, operators have incentives to provide termination services with some minimum conditions of quality even if they can't charge for the service to the origination operator. Apart from that, regulators are allowed to define minimum SLAs when imposing access obligation in termination markets.

Hot potato routing

BEREC considers that an adequate definition of the boundary would prevent hot potato routing or free riding. BEREC does not share ETNO and DT's arguments on this issue and believes that an efficient interconnection can be achieved when setting the maximum number of PoIs. Finally, it should be noted that a similar situation also occurs with CPNP and NGNs, as NRAs would have to determine the new "local" and "transit" levels.

CPS and Mark-up

CPS as a model is one that persists in many different Member States. Despite the fact that CPS traffic is declining in some countries, it remains an important business model in others. Because of this, it is important to consider the implications of any change in the interconnection charging mechanism on such business models.

The argument is made by several respondents that the implementation of a mark-up on the CPS price would require the retention of cost-accounting systems, negating the benefit of a pure BaK system. BEREC notes that such retention would be required in the event that CPS is required, and that the cost of calculating the required mark-up would therefore not involve a disproportionately large regulatory burden. A one respondent has noted, the implementation of such a mark-up would involve other business costs, however, it is not the opinion of BEREC that the implementation of a mark-up would differ significantly from normal billing procedures. These costs would again not translate into a disproportionate burden.

It is not clear at this point that CPS will differ significantly in an NGN world, as suggested by one respondent. It may be the case that at some – as yet undetermined – point in the future, the current CPS model may change. Nonetheless, it would be inappropriate to delay any discussion about future, more efficient, charging mechanisms, until every single implication – known and unknown - of a move to NGN are understood. This would clearly not result in the most proportionate and reasonable level of regulation that BEREC strives to achieve.

There were a number of comments on the proposed mark-up itself. One respondent suggested that a mark-up on the origination rate would work in the event that traffic is symmetrical. In the event that traffic is asymmetrical, market distortions would result, leading to regulatory and legal disputes. Another respondent alleged that the proposed mark-up would negatively affect the ability of CPS operators to compete with incumbents, and believes this especially to be the case if such costs were not accounted for in a price squeeze test for retail voice calls.

On the other hand, yet another respondent notes that such a mark-up would also reduce the incentive to climb the ladder of investment, and that it should be created in such a way that would incentivise CPS operators to invest in the optimisation of their network termination costs. This might allow reductions in the cost to both regulators and industry of price control related cost modelling and dispute settlement.

BEREC agrees that this mark-up - where appropriate - should be calculated and applied in a careful and proportionate manner. A properly calculated and applied mark-up should not distort the market in the manner described, and should in fact ensure that CPS operators are able to continue to compete in a fair and transparent manner against incumbents and other operators.

Section 6

Question 9 (Section 6.1)

Do you agree with the conclusion that operators/users in the BaK domain will subsidise traffic coming from outside the domain (regardless of the legal aspect)? Are there any mechanisms to prevent this and how will they work in your view, in particular to avoid arbitrage?

Consultation Responses

Relevance of subsidies and arbitrage

All respondents answering to this question (with the exception of BTG) agreed to the ERG's preliminary conclusion that there will or could be a subsidy from the BaK zone to CPNP countries, which is undesirable. For some of the respondents this issues was considered to be particularly important – even if the system was implemented for the EU as a whole – because

- of the significant overall effect **(Mobilkom Austria Group, Tele2, GSMA, Orange France Telecom)** of a net outflow, resp. because of resulting economic distortions **(DT)**
- of particular traffic streams for some countries to non EU countries **(GSMA; Mobilkom Austria Group)**
- of particular business models, like off-shoring of call centres **(Cable and Wireless, 16; ECTA)**
- because of the fact that some operators are currently net receiver of termination revenues **(TI, 23)**
- of increasing uncertainty and litigations **(Orange France Telecom, 13f.; WIND 14; SFR, 1)**

On this basis some respondents were arguing that there is a requirement to recoup the resulting losses from the customers within the BaK zone **(GSMA, 11; Mobilkom Austria Group 8f.)**. For these and other reasons some of the respondents argued that BaK would be detrimental to the competitiveness of European operators **(TI, 23)** and that solutions must be found that European operators are not worse-off in the end **(Telefónica, 18f.; ETNO, 16 f.)**.

However, there were some operators **(QSC, 3)** which considered that subsidies and arbitrage in general were not to so important particularly if BaK was introduced for the EU as a whole. Many other respondents explained, that if BaK was implemented in the European Union this should be done in a synchronized way **(Tele2)** at the same time **(ETNO, ECTA)** with the same timeframe **(ECTA)** with a shorter transition period **(Telefónica)**. An uncoordinated country-by country imposition/adoption/ implementation was considered to negatively impact the single market **(ETNO)** and to boost problems of arbitrage, litigations etc.

Mechanisms to avoid subsidies and arbitrage

With respect to potential specific mechanisms to prevent such subsidies and to avoid arbitrage many respondents where rather sceptic **(OTE, 12; Bouygues Telecom, 12; Telenor, ETNO 16 f., PT)** while **3 (p. 14) and Mobilkom Austria Group (8 f.)** considered that there is a possibility to operate with two different termination rates (from outside the BaK zone and within). According to **3** this would require an A-number analysis and possibly also a trunk analysis, supplemented by contractual controls. **Mobilkom Austria Group** on the other hand argues that it is possible to run two different systems in parallel, as empirical evidence of countries in which the termination rates differentiate between national and international traffic shows, but it admits that this will require increased efforts for fraud detection.

Other related issues

Aside of these inputs which were directly related to the question raised, further comments were referring to:

- the timing of BaK: BT argued that a transition to BaK should logically happen when the migration to NGN is complete and BaK boundaries could be set. On the same issue of timing 3 argued that it is important to avoid /reduce intra EU subsidies by bringing down the termination rates to levels consistent with the EC's Recommendation before moving to BaK.

- the setting of a EU-termination rate from non-BaK countries (if BaK was implemented in the EU). **Mobilkom Austria Group (8f.)** proposed that the EC could publish the average termination rates of CPNP countries on a quarterly basis and the resulting number could be taken as the appropriate termination rate for calls to the EU-BaK domain.

- According to **ETNO (16 f.)** the negative effects of subsidies and the impossibility to effectively differentiate needs further investigations.

BEREC Considerations

Relevance of subsidies and arbitrage

The input provided by the consultation underlined the importance of these issues already expressed in BEREC's consultation document. BEREC shares the view that this is an issue

which is not negligible. BEREC also shares the view that when it comes to a more concrete discussion about the practicalities of an BaK implementation, special attention needs to be given to situations in which there is eg. a large outflow of traffic to non-EU-CPNP countries or in cases of a high off-shoring of call centres.

BEREC also agrees with many comments, that from the perspective of distortions resulting from subsidies and/or arbitrage, it would be preferable if BaK was introduced in an area as large as possible.

However BEREC is of the view that already under the prevailing CPNP regime there are significant subsidies within the EU which might be even more relevant compared with those which could be the result of a BaK introduction. These subsidies result from current differences in termination rates between countries. To the extent that termination rates will also decrease in non-BaK countries, the "subsidy-problem" is mitigated, as the difference in termination rates (positive termination rate vs. zero in case of BaK) is narrowed down. Thus, the "subsidy problem" results to a large extent from a level effect.

However, it is particularly the fact that the (already reduced but) still existing intra EU-differences in termination rates drive BEREC to bring termination rates (and in particular MTR) further in line with costs. So reducing termination rates is a first and important step, but on top of this, BEREC is of the view that BaK would bring about further remarkable merits.

Mechanisms to avoid subsidies and arbitrage

Most of the respondents shared BEREC's concern that there might not be an efficient and easy to implement mechanism which could help to avoid arbitrage between a BaK and a CPNP area. While pure technical mechanisms - once implemented – always seem to be subject of attacks, other mechanisms, e.g. if there was a large enough region going for BaK which might be able to put significant pressure on its CPNP trading partners to reduce termination rates, would still be available.

Other related issues

As stated above, the approach considered by BEREC is not one of a big jump (switch) from existing termination rates to a BaK regime, but the understanding is rather to bring termination rates further down to costs in a first phase, which is then followed by the implementation of BaK. This first phase can be regarded as a glide path at whichs end the (second) step towards BaK should be made.

Concerning NGN related issues respectively the timing of this proposition, BEREC does not see a need to wait for the implementation of NGN technology throughout the European Union, but it believes that it is now the right time to consider promising future charging mechanisms for voice services, particularly as an early consideration might be better for lifting the pro-competitive potential of next generation technologies.

Question 10 (Section 6.3)

Do you see any implementation problems for a migration period towards BaK? How could such problems be addressed?

Consultation Responses

Duration of a transition period towards Bill & Keep

Overall the comments given to this question were focussing primarily on the start and duration of a transition period (glide path). While some respondents gave broader comments to the question as such, some were partially overlapping with comments given to question 9 above.

With respect to a glide-path as a mechanism to manage the transition from the current CPNP regime to a potential future BaK regime, some comments were arguing that a big bang solution - announced e.g. 2 years ahead - would either be preferable **(BTG, 2)** or, that the transition period should be as short as possible, as otherwise two billing systems must be operated in parallel **(NGNuk, 2; Cable Europe 11; WIND 15f.; Orange France Telecom 15)**.

Comments which considered a glide path or a transition period being more appropriate argued, that the duration will first critically depend on the starting level of termination rates **(OTE, 12f.)**, for which the EC's Recommendation will be important as it gives time to adjust plans and models and is therefore appropriate for this to work through the industry before BaK is considered **(BT, 8)**. Whereas **QSC** (see also **ECTA** below) was arguing that such a migration process could already start with the next round of market analyses by implementing symmetric F2M termination rates (with which a significant part of the BaK benefits could be reaped), other respondents argued that before BaK was implemented, termination rates should be rebalanced **(TI)** resp. be at the same level across Europe **(Mobilkom Austria Group)**. **ECTA** gave a differentiated comment in line with the positions mentioned above when it explained that most fixed broadband- and triple play operators could envisage a glide path already leading to BaK within the current or the next round of market analyses; however a glide path to a minimal termination rate (very close to zero) and symmetric F2M termination rates was preferred. Other **ECTA** members would like to see the EC termination recommendation to be effectively implemented across Europe as a matter of priority and to look at BaK afterwards. If termination rates are low enough, BaK could evolve - according to this group of operators view - on a commercial basis. Similar, other comments also giving priority to the implementation of the EC recommendation pointed out that only afterwards would it be possible to draw conclusions on the benefits of the drastic falls of termination rates and to reassess the possible extra benefits of moving to BaK **(AFORST, 1; SFR, 13)**. One respondent suggests that if BaK was applied at all this should result from commercial negotiations rather than being imposed **(AFORST, 2)**. In the given context two operators provided some sort of schedules for a transition process: **Cable Europe (11)** argued, that once the Member States have reached a level of 2,5€c (expected according to Cable Europe in 2013) the migration to

BaK should take place within 2 years. **Tele2** on the other hand developed a time-table according to which, even if all Member States now start to move in the same direction without delays, BaK cannot be introduced before 2019.

Aside of the level of termination rates, several other factors were considered to have an influence on the time required and/or need to be managed during the migration process: adjustments of end-user prices, business models, billing systems, network design and architecture, communication/marketing, development of new contracts, potential QoS disputes between customers and operators resp. operators and operators etc. **(OTE, 12; BT 8; Telenor, PT, 18; ETNO, 17, Telefónica 19)**. **PT** claims, that ERG mentions in its analysis only some of the costs related to an introduction of BaK but several other (as those mentioned above) are not taken into account. **DT** also puts an emphasis on some persumed shortcomings - in the context of the NGN analysis - and states that ERG has made a first step, but a second step needed would be a convincing impact assessment (of the implementation of BaK)

Harmonisation issues

On harmonisation issues it was stated again that if BaK was implemented an uncoordinated country-by-country approach was not appropriate as it was not in the interest of the internal market **(Telenor; Mobilkom Austria Group, TI, ETNO)**. Instead NRAs and the Industry will need to work together to implement solutions to emerging questions **(3, 14)**. An Implementation of BaK should be synchronous across Europe with a pre-defined and harmonised timeframe and migration process **(ECTA, 9)**.

Other issues

On a general level **Cable and Wireless** stated that a discussion of implementation issues for a migration period is premature because many other issues need to be evaluated and tested first. Some respondents didn't go that far, but commented that it was premature to draw conclusions, as

- the implementation of BaK was either considered to be a huge regulatory experiment (as no single country ever switched in this direction) for which it is doubtful whether it will lead to higher consumer and social welfare **(Telenor)**
- it is not considered appropriate to use only a single study as a basis for conclusions **(WIND 15f.)**
- the consultation document fails to shed sufficient light to migration issues (particularly NGN); **(DT, 19 f.)** or is otherwise insufficient **(GSMA, 11)**
- the relation to the Commissions study on "the future of IC charging methods" is unclear **(Telenor)**

Finally, some specific comments are made on free-riders or call-back schemes:

- the hypothesis that retail flat rate schemes could avoid call-back problems on the basis of the evidence in Singapore is disputed **(WIND 15 f.)**

- it is claimed by **PT (18)** that in order to overcome these problems other solutions but commercially agreed RPP model that recovers the full cost from the called party have to be found

BEREC Considerations

Duration of a transition period towards BaK

BEREC agrees with those inputs to the consultation which emphasized that the main factors determining the transition period are i) the starting level of the termination rate ii) the time needed to adjust business models and iii) and the time needed to develop and implement appropriate retail pricing schemes etc. Against this background BEREC considers that there should be a sufficiently long glide path in order to reduce existing distortions and to reap eventually the full benefits of a move towards BaK in an NGN environment.

Harmonisation issues

BEREC also shares the view that a harmonised move (in terms of the transition period and the implementation of BaK) of all EU-countries would be preferable, but would not per se exclude that a particular country or a group of countries move faster, as it also happens to-day with the adjustment of termination rates towards costs.

Other Issues

BEREC does not agree with those comments which were arguing that it is premature to draw conclusion about the usefulness of BaK or to discuss implementation issues. The scope of the Common Statement is to put together the main pros and cons and to come to an overall conclusion, which of course needs to become more specific on various issues (like call back schemes), particularly when it comes down to the implementation. It is BEREC's understanding and intention to provide this high level cost-benefit analysis as an input of the NRAs in an ongoing discussion.

Section 7

Question 11 (Section 7)

Does the draft CP miss any other relevant issues?

Consultation Responses

Timing

A lot of respondents question the timing of ERG's Draft CP. Some indicate the timing is not appropriate in light of recent EC recommendation and the ERG CP on symmetry. Some claim that first the effect of these current policies should be clear before enforcing new ones and therefore current Draft CP is premature **(OTE, 1; Tele2, 2)**.

The lowering of rates due to EC recommendation could provide useful guidance as to whether lower termination rates bring benefits to consumers **(Tele2, 3; GSMA, 14)**. Others say there should be a priority for effective implementation of EC recommendation, and BaK should only be considered after this is **reached (TDC, 1; BT, 2; some ECTA members, 1)**. TI points out that the ERG should wait with a final CP until the EC study on BaK is finished (expected in September 2010**) (TI, 26)**. Others asked for a harmonised implementation when BaK would be introduced (this will be discussed under question 10 about implementation).

Legal basis

A lot of respondents claim there is no legal basis to mandate BaK, or at least question whether there is a legal basis, and often indicate that the ERG should explicitly address this issue **(Tele2, 4; Telenor, 1, 9; DT, 5; GSMA, 12; TI, 3, 25; Telefónica, 9; Portugal Telecom, 4; ETNO, 2; OFTG, 16, Fastweb, 8; AFORST, 2)**. Some operators mention that BaK does not allow network cost recovery and remuneration of investments referring to article 13 of the Access Directive.

Broader assessment needed

Some operators mention that there is to much focus on voice and a broader, holistic assessment is needed **(i.e. OFTG, 16)**. Others say the ERG focuses on voice but implicitly extrapolates the proposed BaK regime to other, future services **(NGNuk, 2)** or that the ERG is not clear whether the Draft CP extends to non-voice services **(GSMA, 2)**. TDC stated the interaction between the interconnection regime for voice in data and TV should be described. TDC relates this to the situation where two operators interconnect for data exchange and use mixed peering and transit agreements **(TDC, 5)**. WIND states the assessment should be more focussed on NGN **(WIND, 16)**.

Circuit switched traffic

Mobilkom indicates it is not clear if the Draft CP also applies for circuit switched (non IP) voice traffic **(Mobilkom, 10)**.

"Political message"

ETNO is concerned a CP could be seen as a 'political' signal in the context of the current debate on net neutrality and could give the wrong message, i.e. that use of networks should be available for free, in a time where major private sector network investments are vital **(ETNO, 5)**.

Alternative regimes

Some respondents claimed the fact that other alternatives where not considered, as a drawback of the assessment **(OTE, 2, 13; DT, 1, 5; Vodafone, 4, 28)**. However, not many of those respondents indicated which alternatives they found as potential candidates to replace CPNP. Sometimes capacity based charging (CBC) was mentioned as an alternative. OTE referred to Ofcom's assessment for MTR in which six options where considered **(OTE, 2)**.

Most ECTA members broadly support the main conclusions of the Draft CP and could envisage a glide path to BaK in the currently ongoing or next round of market analyses. However, there preferred solution would be a minimal rate (below incremental costs) that is symmetric between fixed and mobile and is meant to maintain a monetary value attached to termination **(ECTA, 1)**.

Initiator pays as a principle

Some respondents claimed that the CPNP/CPP principle that the initiator always pays for the whole cost of the service is important and likely to create better conditions for service innovation **(NGNuk, 2; OTE, 4)**. Telenor claimed that in competitive markets, prices reflect cost and termination cost are lager than zero. Therefore, regulatory determined termination rates should always be above zero **(Telenor, 1, 3)**.

Quantitative cost benefit analysis

Some respondents claim a quantitative cost benefit analysis is needed **(i.e. OTE, 2, 13)**.

Symmetric traffic requirement

OTE claims that BaK requires symmetric traffic exchange (balanced traffic streams) because if this is not the case large networks are disadvantaged because they bear higher costs than small networks **(OTE, 4)**. DT claims symmetric traffic is a condition in order for BaK internalise call externalities **(DT, 13)**.

More generally, another comment stresses the differences in costs between different players (e.g. fixed, mobile, virtual operators) and sees a risk that BaK could upset the current economic balance between them **(AFORST, 2)**.

Universal service

OTE mentions that Universal Service aspects are not taken into account by the ERG. Networks can have exogenous cost differences, depending on for example the coverage of a country. Covering only a highly populated area, gives a lower cost price then covering a whole country or a lowly populated area **(OTE, 5)**.

NGN issues

Some respondents mention that the NGN migration is proceeding far more gradual than originally anticipated. Fixed and mobile will migrate to NGN at different speeds **(i.e TI, 3)**. Some parties claim that the ERG suggests that BaK is a natural consequence of NGN because is would be consistent with the charging model of unregulated services. They indicate this is wrong because unregulated IP interconnect consists of a mix of peering and transit models **(TI, 4)**.

Some respondents claim the ERG disregards NGN deployment is characterised by uncertainty, the expected cost decrease is still unsure **(OTE, 1; DT, 6)**. DT claims the predicted low cost of voice on NGNs do not justify BaK. Cost even if they are low still have to be recovered **(DT, 5)**.

Consumer confusion

Some respondents mention a potential disutility or consumer confusion that could be caused by the possible switch to a RPP is not considered **(NGNuk, 2; OTE, 5)**.

Peak, off-peak pricing

Vodafone claims that BaK prevents price signals for efficient peak and off-peak usage **(Vodafone 15, 28)**.

Several issues

Some respondents state it is not clear how operators could comply with obligations on legal interception **(Mobilkom, 10; OFTG, 17)**.

TI indicates disputes on quality degradation cannot be resolved through withholding payment under a BaK regime **(TI, 6)**.

Some respondents mention that there is an underlying assumption that BaK would simplify charging mechanisms **(BT, 9; ECTA, 10)**.

WIND indicates the ERG does not analyse the impact of existing interconnect links **(WIND, 16)**.

More generally, another operator is surprised that while BEREC repeatedly refers to the difficulties of drawing conclusions it still suggests a move towards BaK **(SFR, 13)**.

BEREC Considerations

Timing

BEREC agrees that the implementation of the EC Recommendation and its effects on the market, is likely to provide useful guidance on the effects of lowering termination rates. NRAs that assess the appropriate regulation for termination should take into consideration these effects. However, BEREC does not consider it should be compulsory to wait until the EC Recommendation has been fully implemented and its effects are fully materialized. Although the latter could be an appropriate approach, this should not exclude one country or a group of countries moving to BaK at an earlier stage if this is assessed to be appropriate under the specific national circumstances.

Legal basis

Taking account of the fact that BEREC has assessed the introduction of BaK from an economic perspective while leaving aside legal issues, it is agreed that clarity on the legal issue is desirable before BEREC can move to BaK in a harmonised way.

Broader assessment needed

BEREC has focused on voice and still sees this as the appropriate approach given that it is currently mainly voice termination that creates competition problems and is regulated. Although some respondents mention that a broader assessment is needed, none have explained why such a broader assessment is needed or useful. BEREC does not want to extend the conclusion to other services than voice, if this is made clearer in the conclusion of the final document.

BEREC does not share the view of TDC that mixed peering and transit between to interconnecting operators would not be possible under BaK. Regulated BaK imposes an obligation to deliver termination without charge at the boundary only. Two operators interconnecting directly with each other (without intermediary third operator) can still use a transit agreement for transporting the traffic between the two boundaries of their networks. BEREC emphasizes that the CS only is about termination (on the network where the call is ending at the called user) and is not about transit. If in reality transit and termination services are bundled (as TDC seems to indicate), the CS only regards the pure termination part and not the transit part.

BEREC's assessment is partly (but not completely) driven by the migration to NGN. Certain aspects of NGN affect the termination service and appropriate regulatory regime, such as: the separate transport and service layer, the lower cost price, the lower number of locations for efficient interconnection. These issues are treated in the CS.

Circuit switched traffic

BEREC considers the introduction of NGN to be one of the reasons to assess different termination regimes and look at BaK as an alternative to CPNP. However, it is clear that the conclusion applies in general to all voice traffic and is not confined to NGN IP voice termination. For example, BEREC concludes that "BaK preferably should be introduced at least nation wide for all fixed and mobile voice traffic and also independent of technology like PSTN or NGN." (Ch. 6.1). In fact using different regimes for legacy circuit switched voice and for IP voice traffic would create arbitrage problems.

"Political message"

BEREC does not endorse the view that it can be concluded from the CS that "use of networks should be free". The CS specifically deals with termination, that is two-way access between operators and the conclusion is limited to voice termination. The CS does not say use of networks by other firms or service providers should be free and this can also not be concluded from it. BEREC reiterates that the costs of termination can be recovered inter alia from retail rates.

Alternative regimes

As indicated in the Draft CP, BEREC - at the start of the assessment - saw BaK as the most promising alternative to CPNP and. In fact BEREC does not see many other alternatives regimes besides CPNP and BaK. Therefore, BEREC did an assessment of CPNP versus BaK. There are several ways to implement CPNP, e.g. in the form of CBC which is a specific implementation of CPNP and not such a fundamentally different regime that should be assessed in a high level comparison of regimes.[4] *A regime that is fundamentally different is proposed by Jeon and Hurkens.*[5] *This is a regime in which the termination rates that operator A pays to other operators, are determined based on the retail charges that operator A charges. Under such a regime the incentive to lower own retail prices would be increased, because it reduces the outgoing payments for termination. Although this is a creative scheme with nice incentives, it is also very hard to implement and maintain in practice, since it creates incentives to design the retail tariff schemes around the way the regulator measures the*

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4 Moreover, the specific form of implementing CPNP (e.g. as CBC or EBC) is a structural issue as it addresses how usage level is billed on the wholesale ("what is paid for"). On the other hand the decision between CPNP and BaK relates to the question "who pays" for wholesale usage. For this distinction see also, ERG (07) 09, Ch. 4.

5 *Jeon Doh-Shin, Hurkens Sjaak; A Retail Benchmarking Approach to Efficient Two-Way-Access Pricing; 2007; http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1023884*

relevant retail price that is used to set termination rates paid to other operators. Also, there would be an arbitrage risk because of the differentiated termination rates (each operator having its own rate) that would be applicable for termination on one network.

Ofcom examines six options but three of them are variants of the general CPNP regime, the other three being BaK, low symmetric rates and deregulation. Deregulation of course is always the appropriate and necessary choice if the SMP analysis shows there is no SMP or there are no potential competition problems. The CS does not change that. Low symmetric rates could indeed be seen as a fundamentally different alternative regime, but could also be seen as a variation on BaK if the symmetric rates are really low: roughly around or below the 0.1 eurocent per minute level.

The CS is a high level assessment of BaK as alternative to the CPNP regime in general, abstracting from all the possible variations and implementations of BaK and CPNP. Variations of these regimes can be considered as part of the implementation. For example, very low symmetric rates could be considered as a variation of BaK in case there is a significant risk that increased SPIT is triggered at zero rates, but could be prevented by low symmetric rates.

Initiator pays as a principle

BEREC does not endorse the view that the initiator of a service should always pay the full cost as, at least not as far as voice termination is concerned, since it neglects the utility of the called user (call externality). Prices in non-regulated markets are also not always above zero as is shown by the use of BaK in the US mobile market.

Quantitative cost benefit analysis

BEREC does not consider that a quantitative cost benefit analysis is necessary or would improve the qualitative assessment. The difficulty in setting the right regulated tariff (or price cap) for a large part stems from the difficulty to predict or calculate the quantitative effects of these rates (see Ch. 5.1.3). A wide body of academic literature comes to a range of outcomes on the right (welfare maximizing) level of rates, including negative rates if the call externality is sufficiently high (see for example Berger, Ulrich (2005)), but these rates are usually low and around the marginal cost level if abstracted from call and network externalities. Although these models are complicated enough as they are, they use significant simplifications of reality. In this situation empiric evidence like the Merrill Lynch data, although far for ideal and subject to the difficulties of international comparisons, are a better indicator of effects than a quantitative model.

Symmetric traffic requirement

BEREC does not see the logic behind the view that larger networks are disadvantaged if the traffic streams are not balanced nor that symmetric traffic is needed for BaK to internalise call externalities .

Universal service

Regarding the fact that BaK does not take into account universal service aspects, BEREC is not aware that termination is used to subsidize universal services at the moment.

NGN issues

BEREC does not deny that migration speed is slower then originally expected, but does not consider how this would impact the assessment as such, although it could be an issue for the timing. BEREC does not consider BaK a natural consequence of NGN because if would be consistent with commercial pricing.

BEREC does not disregard the uncertainty for NGN networks and recognises there is uncertainty in the level of costs and amount of services carried over a NGN in the future. Due to this there is uncertainty on the cost price of services among which voice. However, this uncertainty is not so big that it affects the prediction that future cost of traffic will significantly decrease. This lower cost price is driven by newer more efficient, cheaper technology in combination with far more traffic that is carried over this network. This is a generally supported expectation in the industry.

BEREC agrees that the lower cost of future termination is not in itself a sufficient justification for BaK. However, BEREC does see this as relevant factor in the total assessment. If costs decrease and become more symmetric between fixed and mobile, the complex and costly process of setting cost oriented price caps gets relatively more weight and decreases the proportionality of CPNP relative to BaK or a system that sets symmetric caps for termination rates at some harmonised but not cost based level.

Consumer confusion

BEREC notes that a switch to RPP is not required under BaK. If consumers really have a significant persisting disutility for RPP, operators will probably not introduce it and use other recovery methods, like keeping the cost recovery on outgoing traffic (as it is now) or using larger fixed fees.

Peak, off-peak pricing

BEREC does not share the view that peak, off-peak pricing for termination is essential. Currently most member states do not impose differentiated peak, off-peak caps for MTR under the CPNP regime.[6] Given that all originating traffic passes the operators own networks, operators could of course still choose to differentiate peak, off-peak retail tariffs if they think this is useful. Anyhow, it may turn out in practice that lower costs of IP-networks would translate

6 *MTR benchmark snapshot (1st July 2009): http://erg.ec.europa.eu/doc/publications/2009/erg_09_35_mtr_snapshot_july_2009.pdf*

into interconnection rates too low to achieve a significantly more balanced traffic load through peak/off-peak differentiation.

Several issues

BEREC does not see a relation between BaK and obligations on legal interception. BaK does not mean that operators should not keep record of calls.

Regarding the claim disputes on quality degradation cannot be resolved through withholding payment under a BaK regime, BEREC does not have the impression that this currently is or can be used as an effective instrument against quality degradation.

The CS does not mention simplified charging as a significant advantage of BaK. Although the wholesale charging will be simplified somewhat because less traffic is billed, BEREC agrees with BT that some termination traffic (i.e. to information numbers) and CPS originating traffic, will still have to be charged and billing systems remain necessary.

BEREC considers the impact on existing interconnect links as an issue that should be addressed at national level if the transition to BaK is considered. This issue is too detailed and depending on national circumstances to be assessed by BEREC and has no material impact on the efficiency of regimes for the long run.