

## Reflection Document on Bill & Keep for IP interconnection charging



December 2009

### Executive Summary

ETNO welcomes the opportunity to comment on the ERG draft "Common Position on Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues," ERG(09) 34.

- The Association believes that regulatory intervention as regards future charging mechanisms for Internet Protocol (IP) interconnection, such as the mandatory 'Bill & Keep' (BaK) regime proposed in this draft ERG Common Position, is not warranted at this time and thus inappropriate;
- The timing of the Common Position appears premature based on many aspects, including, for example:
  - Slower than expected migration to multi-service (including voice) all-IP next generation networks (NGN) and convergence of services;
  - that the European Commission's "Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates" foresees the continuation of the calling party network pays (CPNP) charging mechanism through 2013 and beyond;
- An assessment of the impact of the development of cost-oriented, termination rates and the implementation of symmetry between larger and smaller operators under the existing CPNP regime should be considered in the first instance;
- A strict separation of transport and service layer, as envisaged under a BaK regime, would not allow the end-to-end quality of service (QoS) necessary to provide high quality, secure and time-critical services in an NGN environment;

- The proposed mandatory BaK regime would be plagued with arbitrage, adverse selection and free rider problems;
- Adoption of such a regime would also send the ‘wrong message’ to the market in a period where major private-sector investments in network infrastructure is critical;
- The proposed BaK regime would also impose considerable negative effects on consumers (e.g., low-usage mobile subscribers) and the industry. These effects are underestimated and insufficiently treated in this draft Common Position;
- Un-coordinated, country-by-country, implementation of new charging mechanisms would lead to market fragmentation;
- ETNO calls upon the ERG to reconsider positive developments in the CPNP regime – in particular, capacity-based charging and QoS-aware IP interconnection;
- ETNO is responding to this consultation without prejudice to its position that a regulatory obligation for BaK charging does not have a legal basis within the EU Regulatory Framework and is counter to key principles for the implementation of the Framework.

## Introduction

ETNO welcomes the opportunity to comment on the ERG draft “Common Position on Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues,” ERG(09) 34. We also appreciated the opportunity to express our preliminary views at the public workshop held by the ERG on 4 November 2009.

## Reconciling BaK charging mechanism proposal with EU Framework

Before reacting to the substance of the draft Common Position, ETNO would like to point out a major omission in the report: reference to the legal basis and the regulatory means in the EU Regulatory Framework by which BaK could be mandated by a national regulatory authority (NRA).

In the Draft, for example, the ERG refers to a situation where “BaK is applied as a regulatory obligation” (p. 19). This would seem to imply that this charging mechanism would be imposed as a regulatory remedy under the significant market power (SMP) regime of the

Framework. ETNO, however, fails to see how a change in charging mechanism norms could be imposed as an access, transparency, non-discrimination, price control and cost accounting, and/or accounting separation obligation defined in the Access Directive.<sup>1</sup>

In its 2008 Common Statement on “Regulatory Principles of IP-IC/NGN Core”<sup>2</sup>, the ERG proposed the following:

“The possibility to impose Bill & Keep under the current regulatory framework could be explored further by ERG as well as other means to move towards Bill & Keep.”

ETNO does not believe that this current ERG document represents the suggested further exploration of the possibility of imposing BaK under the Framework – the current one or the newly-adopted revised framework which is to be transposed in member states by June 2011. Accordingly, ETNO calls upon the ERG to act upon to its own 2008 proposal.

### ***Cost-orientation***

ETNO would like to suggest that the imposition of BaK might even be counter to the EU Regulatory Framework.

In its 2008 Common Statement, the ERG said:

“In cases where NRAs want to shift to a Bill & Keep regime they could consider imposing termination rates of zero for the terminating segment up to the first router or switch and associated service control functions after the access/concentration network.”<sup>3</sup>

ETNO maintains that imposing termination rates of zero would be in violation of the cost causation and cost orientation principles which underpin obligations for cost-accounting mechanisms and price control to be implemented, in the context of Articles 9, 11 and 13 in conjunction with recital 20 of the Access Directive. Another deviation from these regulatory principles in this draft Common Position is the ERG’s suggestion to recover termination costs from interconnections origination services or from retail services.

### ***Relevant markets***

As per this draft Common Position, BaK is foreseen to serve as “a single terminating charging mechanism” for a “converged multi service NGN-IP.” To mandate BaK as proposed by the ERG “within the regulatory period related to the next market analysis”, an NRA

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1 Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities.

2 ERG (08) 26, “ERG Common Statement on Regulatory Principles of IP-IC/NGN Core - A work program towards a Common Position,” October 2008, p.81.

3 *Ibid*, p.85.

would have to conduct a market review and define a market for converged multiple (including voice) services. This would appear to deviate considerable from the 2007 European Commission Recommendation on Relevant Markets.

## Questionable timing

Even though the introduction of BaK is not specifically linked to the deployment of NGNs, this is a linkage is assumed in this draft Common Position, as the title suggests. As ETNO members can attest, the industry's migration to multi-service, all-IP NGNs and convergence of services is far more gradual than originally anticipated. This slow transition has been exacerbated by the global economic crisis. In addition, the target planning is also very different from country to country. In this context, the timing of the Common Position appears premature.

Moreover, the draft Common Positions assessment of BaK focuses on interconnection for voice services. It should be noted, however, that NGN/IP interconnection issues will be more complicated, as new multimedia services are expected to emerge, with different business models and wholesale agreements between operators and content providers. Introducing IP interconnection regulation before services and corresponding markets have adequately matured could have the effect of regulating one part of the value chain, preventing the market from finding new business models. An extension of voice service interconnection regulatory issues into the IP world seems to be inappropriate.

ETNO questions the proposed timing in the draft Common Position (e.g. "within the regulatory period related to the next market analysis") for the introduction of BaK interconnection regime given that the European Commission's "Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates" foresees the continuation of the CPNP regime to 2013 and onward. Against this background, the timing of the Common Position appears to run contrary to recent Commission guidance to NRAs and premature.

We also find that the draft Common Position is premature as it assesses – and even then without a thorough cost-benefit analysis – only BaK, what the ERG hastily concludes is "the most promising alternative to CPNP." The evolution of the current CPNP regime with cost-oriented, symmetric rates between larger and smaller operators, expected to be achieved via current price appropriate controls should be considered in the first instance. ERG then would be advised to look

to member NRAs' recent or on-going assessments of multiple policy options – especially where that assessment is made to more rigorous standard than that of the ERG. For example, the UK NRA Ofcom has recently concluded,

“there is no single regulatory option for termination regulation that is unambiguously better than the alternatives. Different approaches would affect different types of consumers to differing degrees, particularly if there were to be a sudden shift in approach, and considerable uncertainty remains about how future services might develop.”<sup>4</sup>

In the consultation document, Ofcom observes,

“The economic case for and against each of the candidate regimes is mixed, both in theory and in evidence. We have found that much of the evidence that might help guide our analysis is either difficult to obtain robustly or is open to more than one interpretation. For this reason, we have developed fresh evidence on some of the critical issues, in order to assist our analysis. That evidence is annexed to this consultation. There is no consensus on the correct regime in the economic literature or among the academic commentators consulted.”<sup>5</sup>

The timing for this draft Common Position is also curious given that the European Commission itself is in the process of contracting external consultants to produce a report on the future of interconnection charging<sup>6</sup>. This report for the Commission have a wider scope than this narrow Common position, analysing “the likelihood of a wide-spread use of BaK as well as its merits and drawbacks as compared to other charging mechanisms, its impact on convergence trend, on competition in the market, on investment and innovation in the telecoms sector and any spill-over effects on adjacent sectors, on consumer benefits, the overall contribution of a transition to BaK on the growth and competitiveness of the EU economy, and lastly the magnitude of required regulatory oversight at national and European levels.” This study is expected to be published in August or September 2010.

ETNO is also concerned that a statement from the ERG and individual NRAs in favour of BaK at this time could be seen as a ‘political’ signal in the context of the current debate on network neutrality and would give the wrong message, i.e., that the use of networks should be

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4 Ofcom has recently consulted on its assessment of six options for future termination regimes: 1) no regulation of mobile call termination ; 2) status quo, or long-run incremental cost plus (LRIC+) ; Long - run marginal cost (LRMC) ; Capacity-based charges (CBC) ; Mandated Reciprocity (potentially with fixed rates); Mandated BaK. See Ofcom , “Wholesale mobile voice call termination – Preliminary consultation on future regulation,” May 2009.

5 Ibid, Point 6.23.

6 See [http://ec.europa.eu/information\\_society/policy/ecomm/library/index\\_en.htm](http://ec.europa.eu/information_society/policy/ecomm/library/index_en.htm)

available “for free” in a time where major private-sector network investments are vital.

In summary, ETNO believes that regulatory intervention as regards future charging mechanisms for IP interconnection is not warranted and thus not appropriate at time. This conclusion was recently made by the economic consulting firm, WIK-Consult, in its report for the European Parliament<sup>7</sup>. We note that WIK previously has been engaged by both the ERG and the European Commission as an independent consultant to provide expertise on IP interconnection issues<sup>8</sup>.

## Transitory nature of *ex ante* regulation

ETNO would like to highlight a statement that the ERG uses twice in its text:

“Given the objective that sector specific regulation should be temporary, there is also a clear desire to simplify regulation and reduce the regulatory costs for all parties involved” [emphasis added].

We call upon the ERG to embrace this objective of eventual deregulation in its treatment of interconnection charging and all other regulatory matters.

For the avoidance of doubt, we do not consider that the introduction of BAK can be seen as deregulation.

And, as will be developed below, we do not agree with the ERG that the introduction of a BaK regime will reduce regulatory costs for parties involved.

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<sup>7</sup> WIK-Consult, “Next Generation Networks (NGN),” for Industry, Research and Energy (ITRE) Committee of European Parliament, IP/A/ITRE/ST/2009-10 - PE 429.973, October 2009, p.51.

<sup>8</sup> For example, Marcus, J. S. and D. Elixmann, with K. R. Carter and senior experts S. Bradner, K. Hackbarth, B. Jullien, G. Kulenkampff, K.-H. Neumann, A. Portilla, P. Rey, and I. Vogelsang, “The Future of IP Interconnection: Technical, Economic and Public Policy Aspects,” March 2008, a study prepared for the European Commission.

## Responses to specific consultation questions

**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?**

Different electronic communication services have different features and quality attributes and therefore place varying requirement on the charging mechanism. Via network management practices, the establishment of different service classes and possibly service-specific points of interconnection (PoIs)<sup>9</sup>, it is possible to distinguish classes of services and to achieve optimal charging for each. This so-called 'QoS-aware' IP interconnection' which would include different service classes at different prices would avoid arbitrage problems.

For example, with voice services, there is no separation between transport and service level; the interface is done at both levels and the voice interconnection support its own economic model. Accordingly, there is no arbitrage problem, and, if there was one, it would only be indirect, like relating to competition between services.

In contrast, the introduction of BaK would prevent the implementation of different service classes because there would be no incentives for investments in higher quality of service. Contrary to the ERG's draft position – such a regime would lead to an 'adverse selection' problem (see below).

### *Risk of unauthorised providers seeking interconnection on BaK terms*

Another complication with the proposed mandatory BaK regime is that, in addition to authorised providers of electronic communications which are already interconnected, other market players, i.e., unauthorised providers will be interested in taking advantage of interconnection because of the free access to networks under mandatory BaK. Due to the availability of IP and other protocols like ISDN User Part (ISUP), there is no longer a technical barrier to interconnection.

ETNO member companies have already encountered many unauthorised providers requesting interconnection -- not for the purpose of selling public telephone services but rather to cover the needs of their own business plans and/or to exploit arbitrage opportunities. For example, even though they have very asymmetrical traffic profiles, broadcasters have requested BaK

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<sup>9</sup> The points of interconnection could be different according to such or such type of traffic (different equipments or batches of IP addresses on the same equipment).



interconnection in several jurisdictions. Content providers and content distributors of all kinds and sizes, producing all sorts of traffic and volume, are seeking interconnection, as are IP television (IPTV) and video on demand (VOD) providers. Similarly, commercial enterprises and government administrations are requesting interconnection, even at times creating an ad hoc subsidiary to be granted a BaK status and thus benefit from free telecommunication services from network operators. BaK-based IP interconnection would enable such an actor to originate and send traffic from a virtual private network (VPN) without bearing any of the cost of the network infrastructure used to transmit the call.

**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?**

Although there is a tendency in NGNs to have greater separation between transport and service levels, it is unclear at present whether a complete separation of these levels will ever be possible -- especially if end-to-end service quality is required, as is the case with voice services and, in particular, voice services intended to substitute for publically available telecommunications services (PATS) voice.

A strict separation of transport and service layer as discussed in the draft Common Position would not allow the end-to-end quality of service necessary to provide high quality time-critical services in an NGN environment. Managed NGNs are a pre-requisite for the fully secure networks of the future. The public Internet could not assure security and integrity of networks and services as, e.g., required by the new proposals on security of networks for the EU Framework.

We also challenge the ERG's conclusion that BaK would not lead to a lower quality QoS levels for voice and other services. Mandatory BaK as proposed in the draft Common Position would lead to adverse selection in the context of QoS. As network operators would not be compensated for the network usage, the higher costs incurred in providing a higher QoS than 'best effort' transport could not be recovered. Accordingly, the incentive to invest in QoS declines. Moreover, given that the quality of voice service is the sum of the quality parameters of an end-to-end connection, this could also lead to free rider problems in context of QoS investment.

The ERG also fails to take account of the major 'free-rider' problem which would be created under a BaK regime in terms of investment for network maintenance and expansion. BaK would destroy network investments incentives -- in particular, when symmetry of interconnection partners plays no role, as proposed in the draft Common Position.



As mentioned above, the optimal way to realise different services in an NGN is to implement different service classes with tiered QoS levels with the respective optimal charging. The specific characteristics of the different services determine the optimal charging mechanism. Thus, dependent on the service, different charging mechanisms will be optimal.

**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)?**

We have concerns about the ERG recommending that NRAs set rules regarding this boundary, for example, specifying a lower limit defined by a maximum number of points of interconnection (PoIs) and ignoring complex routing mechanisms or regional parameters/particularities.

Again, we remind the ERG that the NGNs and the migration to IP interconnection is still at a nascent stage in EU member states. Most network operators are still in planning stages and cannot provide definitive statement about network modelling and network architecture. Furthermore, there is still considerable uncertainty about factors which will influence the number of PoIs. Technical developments, QoS, security issues, traffic and service development (e.g., whether a PoI could be used for different kinds of services and usage) will determine how the network structure will evolve and thus determine the possible number of PoIs. This would be subject to change in 5-15 years, depending on best practice in operations, etc. Defining the number of PoIs in advance could lead to an artificial and more costly network structure than otherwise needed.

Ironically, the premature introduction of BaK itself would have a major impact on network modelling and architecture, possibly resulting in major network redesign and its resulting cost. Even in new IP networks, the new business model based on BaK could have a major impact on the network design.

Returning to the issue of PoIs, as mentioned in ETNO comments to previous ERG consultations<sup>10</sup>, the mandated setting of a maximum number could lead to inefficiency, particularly to inefficient investments. We maintain that the free rider problem in the context of the 'hot potato routing' problem could only be solved with a large number of PoIs near the customers. However, as also mentioned in previous contributions, what is known today is that the efficient amount of PoIs in a NGN will be lower than in the PSTN. Unfortunately, these issues are not addressed in the current ERG consultation.

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<sup>10</sup> "ETNO Reflection Document in response to ERG consultation on Regulatory Principles of IP-IC/NGN Core," RD286, July 2008.

Before asking for a specific amount of PoIs, ERG should describe the conditions and effects of setting such a BaK-boundary in more detail. Particularly, the different scenarios should be assessed when a network operator could participate in a BaK regime.

### *Capacity at PoIs*

Another issue that the ERG fails to address in this draft Common Position is capacity at PoIs. When two interconnected operators cannot use price to adjust their interconnection agreement, they use interconnection capacity as a negotiation tool. The access seeker will ask for the maximum capacity, but the access provider will offer the minimum in the absence of any incentives. This could lead to disputes and to congestion at the connecting point; however, congestion can and will spread throughout the networks through the following phenomena:

- (1) when a direct route is congested, routing algorithms try indirect routes, hence the average number of links and nodes per communication increase, this inflates the amount of traffic to be carried by network elements and produces new congestion, which in itself implies even more indirect and inefficient routes and so on;
- (2) in a congested network, calls or packets are lost and are thus repeated at the source of the traffic until they reach their destination, therefore overall traffic increases.

In a congested network, it is extremely difficult to identify the original cause of congestion. It is very likely that increasing capacity somewhere will generate congestion elsewhere with no improvement of end to end performance for customers. It is difficult therefore, to define where capacity provisioning would be necessary.

If mandatory BaK eliminates price as an adjustment factor, the only remaining adjustment factors are quality and capacity. This phenomenon was very common in the bilateral national agreements related to international trunk groups. When an operator disagreed with a proposed tariff, considering that it was not equitable due for instance to the unequal volumes of exchanged flows, the consequence was often a reduction in interconnection capacity.

IP traffic on core networks is estimated to grow by around 40% per year on average. Therefore, it is necessary to continually invest to guarantee a satisfactory interconnection capacity and to adjust the necessary technical resources. Without financial compensation for interconnection, the system will lack any incentive to invest. This could result in broadband access being sold at “the best capacity the (existing) line can offer” and reduced flat-rate prices for retail customers. But if these retail flat-rates were combined with BaK, then there would be no economic incentive to bring higher broadband capacity to customers with low bandwidth eligibility. In contrast to this, real mobile termination rates (MTRs) resulted in mobile coverage

targets being achieved without any government intervention; installing a new base station clearly and automatically meant more revenue.

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

As mentioned above, before examining the potential relationship between BaK and penetration, usage and price level, ETNO calls upon the ERG to evaluate the impact of cost-oriented termination under the existing CPNP regime on penetration, usage and price level. Evidence is emerging that retail price structure is influenced by the level (and potentially the structure) of wholesale charges and that this has an impact on penetration and usage.

***Rigorous empirical analysis needed***

ETNO believes that a robust empirical approach – whether qualitative or quantitative – is required, if independent research and analysis are to be used for policy advice

Accordingly, ETNO would like to challenge the use of Merrill Lynch “Global Wireless Matrix,” a data set created for commercial and financial analyses, as its source for its empirical analysis in the ERG’s assessment. It is not clear, for example, whether “minutes of use (MoU) for the United States indicates outgoing calls or both outgoing and incoming calls or call minutes purchased in ‘buckets’ or other calling plans.

Furthermore, the empirical data – from one country and two city states (Hong Kong and Singapore) -- is too small a basis on which to draw a conclusion that BaK is the optimal future charging mechanism. Moreover, data points from densely-populated and fairly socioeconomically homogeneous cities are not relevant for comparison with European countries with their heterogeneous geographies, population dispersal and customer segments.

Moreover, the ERG recognises itself that the interconnection regime in the United States is not in fact a BaK regime (p. 22) -- in particular, not in the sense suggested by ERG. Previously, the ERG has stated that there are effective termination rates in the U.S. mobile market. Even if these rates are nominal, they are not zero as in the BaK regime proposed by the ERG. In footnote 38, ERG describes additional important issues:

“It is noted that (1) it is not sure that mobile operators are all within BaK agreements, although it seems to be the case of the majority of interconnections; (2) that the BaK regime in the US is not a regulatorily imposed BaK, but negotiated commercially between mobile operators, (3) that these agreements are likely to have clauses in which mobile

operators keep the possibility to opt out from these agreements if they want. However, we use the US data here to get a prediction of the effects of BaK and in that light it does not seem to be relevant that BaK is not a regulatory regime.”

Therefore, the U.S. interconnection regime for mobile services seems to be more like a market-driven peering arrangement. As we explained in our former comments, today’s peering and transit arrangements are different from the proposed BaK regime. Thus the U.S. regime, which is the critical empirical evidence for the ERG, is not actually comparable to the proposed BaK regime and should be discounted completely for the purposes of this assessment.

ETNO calls upon the ERG to identify reputable third-party sources or develop its own data set which would truly enable it to analyse the relationship between the charging mechanism and penetration, usage (average and for representative user profiles/baskets), price level *and* quality parameters. Such an approach was recently followed by the UK NRA, Ofcom<sup>11</sup>. One questions why the ERG did not draw upon the Ofcom-commissioned data set and analyses conducted earlier this year.

#### *Impact on retail pricing of mobile services*

As businesses working to succeed in difficult economic times, network operators are looking at all possibility to reduce costs to either limit losses or maintain profitability. If they are unable to cover the costs of termination, as would be implied with a proposed zero-rate under mandatory BaK, they will be forced to recoup this loss elsewhere by increasing the price of other services.

As the ERG itself recognises, low-usage pre-pay mobile services in particular will experience a loss of revenue due to a move from CPNP to BaK. If mobile operators are forced to raise the price of these services, this will un-fairly impact specific segments of end-users. This could result in some users having to cease their mobile service and thus in lower overall mobile penetration. And it should be noted that these ‘at risk’ low-usage customers are often vulnerable customers, for example, lower socio-economic classes, the elderly, and immigrants.

ETNO recommends that such negative effects be examined more thoroughly. For example, see Annex A for a sample analysis done by Telenor for the Norwegian mobile market.

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<sup>11</sup> Ofcom , “Wholesale mobile voice call termination – Preliminary consultation on future regulation,” ( May 2009), which includes a cross-country econometric study commissioned from Professor Pesendorfer and the Competition Economists Group on the relationship between wholesale termination charges and take-up (and prices) once the other key determinants of take-up and prices are controlled.

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

We disagree with the ERG conclusion that BaK will decrease the regulatory uncertainty and the risk of legal disputes. Without defined operational processes, a mandatory BaK regime will result in conflicts, e.g., comprising quality issues that the regulator will have to resolve in dispute resolution mechanisms. The regulatory cost of such disputes should not be underestimated.

ERG also mentions that their concept of BaK envisages that “BaK only applies if an operator connects to all PoI” (p. 18) of the regulatory boundary. If so, the regulatory costs increase because termination rates for the so called “local termination” would have to be determined by the regulator for those operators who wouldn’t fulfil the condition that they connect to all PoIs. Therefore, the regulatory cost wouldn’t decrease under BaK as alleged by the ERG. Furthermore the mark-up of the origination service leads to price differences between origination and termination which also has to be regulatory determined.

Imposing BaK would also eliminate relevant price signals in the economic and operational relations between network operators and with service providers, leading to high legal and operation difficulties for the industry.

One of the supposed attractions of BaK is the lower costs of operating a simplified interconnection billing. ETNO challenges the ERG assumption that BaK will automatically minimise transactions costs.

As with transit and carrier selection (CS) and pre-selection (CPS) interconnection, ‘freefone’ and premium rate retail services require charging for traffic at the interconnection handover point and the maintenance of billing systems. These business models must be treated separately and supported by any proposed regime.

The draft Common Position recognises that BaK is only appropriate for “final switch” termination. As such, in the context of interconnecting multi-service NGNs, there will be no reduction of complexity in the interconnection billing requirement arising from a mandatory move to BaK.

**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.**

ETNO believes that ERG is underestimating the risk of a major increase in unwanted calls and SPIT when termination rates are set to zero. It is almost impossible to predict the exact effect on customers of BaK wholesale charging mechanisms. However, it is clear that with the introduction of a BaK system for NGN, the cost of new forms of

spam over the Internet telephony will also be very low. It is logical then that customers will experience more unwanted incoming traffic than they do now.

Given that BaK will foster the SPIT and the fact that with BaK the called party also has to pay for the call, this will have a significant negative impact on the customer. In context of call externalities, this means that customers also have to pay for unwanted calls. These unwanted calls will create negative call externalities. This means that from an economic viewpoint, the called party should be compensated for these negative effects. Unfortunately the ERG does not mention this problem, although this was described in comments in previous ERG consultations on IP interconnection.

While some member states have introduced consumer protection measures and so-called 'opt-out' or 'opt-in' systems for telemarketers, they do not apply to unwanted communications coming from outside the jurisdiction (e.g., from Asia).

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

As mentioned above, we challenge the ERG's high-level conclusion that the introduction of BaK would result in higher consumer welfare. The global welfare effect critically depends on the value of network externalities and call externalities. We find that the network externalities are arbitrarily understated in the draft Common Position and call externalities are overstated.

In general, BaK would only be justified in case of major call externalities which the ERG's analysis does not demonstrate. It only concludes that "the utility of the called user is lower than that of the calling user, but that the difference is not very significant."

Other sources, such as the Jigsaw survey made for Ofcom<sup>12</sup>, reflect different conclusions. In most scenarios presented to users, in case of charges for inbound calls, high percentages of respondents will change their pattern of receiving calls and some of them never answer them. For example, 12% of pre-paid customers will stop using their mobile in case of inbound call charges, even in case there is a 50% reduction of outbound call charges. This suggests that externalities are not so huge.

In our view, it is necessary to undertake rigorous empirical analyses to fully understand the extent of call externalities.

As mentioned above, the negative welfare effect on low usage (and possibly vulnerable customers) is without doubt.

Overall, the statement of the ERG that BaK is the charging mechanism would best internalise call and network externalities is not justified.

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<sup>12</sup> Mobile calling patterns research annex 10.2 of Ofcom consultation "Mobile call termination", May 2009



As mentioned above, for example, the negative call externalities for the called party in the context of unwanted calls are not mentioned.

**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.**

*Varying impact on market players*

ETNO believes that the consequences of varying negative effect on different types of operators have not been sufficiently examined by the ERG.

ETNO rejects the ERG's conclusion that the introduction of BaK would not have substantial negative effects on operators given the falling (incremental) cost per minute and the expected lower level of termination rates under the current CPNP regime. In addition, one would anticipate a massive decrease in revenue streams voice and negative effects from "traffic from outside BaK domain" (See also answer to Question 9).

A mandated BaK-approach as proposed by the ERG would inevitably induce considerable market distortions especially in the case of asymmetries.<sup>13</sup> If symmetry is not fulfilled in a BaK-relationship, larger networks are disadvantaged because they bear higher network costs than small networks. This is relevant if the market structure is heterogeneous as is the case in most fixed and mobile markets where there are various network operators with different network sizes and network costs.

Mandatory BaK in the meaning of this draft Common Position -- with no payment at wholesale level irrespective of symmetry of the interconnection partners -- would lead to free-rider problems and destroy investment incentives. The argument that the cost could be covered by the own customers does not hold because strong competition in the retail market will drive down retail prices to very low levels. Furthermore, there are multiple large network operators which simply do not have (retail) end-customers but only interconnection partners. So no network operator will have an incentive to increase his costs by own network investments when he could use the networks of the interconnection partners with BaK for free (see the above mentioned hot potato routing and 'free rider' problem).

*Carrier selection (CS) and pre-selection (CPS) wholesale services*

As outlined by the ERG, the introduction of BaK would mean that CS and CPS operators only pay for originating traffic and no longer pay for termination any more. This would mean their cost for termination disappears while they would not – like network operators with incoming traffic – suffer a loss of incoming revenue from termination.

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<sup>13</sup> See ERG (2008), Consultation Document on Regulatory Principles of IP-IC/NGN Core, p. 84.



They would no longer pay the total cost of using the networks of other operators, and this would give them a relative competitive advantage compared to network operators. Any potential incentives to climb the ladder of invest thus fully vanishes eventually.

As regards the use of a mark-up on the regulated rate of originating traffic that CS and CPS operators pay to the SMP operators, it is possible that this also could lead to asymmetries in the context of alternative network operators. Consideration should also be given to creating an incentive via this mark-up for CPS operators to invest in the optimisation of their costs for network termination. These issues require further treatment before a final view could be reached.

In this context, we remind the ERG and NRAs that while the cost to regulators and the industry of price control-related cost modelling and dispute settlement for termination could be reduced and eventually eliminated, it will continue for origination. And new costs will be imposed for setting the regulated mark-up mentioned above.

**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?**

Yes, ETNO agrees with the conclusion that operators/users in the BaK domain will subsidise traffic coming from outside the domain. We concur with the ERG view that operators in a BaK domain will not be able to efficiently differentiate and charge a significant fee for traffic coming from outside the domain. Not being aware of other mechanisms to prevent this subsidy flow and arbitrage opportunities, ETNO is greatly concerned the ERG seems to discount this serious downside to BaK.

ETNO which represent operators in many small and 'micro' member states calls upon the ERG to better assess the impact of the conclusion that when BaK is introduced in a certain domain (country, or group of countries), while other countries use the CPNP regime, a subsidy from the BaK domain to the CPNP domain cannot be prevented.

If there was truly a consensus among ERG members and the Commission and the industry that mandatory BaK would be the best alternative for the interconnection of communication networks in the long-term, it would need to be implemented in all EU member states at the same time -- at some appropriate time in the future. The impact of non-EU members not applying BaK should be investigated as well. Money transfer from Europe to outside Europe should be avoided. Competitive advantages for international operators should be excluded in using the BaK mechanism offered in a specific country. Uncoordinated, county-by-country imposition/adoption and implementation would lead to market fragmentation and a non-level

playing field, significantly impacting the operation of the EU single market.

As the ERG supports itself, having a significant percentage of traffic to neighbouring countries that use CPNP regime (which means BaK introduces a subsidy to the CPNP domain) is a 'con' which would justify continuation of the CPNP regime

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

Some of ETNOs concerns regarding possible implementation are developed above, such as an uncoordinated, county-by-country introduction.

If mandatory BaK were to be imposed by NRAs, migration issues and timing would be critical. Any glide-path transition foreseen will depend on the substance of the change, largely dependent on the level of the termination rates under CPNP at the start of the migration. As for the speed of migration, it is important that any mandated migration should allow retail business models to adapt – or new business models to be developed. And, of course, any new business model would have a major impact on the network design, architecture and dimensioning. Also the billing systems would need to be updated and adapted to account for the complexity of boundaries and the differentiated application of BaK for the different type of calls.

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

***Treatment of transit services under mandatory BaK***

As mentioned above, the draft Common Position focuses strictly on termination services, failing to address how important transit services are to be treated and charged – relevant for traditional interconnection as well as for retail services, such as 'freefone' and premium rate services.

***Alternatives to BaK***

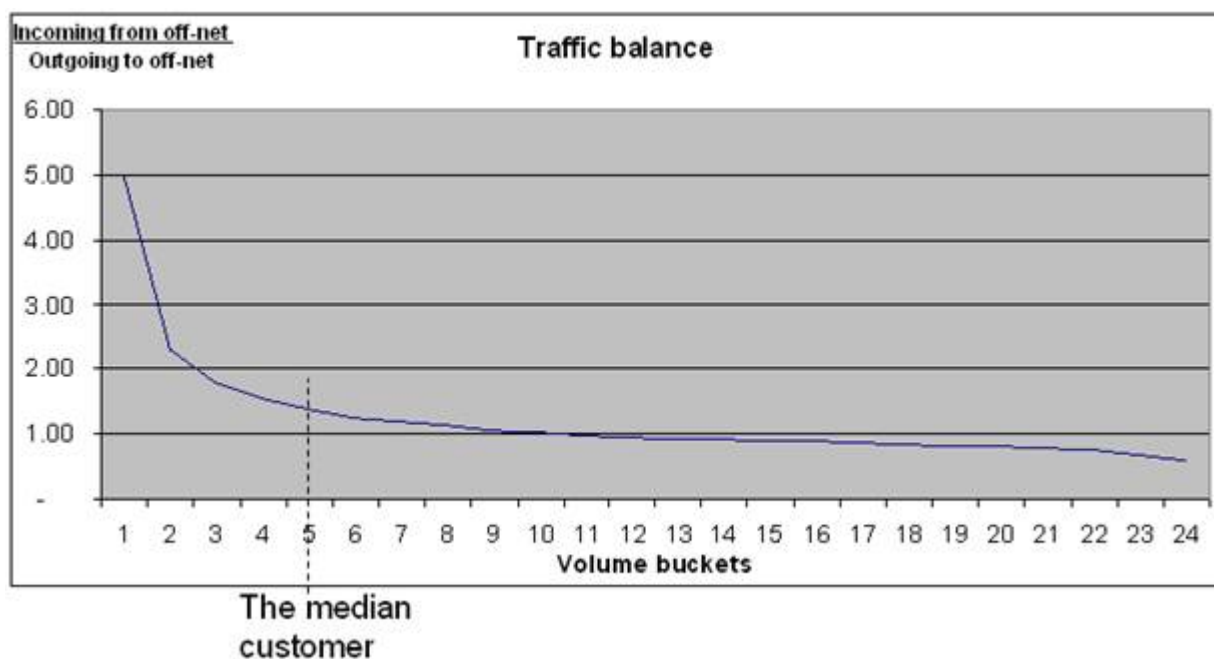
As outlined in our introductory remarks, ETNO calls upon the ERG to reconsider positive developments for the CPNP regime – in particular, capacity-based charging and QoS-aware IP interconnection.

If the ERG's interest in future charging regimes is indeed motivated by the convergence on a multi-service IP network and not only voice, the general economy of interconnection also should be considered.

## Annex A

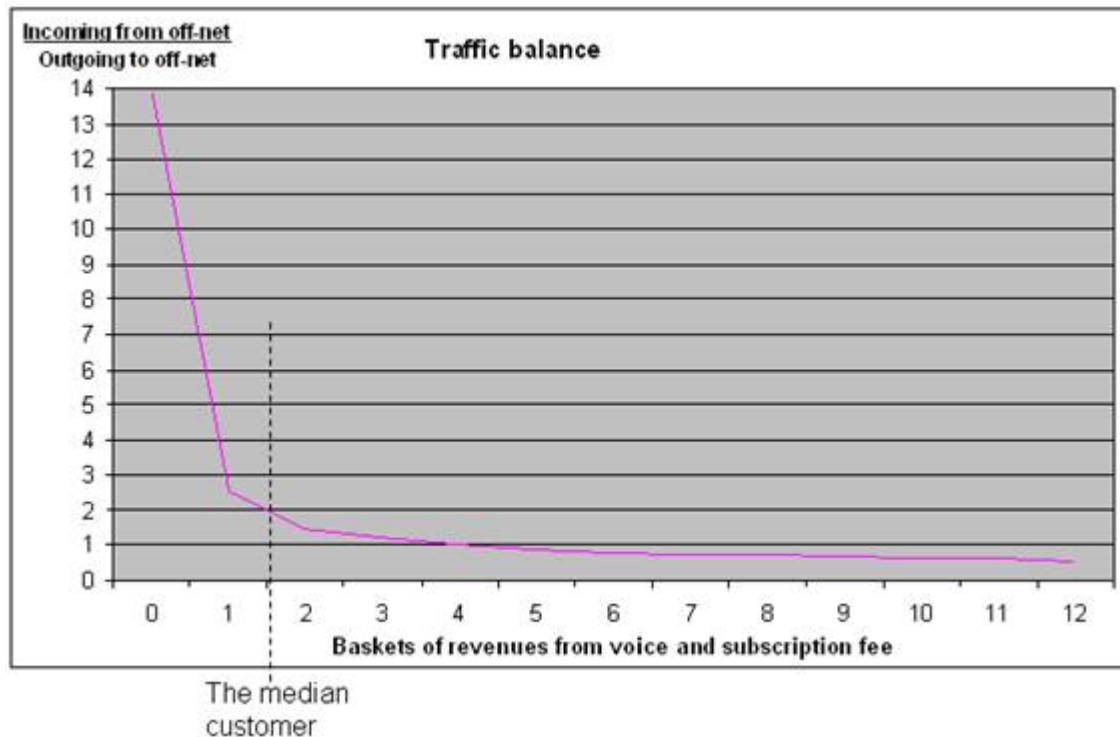
For example, empirical data from markets where Telenor is a mobile operator shows that on average the low volume users are termination intensive, i.e., have more incoming traffic than outgoing, while the high volume users are origination intensive. This phenomenon is particularly strong in the Norwegian market.

The figure below shows the traffic balance of off-net traffic for the mobile business of Telenor in Norway. The figure is constructed by first splitting the customers into different volume baskets (basket 1-24). Each basket represents the same amount of minutes, not customers. For each volume basket, we have calculated the amount of incoming voice from competitors (off-net) divided on the amount of outgoing voice to competitors. The customers with little outgoing traffic, i.e., the customers in the first baskets, have several times more incoming than outgoing traffic.



On the next graph, one has grouped the customers after their monthly expenditures on voice calls and fixed subscription fee. In doing so, one finds the same pattern as volumes; the customers with very little monthly expenditures have much more incoming traffic than outgoing traffic. Actually, some customers have zero expenditure on voice and fixed fee (referring to the customers in group 0). These customers have almost 14 times more incoming traffic from Telenor's competitors than they call off-net. These customers generate very little profit to the operator in the retail market, but if TRs are above (marginal) cost,

these customers may generate some profit to the operator in the interconnection market.



With such traffic patterns, low volume and low ARPU customers are relatively more attractive in a regime with TR above cost. With TR above cost, low volume and low ARPU customers generates a positive interconnection balance, and hence the operators will compete more aggressively for these customers in a regime with TR above cost, than with TR below cost, including B&K as an extreme case. A possible positive welfare effect from reducing TRs is created from a welfare gain for high volume and high ARPU customer, but at the sacrifice of the lower volume and lower ARPU customers.

For a fuller development of this analysis and argumentation, see Telenor's individual submission to this ERG consultation.