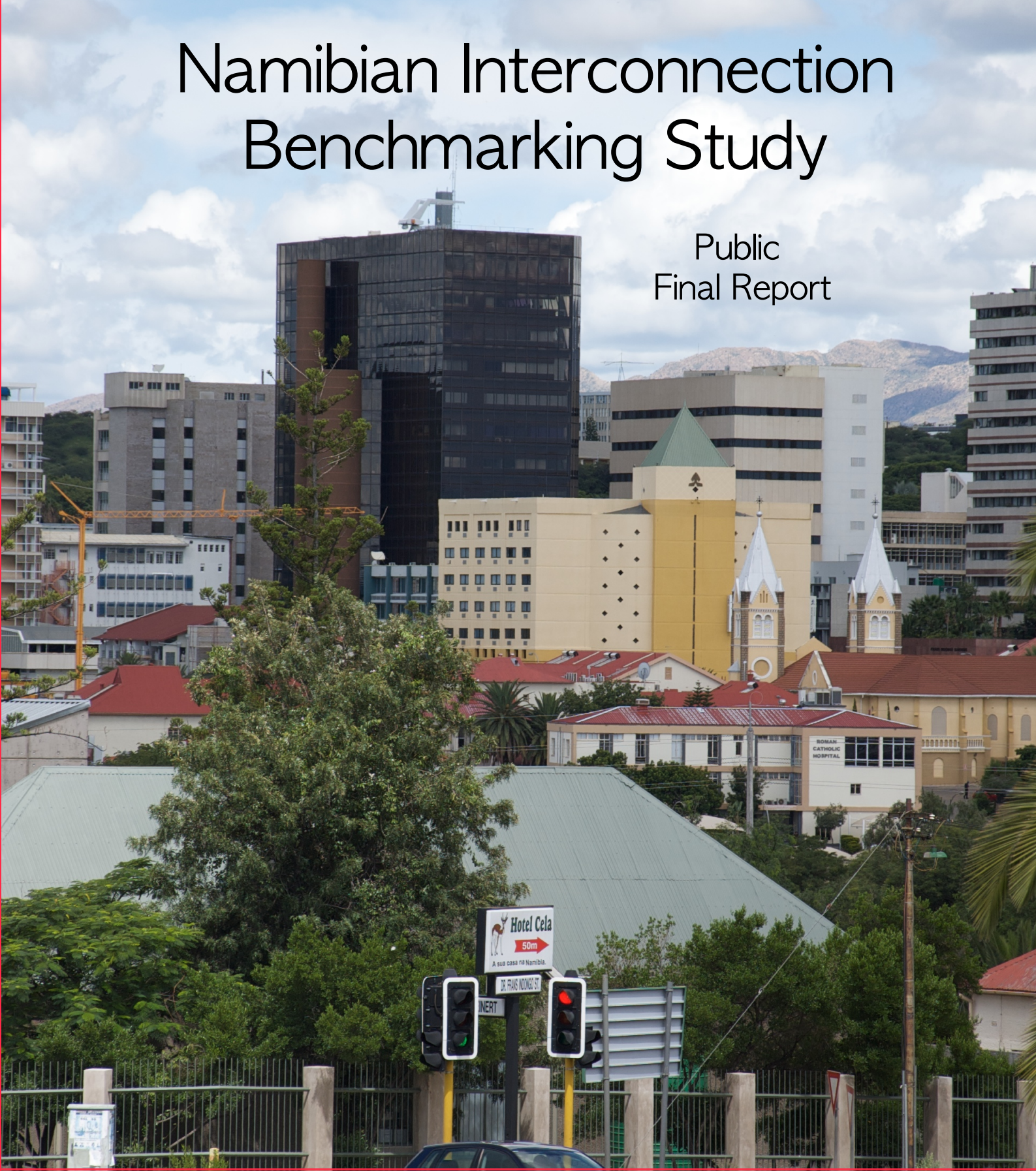
Namibian Interconnection Benchmarking Study

Public
Final Report



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Executive Summary

Regulators across Europe and Africa agree that termination rates should be based on the cost of providing the termination service. CellOne's and MTC's licences, Namibia's ICT policy and the draft bill discussed currently by parliament require the same.

The most widely applied cost standard is the forward-looking long-run incremental cost (LRIC) of termination of an efficient operator. Termination rates at cost of termination will remove economic distortions witnessed in Europe and Africa today and prepare the markets for a smooth transition to IP-based Next Generation Networks. Symmetry between mobile and fixed termination rates supports fixed-mobile convergence and removes distortions that would advantage mobile operators. It is also quite clear from international best practice that asymmetric termination rates are not the best tools to facilitate market entry. More effective mechanisms exist that do not lead to economic distortions and entrenched traffic imbalances.

Benchmarking indicates that the cost of termination in Namibia is in the region between N$0.12 to N$0.35 based on current technologies, and declining over time. MTC's estimated cost of termination is N$0.24 based on MTC's annual report and call volume information submitted to the NCC.

This study proposes to set the ceiling for symmetric converged termination rates at N$0.30 starting from 1 July 2009. This ceiling includes a 25% mark-up over the estimated cost of termination of an efficient operator (MTC's N$0.24). Operators would be able to negotiate commercially for lower termination rates including Sender Keeps it All or Bill & Keep.

This proposed regime enforces the licence conditions of CellOne and MTC, implements Namibia's ICT policy regarding interconnection, and is in line with the telecommunications bill currently discussed by the Namibian parliament.

Telecom Namibia and CellOne accepted the proposed model. CellOne pointed out that further regulatory interventions, most of which would be conducive to fair competitive, need to be undertaken to level the playing field.

MTC did not agree to any of the suggested models and declined to supply cost data that would have allowed a more precise estimation of its cost of termination. Instead it proposed its own glide path models with termination rates that are not cost based, transparent, sufficiently unbundled, nor subjected to independent corroboration.

The present study has benchmarked the cost of termination and used a top-down cost estimation for a common sense check on the results. An LIRC study using international best practice is likely to get to similar or even lower results. MTC, or any other operator, can request a revision of termination rates by demonstrating that its forward-looking long-run incremental cost of termination is above the prescribed ceiling. This should be done using LRIC methodology based on the EU recommendation. The results of such a study need to be presented to the regulator in a transparent and sufficiently unbundled way.

The market developments need to be closely monitored by the NCC and a review of termination rates should be conducted every two years to ensure that termination rates are kept current in light of declining cost and rate trends.

The NCC needs to move swiftly to avoid market exit and ensure that operators compete fairly for market share.

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Introduction

Following a dispute about interconnection charges between Namibian telecommunication operators, a consultative workshop on interconnection models was held on the 13 October 2008 in Windhoek. The following consensus was reached among the participants:

> International Benchmarking is the preferred approach to determine interconnection rates prescribed by the regulator when carriers fail to agree on terms of interconnection within a reasonable period.

The following persons were present at the workshop: Hon Minister J. Kaapanda (MICT), Hon Deputy Minister R. Dinyando (MICT), H. Kassen (MICT), W. Bekker (Ministry of Justice), D. Imbili (NCC), B. Hara#Gaeb (NCC), F. Ndoroma (Telecom Namibia), T. Klein (Telecom Namibia), C. Bastiaans (Telecom Namibia), S. Shanapinda (Telecom Namibia), F. Haugen (CellOne), T. Bazuin (CellOne), K. Rimmer (CellOne), M. Gerlades (MTC), A. Aochamub (MTC), FK Mbandlia (MTC), C. Faure (MTC), C. Stork (NEPRU/RIA).

The new telecommunications bill will extend the responsibilities of the regulator with respect to establishing an interconnection regime, including a dispute settlement framework for the sector. In order to implement the industry consensus reached at the workshop, and in anticipation of the new telecommunications bill, the regulator needs to establish an interconnection termination model for Namibia based on benchmarks from other jurisdictions that have implemented cost-based interconnection regimes. The consultant is required to perform the following tasks:

- Review of interconnection regimes in Africa and other appropriate regions;
- Case studies of the interconnection regimes in Tanzania and Botswana;
- Review of interconnection models and best practices of OECD countries;
- Cost study to determine the country-specific cost difference to benchmarked countries; and
- Development of a scalable interconnection model for Namibia that can be adjusted to market dynamics.

Determining termination rates using benchmarking models requires benchmarking of termination rates and benchmarking of termination costs.[1] Termination rates differ from operator to operator and from country to country. The difference between termination rates and termination costs also varies.

After providing a brief background on Namibia's telecommunication sector, this study discusses termination rates and costs in the European Union and selected African countries and best practice in interconnection regulation as the basis for an interconnection model for Namibia.

[1] Termination rates are the wholesale rates charged between operators. Termination costs are the costs of provisioning a particular service.

Background

The Namibian Communications Commission (NCC), established in 1992, reports to the Ministry of Information and Communication Technology, and is solely funded by the government. The NCC is expected to become a fully-fledged independent regulator for the entire ICT sector with the passing of the new telecommunications bill, which has been in draft stage since 1999. The new telecommunications bill will extend the responsibilities of the regulator with respect to establishing an interconnection regime, including a dispute settlement framework for the sector.

The new bill will make the regulator financially independent of government, allowing it to collect licence fees to fund its own operation and the universal service fund (Stork, 2008). New ICT policies dealing with broadcasting, telecommunication, IT, licensing, and ICTs in general were drafted in early 2009. The overarching ICT policy and the telecommunication and broadcasting policies contain fairly vague sections about universal access. It will be left to the new regulator to define concrete objectives and design strategies to attain them. Regarding interconnection, the new telecommunication policy states:[2]

- Individual licensees must allow any other licensee to interconnect its services and network with that of the individual licensee unless such a request is technically or financially unfeasible. Interconnection charges must be such that they ensure a fair, transparent and pro-competitive access regime.
- The party providing interconnection and/or facility leasing must provide services that are sufficiently unbundled.
- The Regulatory Authority may prescribe benchmark charges for interconnection. These charges should be determined in accordance with international benchmarks on interconnection. A carrier must charge the benchmark fees prescribed unless it can prove to the Regulator that its forward-looking incremental costs will exceed the prescribed benchmark fees.
- Interconnection creates open network access. Any commercial network should be fully accessible to any other operator in a non-discriminatory manner, whilst protecting privacy of subscribers and databases.

Namibia's Telecommunication Sector

Telecom Namibia is the only fixed-line operator in Namibia and is owned by Namibia Post and Telecom Holdings (NPTH), which in turn is owned by the State. NPTH is also a majority shareholder of Mobile Telecommunications Ltd. (MTC), which was awarded a mobile telecommunication licence in 1996. In July 2006, 34% of MTC was bought by Portugal Telecom. MTC still has about 87% market share and subscriber numbers are increasing. A second mobile licence was awarded to CellOne in 2006. CellOne launched its services in April 2007. Telecel Globe, a subsidiary of Orascom Telecom, bought 100% of CellOne in January 2009. Telecom Namibia launched a mobile service in late-2006/early-2007 called Switch, based on CDMA. Switch was restricted to fixed-wireless until May 2009 due to political pressure.[3] MTC and CellOne use GSM to provide mobile telephony, while Telecom Namibia uses CDMA. Telecom Namibia has a statutory licence but not a statutory monopoly. It remains a *de facto* monopoly until an additional fixed-line licence is awarded, thus breaking Telecom Namibia's monopoly.

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[2] Telecommunications Policy for the Republic of Namibia 2008, Final draft, 18 September 2008.

[3] CellOne and MTC had argued that Switch would be illegal and lobbied the Government to stop Telecom Namibia from providing mobile services. However this is not the case, and Telecom Namibia "voluntarily" restricted its service to fixed-wireless due to political pressure (Stork & Deen-Swarray, 2007).

Table 1: End of September 2008 subscriber figures for Telecom Namibia and MTC and end of June 2008 figures for CellOne (Source: Annual reports and information provided to NCC)

	MTC	CellOne	Telecom Namibia Switch	Total
Total Subscribers	1,008,658	114,177	31,705	1,154,540
Total Market share	87.4%	9.9%	2.8%	100.0%

End-users' Internet access is available in the form of modem dial-up, ISDN, ADSL, leased lines, Wi-Fi hotspots, line-of-sight wireless and mobile 3G or CDMA. Telecom Namibia provides Namibia with international bandwidth through the SAT3 cable via the Cape Town landing point and via satellite. Namibia is a non-landing consortium member of SAT3. Telecom Namibia[4] joined the West African Cable System (WACS) consortium. VSAT is used by MTC and Mweb (an ISP), among others, to provide additional bandwidth. Further international bandwidth is obtained by ISPs leasing capacity from South Africa. MTC and CellOne were awarded international data gateways in 2008. Potentially, this will further increase Namibia's international data capacity.

[4] MTC and CellOne are expected to join Telecom Namibia as sub-consortium members and Botswana might join as well.

Table 2: End of Financial Year Figures: September 2008 for Telecom Namibia and MTC and end of June 2008 figures for CellOne (Source: Annual reports and information provided to NCC)

	MTC	CellOne	Telecom Namibia
Total call volume in '000	775,819	31,934	537,141
Direct revenue per minute in N$	1.63	1.20	0.00
Direct cost per minute in N$	0.34	1.13	0.51
Opex per minute in N$	0.97	10.14	1.05
Total expenditure per minute in N$	1.02	11.22	1.41
Total revenue per minute in N$	1.65	2.43	
Minutes per subscriber in '000	0.77	0.28	N/A
Revenue per subscriber in '000 N$	1.27	0.68	N/A
Termination revenue as share of total revenue	11.2%	9.8%	6.0%

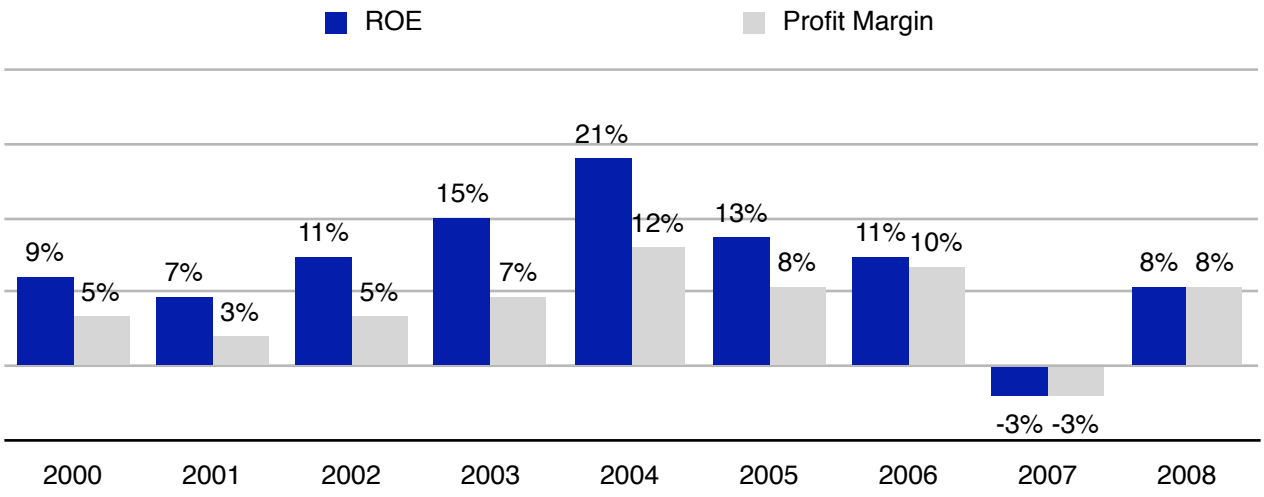

Figure 1: Return on equity and profit margin of Telecom Namibia

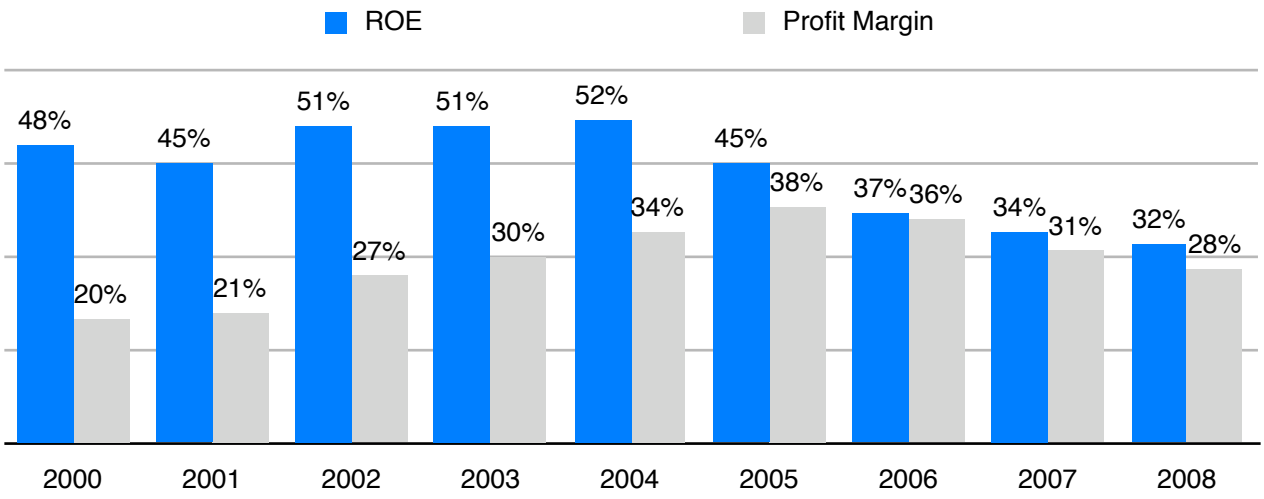

Figure 2: Return on equity and profit margin of MTC

Telecom Namibia's return on equity and profit margin dropped to -3% in 2007. This can be attributed mainly to the roll-out of the CDMA service, SWITCH, and associated costs. Both return on equity and profit margin were positive again in 2008 at 8%. MTC's return on equity was very high at around 50% until 2005/6, when the arrival of competition in the mobile telephony sector led to a drop to a still-high 37% in 2006, 34% in 2007 and 32% in 2008. The same trend can be observed for profit margins, which peaked in 2005 and have since then begun to decline. CellOne's return on equity and profit margin are substantially negative and CellOne will need a capital injection to avoid negative equity in 2009 if losses remain as high as they have been in 2008. However, such financial figures can be expected from a new entrant in the telecommunication market. New entrants usually need several years before they break even. For example, South Africa's CellC turned a profit in 2008 for the first time, after becoming operational in 2003.

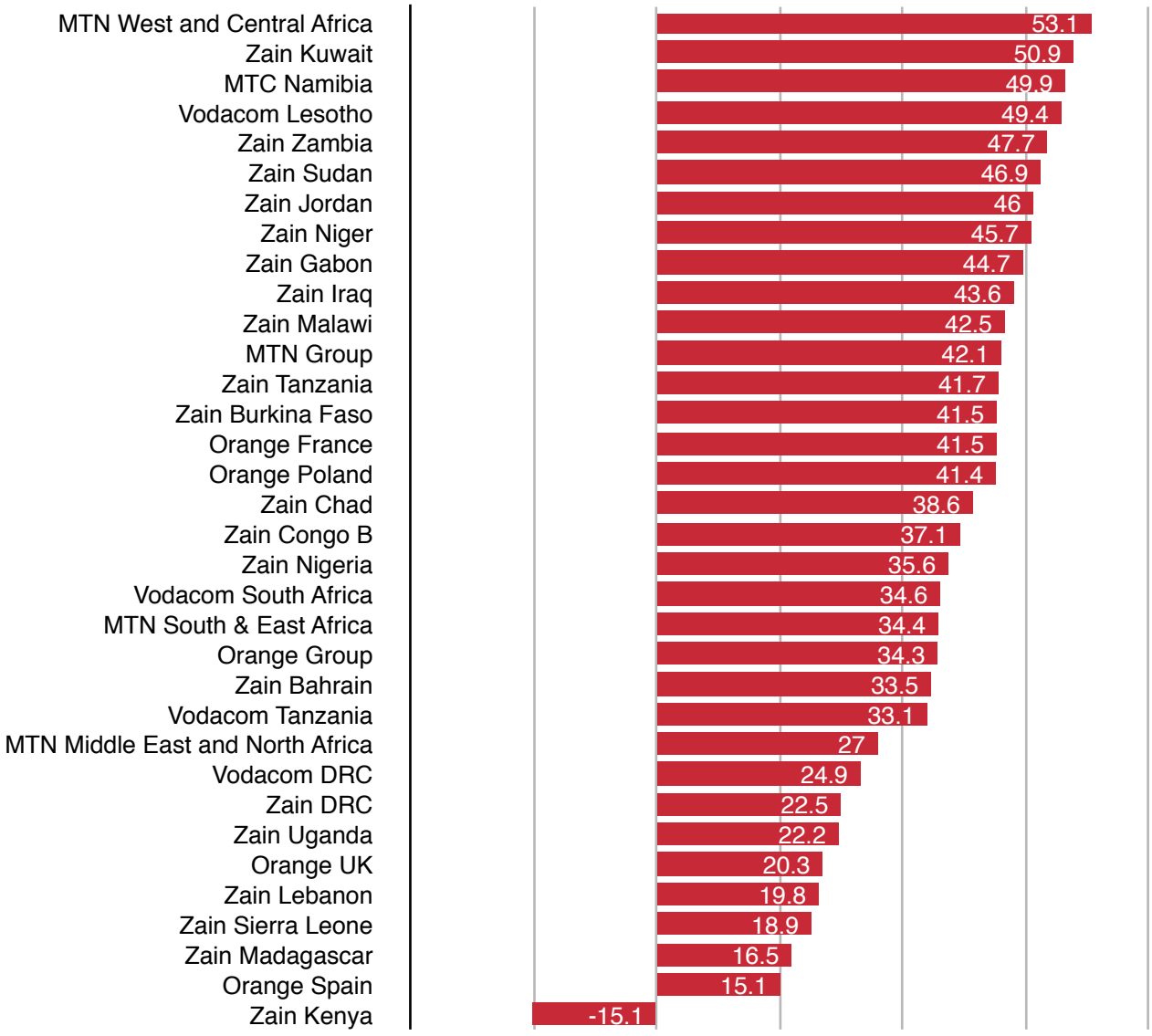

Figure 4: Selected EBITDA margins for 2008 in % (Source: Financial Statements of Operators)

MTC's EBITDA margin for the financial year ending in 2008 was 49.9%, which is very high internationally, and high even for Africa. The table above shows selected EBITDA margins. A high EBITDA margin for a company operating in a competitive market is an admirable achievement. For an incumbent operator with 87% market share however, it generally reflects the exercise of market power.

Current Termination Rates

Mobile termination is set by operators to N$1.06. Fixed termination rates are different for CellOne and MTC; the fixed terminate rate for MTC is N$0.63, while CellOne pays N$0.68. MTC receives less for terminating international calls for Telecom Namibia (N$0.59) compared to CellOne (N$0.62). Both CellOne and MTC are required by their licence to enter into interconnection arrangements which are non-discriminatory. Telecom Namibia has no such obligation and can set rates for CellOne and MTC differently, as it has.

Table 3: Termination rates in Namibia

Originating	Terminating	Tariff
Telecom Namibia Fixed	MTC	N$1.06/minute
Telecom Namibia Fixed	CellOne	N$1.06/minute
Telecom Namibia SWITCH	MTC	N$1.06/minute
Telecom Namibia SWITCH	CellOne	N$1.06/minute
MTC	Telecom Namibia Fixed	N$0.63/minute
MTC	CellOne	N$1.06/minute
MTC	Telecom Namibia SWITCH	N$1.06/minute
CellOne	MTC	N$1.06/minute
CellOne	Telecom Namibia Fixed	N$0.68/minute
CellOne	Telecom Namibia SWITCH	N$1.06/minute
MTC	International via Telecom Namibia	Per destination (Government Gazette and www.telecom.na)
CellOne	International via Telecom Namibia	
International via Telecom Namibia	MTC	N$0.59/minute
International via Telecom Namibia	CellOne	N$0.62/minute
* The following discounts will be applicable: (Discounts will be calculated on the total traffic offered for international delivery per month) 0 – 200 000 minutes : 0% 200 001 – 500 000 minutes : 5% 500 001 – 1 000 000 minutes : 7.5% 1 000 001 – 1 250 000 minutes : 10% 1 250 001 – 1 750 000 minutes : 12%		

MTC's fixed retail rates are up to 530% and 570% of the fixed termination rate for its most popular products: Tango and Tango per second. This indicates a strategy to starve the fixed-line network (Telecom Namibia) by providing a strong disincentive for its customers to call fixed numbers. The high fixed retail rates cause traffic imbalances and net interconnection payments for Telecom Namibia. CellOne's retail rates are more reasonable multiples of the FTR.

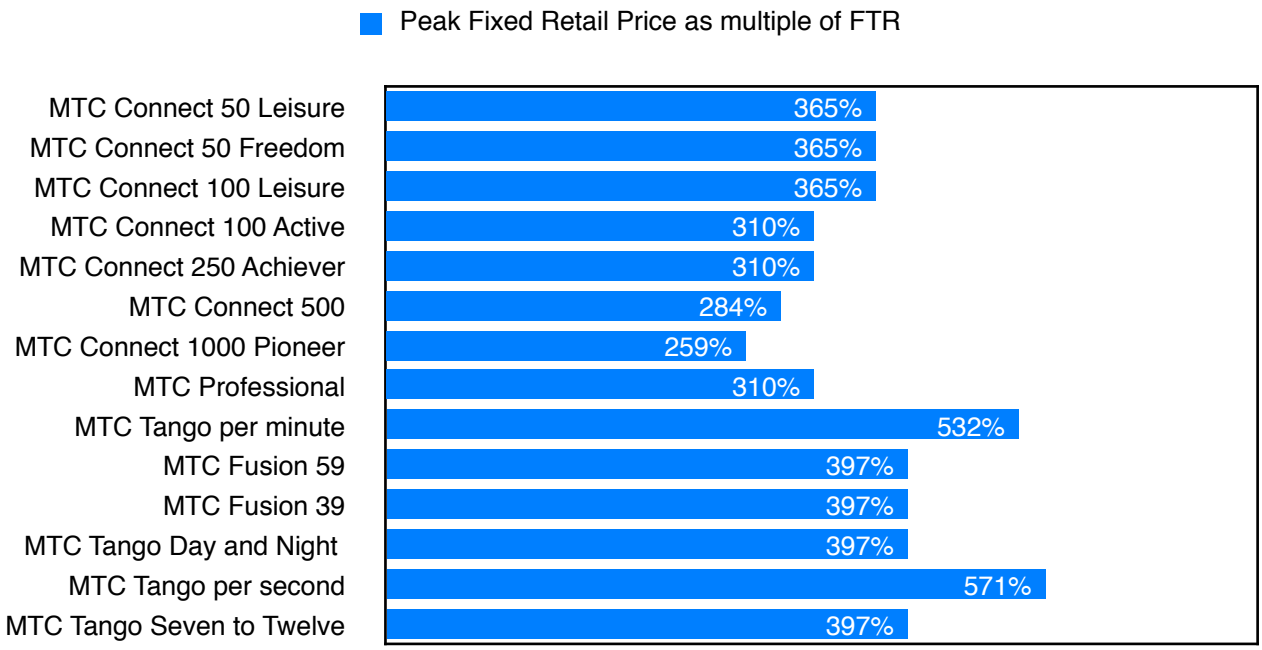

Figure 5: MTC's retail prices for fixed line calls at peak time expressed as multiple of fixed termination rate (FTR)

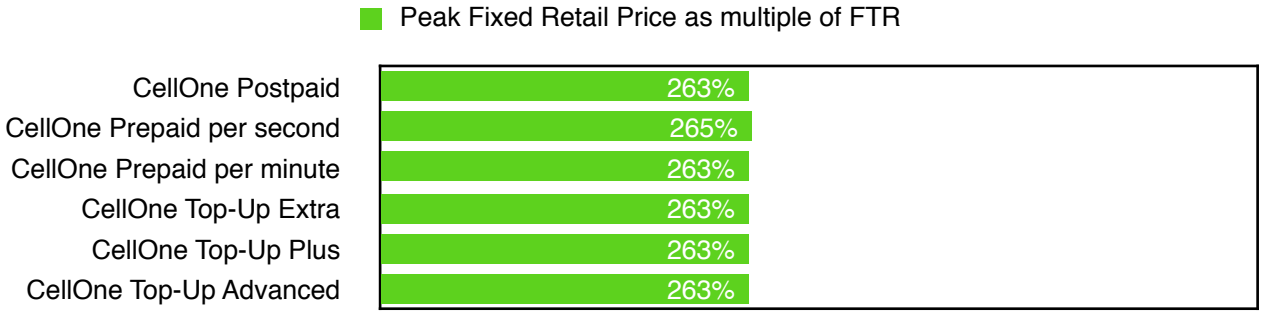

Figure 6: CellOne's retail prices for fixed line calls at peak time expressed as multiple of fixed termination rate (FTR)

In explaining the need to regulate price termination to boost competition, a recent EU press release states: "Higher mobile termination rates make it harder for fixed and small mobile operators to compete with large mobile operators."[5] A new entrant needs to be able to compete in its off-net rates with the incumbents on-net rates to be attractive to a switcher. This is because a customer moving from the incumbent's to the new entrant's network will change from making mostly on-net calls to making mostly off-net calls.

The average off-net retail rate as a multiple of the mobile termination rate is equally much higher for MTC compared to CellOne. This too points to MTC's strategy of using its market position and high off-net and fixed-line prices to keep traffic on its network.

By keeping its retail prices very high, MTC causes traffic imbalances and net interconnection inflows. CellOne and Telecom Namibia are currently net interconnection payers to MTC due to these traffic imbalances.

[5] EU Press release, 7 May 2009, Telecoms: Commission acts on termination rates to boost competition, IP/09/710, http://ec.europa.eu/information_society/newsroom/cf/itemdetail.cfm?item_id=4919&utm_campaign=isp&utm_medium=rss&utm_source=newsroom&utm_content=tpa-5

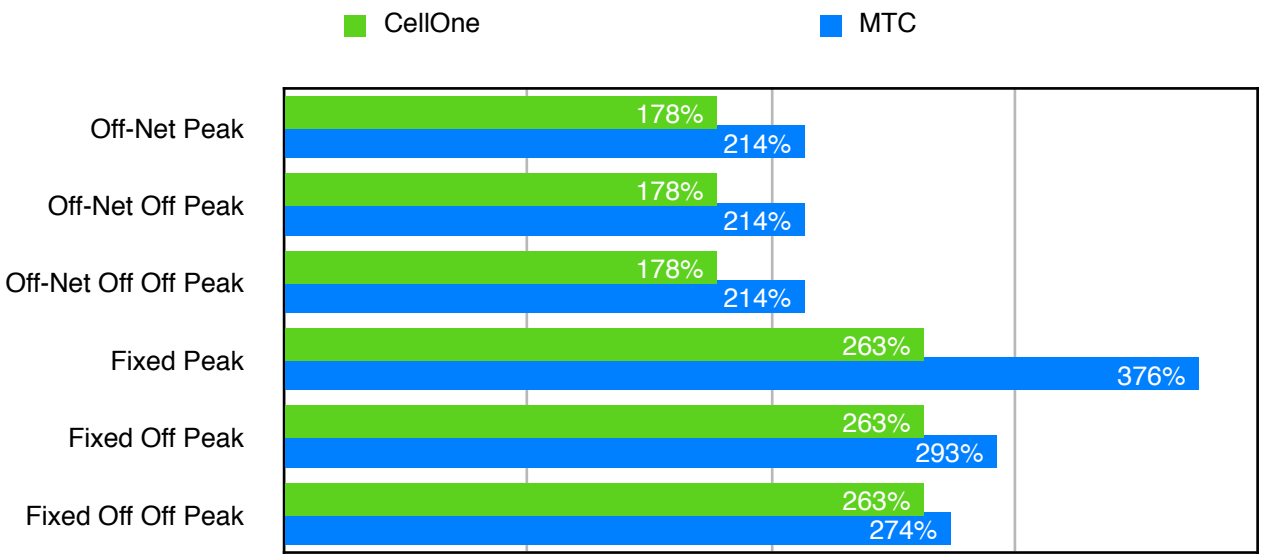

Figure 7: Average retail prices for fixed line calls and off-net calls expressed as a multiple of fixed termination rate (FTR) and mobile termination rate (MTR)

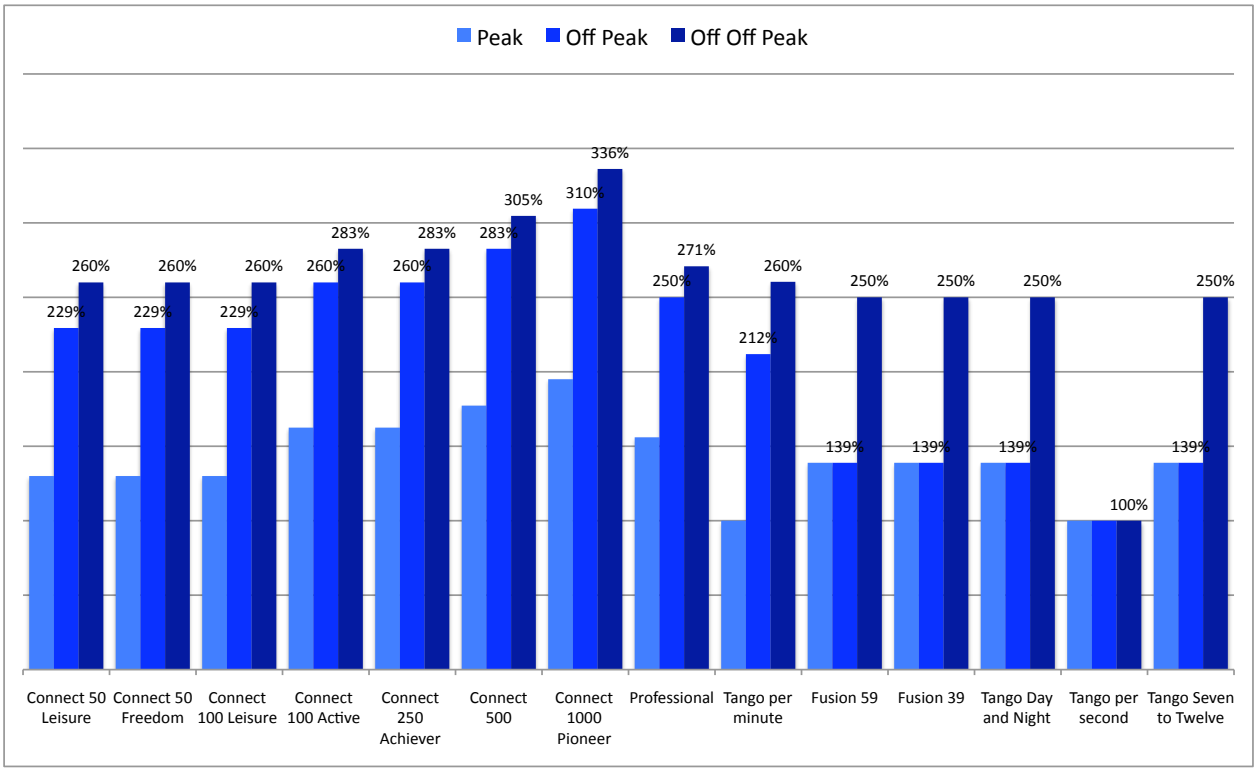

Figure 8: MTC's off-net retail prices as a multiple of on-net retail prices

MTC also uses the high mobile termination rates in connection with its market power to prevent CellOne and Switch from gaining market share, by offering lower on-net retail rates for off-peak and off-off-peak than the MTR, as can be seen in Figure 9.

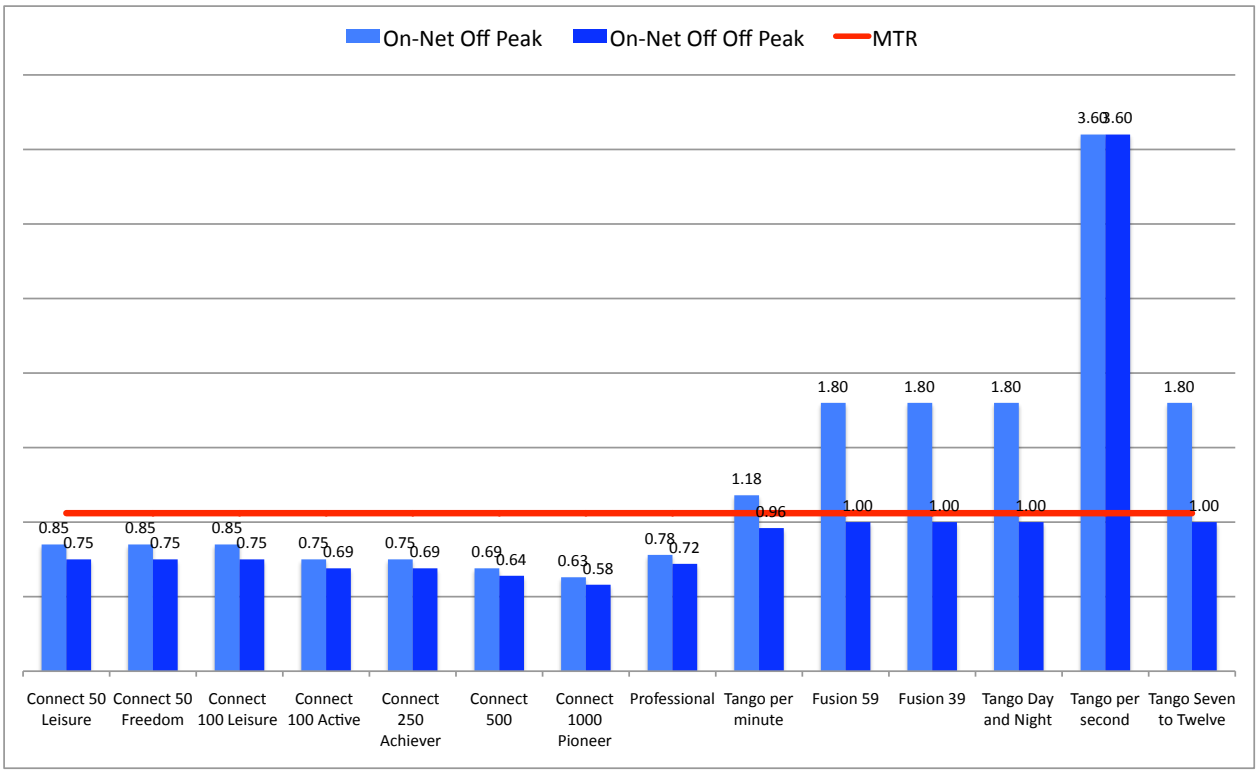

Figure 9: MTC off-peak and off-off-peak on-net rates compared to MTR of N$1.06

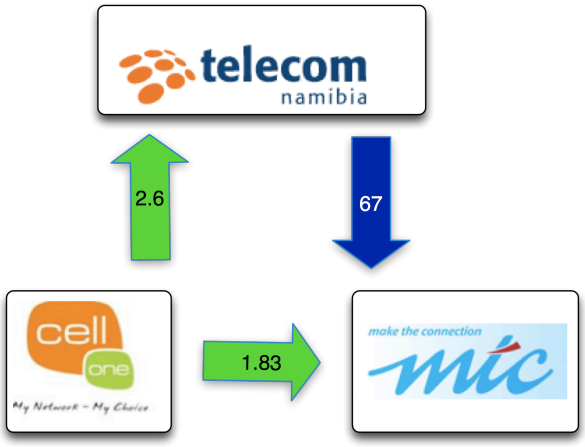

Figure 10: Interconnection net payments in N$ million (Source: Telecom Namibia and CellOne)

In conclusion, the evidence indicates that MTC is using its market dominance, in combination with high termination rates, high off-net and fixed line retail rates, and below MTR on-net retail rates to:

- Cause traffic imbalances and net interconnection revenue;
- Prevent CellOne and Switch from gaining market share; and
- Starve Telecom Namibia's fixed-line network.

The CellOne and MTC licence prohibits anti-competitive practices (Clause 19) and abuse of dominant position (Clause 19.2.b). How far away current termination rates are from cost of termination can be seen from Table 2. Total expenditure of MTC for the financial year ending September 2008 divided by call volume for the same period is less than the current MTR.

The Power of the NCC

The NCC can make a ruling on the matter based on the licence conditions of MTC and CellOne. However, it would require the agreement of Telecom Namibia due to its having a statutory licence.[6] The MTC licence, Government Gazette No 3815 from the 29th March 2007, and the CellOne licence, Government Gazette No 3676 from the 11th August 2006, provide for an identical interconnection dispute resolution process.

NCC can regulate interconnection rates through licences

Current interconnection agreements violate the licence condition of CellOne and MTC licences. They have not been approved by the NCC and have not been made publicly available.

Prescribed termination rates by the NCC need to be symmetrical based on the licence conditions.

Clause 20.5 states that "if the Licensee is unable to reach agreement with another Public Telecommunication Service Provider on the terms and conditions of interconnection or other arrangements within one month (unless the period is otherwise specified by law or regulation which shall be the overriding date) after the first request in writing for interconnection by either party, the Licensee may, by notice in writing, request that the Authority adjudicate between them. The Authority's decision on all matters in dispute shall be binding on both parties."

Clause 20.6 states: "Should the Authority have to determine the terms and conditions of any Interconnection Agreement required, such terms and conditions shall be no less favourable than those for any similarly licensed person and the Licensee shall comply with such terms and conditions as to determined as if they constituted an agreement entered into by the Licensee." This implies that any ruling by the NCC regarding interconnection rates needs to be symmetrical by default.

Another aspect is that the existing interconnection agreements violate the licence conditions of MTC and CellOne. Clause 20.1c reads: "provide interconnection in a timely fashion on terms, conditions (including technical standards and specifications) and cost-based rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the interconnecting party does not pay for network components or facilities that it does not require for the service to be provided, it being understood that no unreasonable and unrecoverable costs will be imposed on the Licensee in connection with any unbundling."

Current interconnection agreements use termination rates that are not cost-based, nor transparently calculated, nor sufficiently unbundled. Current interconnection agreements can hence be seen as conflicting with the licence condition of MTC and CellOne.

Another potential conflict is clause 20.9 of the licence, which stipulates that interconnection agreements have to be approved by the NCC. Furthermore, clause 20.3 requires that "the licensee will make publicly available either its interconnection agreements or reference interconnection offers." Interconnection agreements have not been made public in Namibia. The interconnection agreement between MTC and Telecom Namibia is, for example, still considered confidential by both parties.

In conclusion[7], the NCC should be able to determine the terms and conditions of the interconnection agreement between CellOne and MTC based on the following:

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[6] The NCC has no regulatory powers over Telecom Namibia. The NAMIBIAN COMMUNICATIONS COMMISSIONS ACT 4 OF 1992, amended by the Namibian Communications Commission Amendment Act 4 of 2004 Act allows the NCC under clause 11 (e) to impose obligations of the licence holder with regard to interconnection.

[7] There might be technicalities that need to be looked into further. For example, the interconnection agreements between CellOne and MTC, and between MTC and Telecom Namibia, were signed before MTC received the licence extension and therefore new licence conditions in 2007. MTC might claim that it is the fault of the NCC that the licence conditions were not enforced immediately upon the renewal of the MTC licence in 2007.

- The written complaint by CellOne to the NCC stating that it was unable to renegotiate the interconnection agreements with MTC and requesting that the NCC regulate interconnection rates (presentation to NCC 03 July 2008, letter to NCC 9 July 2008);
- The statement by CellOne stating that they had no choice but to accept MTC's termination rates in order to enter the market;
- The statement by Telecom Namibia that is was unable to re-negotiate interconnection rates with MTC in 2007 and 2008;[8]
- Interconnection agreements were not approved by the NCC;
- Interconnection rates were not cost based, transparent or sufficiently unbundled;
- Interconnection agreements or the interconnection offers were not made public.

Neither MTC nor CellOne would be able to enter into a confidential interconnection arrangement with Telecom Namibia.

In order to resolve the interconnection dispute, it is suggested that international benchmarks are used to determine a glide-path ceiling for termination rates by the NCC. Operators can then freely negotiate interconnection agreements subject to not exceeding the prescribed termination rate ceiling.

[8] See response of Telecom Namibia to this study in the chapter: Responses from Operators.

International Best Practice and Trends

Three things need to be kept in mind when discussing interconnection arrangements:

- Every operator has a monopoly on call termination on its network (termination monopoly, ERG 2007b). Interconnection therefore needs to be regulated.
- No operator builds a network solely to make money from interconnection. Operators build networks to make money from selling services to their subscribers.
- Not only the calling party, but also the receiving party derives a benefit from a call.

This implies that termination rates need to be cost based and that termination cost should be the ceiling for termination rates. This would allow cost recovery for the terminating network while providing an implicit mark-up due to the benefits to the receiving party on the terminating network. As there is no competition on termination of calls, ensuring that prices are cost based is likely to require regulation.

Generally accepted key principles for interconnection regulation are transparency, non-discrimination and cost-orientation. A broad choice of tools to determine termination rates based on cost exists:

- Top-down accounting data (historical accounting data);
- Bottom-up model (engineering network model);
- Hybrid model (i.e. bottom-up model calibrated with accounting data); and
- International benchmarks.

Criteria for assessing TR regulation (Source: ERG, 2008d)

Allocative efficiency: Does the proposed approach set rates close to marginal costs? Does the proposed approach reflect principles of economically efficient pricing, i.e. does the proposed approach take account of receiving party benefits?

Cost recovery: Does the proposed approach enable the operator to recover its (efficient) costs?

Competition: Does the proposed approach hinder competition both between mobile operators and between fixed and mobile operators, as well as between fixed operators?

Consumer benefits: Does the proposed approach benefit consumers?

Promotion of efficient investment: Does the proposed approach promote or hinder efficient investment, and is it well suited towards an NGN environment?

Ease of implementation/regulatory burden: Can an NRA implement the proposed approach with relative ease? How do the direct and indirect costs of this form of regulation compare with alternative approaches? How much certainty does the proposed regime provide to all market participants?

Further choices include those for the cost reference point and cost model. Cost models include Long Run Incremental Cost (LRIC), Fully Distributed Cost (FDC), and Total Service Long Run Incremental Cost (TSLRIC), to mention just a few. Cost reference points can be:

- Cost of an efficient operator (defined by model or benchmarks)
- Lowest cost operator in a country
- Highest cost operator in a country so that all operators can recover their cost
- Average cost of operators
- Actual cost of an operator

This study chooses international benchmarks to determine interconnection rates based on the cost of an efficient operator. Some countries, like Austria, define an efficient operator as the operator with the lowest cost. Others, such as Australia and Tanzania, use LRIC to define the cost of a hypothetical efficient operator.

Benchmarking

The ICT Regulation Toolkit, a collaboration of INFODEV and ITU, defines interconnection benchmarking as the process of establishing interconnection rates based on rates in other

jurisdictions. Benchmarking can be used as a common sense check on the results of cost models and directly to set interconnection termination rates.

Undertaking full forward-looking cost modelling is challenging, expensive and time-consuming, and often the detailed information required is not available in developing countries. The ICT Regulation Toolkit states that "where benchmarked rates allow competition to develop satisfactorily, rates based on benchmarking may be used for extended periods." Benchmarking involves:[9]

- Selecting a sample of countries or operators (possibly at similar stages of socio-economic and industry development);
- Gathering price data for the services under consideration in each of the sample countries;
- Adjusting benchmarked rates to account for country specific differences.

Review of the wholesale local access market (Ofcom, 2004)

International comparisons provided a useful benchmark against which to judge the development of LLU (local loop unbundling) in the UK. However, it is important to recognise that charges can differ across countries for a number of reasons including … differences between the service elements included within the charges. This will limit the inferences for the UK that can be drawn from any simple international price or take-up comparisons. It is not therefore possible to look at the charges themselves and reach any definitive conclusions about the reasonableness of a charge in one country in comparison to another.

Benchmarks may need to be adjusted to account for differences in country characteristics. "The goal of the adjustments is to try **to model interconnection costs** without having enough detailed information on local cost inputs to carry out a full forward-looking cost analysis."[10] Adjustments need to be made for population density, local area size, extent of urbanisation, traffic patterns and call durations, input prices, scale economies, exchange rates and taxes. Therefore, not only do interconnection rates need to be compared, but the costs of interconnection and regulatory practices need to be benchmarked as well. Termination rates, even when cost oriented, differ to varying extents from country to country. Therefore, benchmarking termination cost will lead to a better guide for determining interconnection rates of efficient operators for a country.

The European Termination Rate Debate

In October 2008 the European Commission issued a draft recommendation on the regulatory treatment of fixed and mobile termination rates in the European Union (EU, 2008). This sparked a termination rate discussion in the EU. This section tries to cover this debate by outlining the initial draft, the discussion that followed and the resultant final recommendation.

EU Draft Recommendation

The EU draft recommendation on the regulatory treatment of fixed and mobile termination rates in the EU notes that although cost orientation is generally provided in EU member states, differences in costing models and practices exist that lead to wide variations in termination rates. It finds that divergence in the regulatory treatment of fixed and mobile termination rates ***created distortions between fixed and mobile markets[11] and that high termination rates lead to higher retail prices and lower usage rates and hence decreasing consumer welfare***. The recommendation concludes that an efficient cost standard and the application of symmetrical termination rates would lower retail prices and benefit the end-user. Article 8(1) of the EU Framework Directive stipulates that member states should ensure the following:

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[9] ICT Regulation Toolkit, http://www.ictregulationtoolkit.org/en/index.html

[10] ICT Regulation Toolkit, http://www.ictregulationtoolkit.org/en/index.html

[11] See also Cave et al. (2003): High termination rates cause huge transfers from fixed customers to mobile networks, thus distorting the economics of both fixed and mobile networks.

- Technological neutrality of regulation;
- Regulation that prevents distortions and promotes competition; and
- Regulation that delivers maximum benefit for consumers (choice, price and quality of service).

To achieve those objectives, regulated termination rates should be brought down to the cost of an efficient operator, i.e. be symmetrical at the same time. New operators are expected to be aware of this symmetry and discouraged from building a business model around higher termination charges. The draft recommendation also stipulates how the cost of an efficient operator should be modelled:

- *Current Cost:* In a competitive environment operators will compete on current rather than historical costs. The definition of the cost of an efficient operator employing modern technology therefore needs to be based on current cost.
- *Bottom-up:* Termination rates that compensate operators for actual costs provide little incentive to increase efficiency. Hence the network of an efficient operator should be modelled bottom-up based on current costs and equipment quantity needed rather than actually provided.
- *Next Generation Network (NGN):* The model should be based on efficient technological choices and hence be based on NGN-based fixed line and a combination of 2G and 3G, with the core part of the network based on NGN for mobile networks.
- *LRIC:* Cost of termination should be calculated on the basis of forward-looking long-run incremental costs (LRIC), only taking into account costs that are caused by the provision of the increment wholesale call termination.
- Avoidable Cost[12]: Only traffic-related avoidable cost should be considered for the cost of an efficient operator. Non-traffic related cost should be discarded. The defined LRIC cost model allows the recovery only of those costs which would be avoided if a wholesale call termination service was no longer provided.

National regulators may use a top-down approach based on audited cost data to improve possible shortcomings of the bottom-up LRIC.

Responses to the EU draft recommendation

The draft recommendation has been applauded by new entrants and small operators, supported by national regulatory authorities and objected to by mobile incumbent operators with significant market power.

Frontier Economics (2009) composed a report for several of Europe's mobile incumbents, concluding that the EU recommendation would lead to MTRs which are below the efficient cost of termination for three reasons:

- It ignores cost of coverage as it is considered non-incremental to the provision of wholesale termination services;
- It excludes common costs;
- It confuses the costs of a hypothetical operator with the costs of an efficient operator.

Economists will find these arguments to be flawed for several reasons. First, Frontier is simply re-arguing against the use of LRIC. But this is a matter that has been settled for some time. In fact, all coverage and common costs that are associated with the efficient provision of adding efficient termination services will be included. Even if Frontier's claim is accepted at face value, since termination rates are what operators charge one another for the exchange of traffic, the effects will be mostly symmetric and the net revenue impact on individual operators minimal.

[12] Avoidable costs are the difference between the identified long-run costs of an operator providing its full range of services and one providing the same services excluding wholesale call termination for third parties. Avoidable costs are therefore caused by providing termination services to third parties (Source: EU, 2008).

Moreover, total termination revenue typically comprises only a small share of total revenues (around 10% in Namibia). Operators do not build networks and provide coverage to terminate calls, but to provide services to their customers and gain new customers. Second, Frontier Economics (2009) argues that the LRIC costs proposed by the EU are not those of an efficient operator but rather a hypothetical operator with costs that will be lower than an efficient operator. But this could only happen if the LRIC studies were not done properly. An earlier Frontier Economics report for incumbent mobile operators, July 2008, investigates the likely consequence of drastically reduced MTRs below efficient cost termination rates. It concludes that consumers would not be better off and that the level of subscription would drop due to higher retail prices: "The lower level of subscription is the result of higher retail prices, as the cost of incoming calls are not covered by termination revenues." But no one proposes to set termination prices below the efficient termination cost, and the historical evidence clearly contradicts Frontier's claim. MTRs have come down in Europe for the last 10 years and operators have not experienced lower subscriptions, nor reduced call volumes, nor increasing retail rates. The same applies for countries that had SKA, i.e. zero termination rates (France for example). The following predictions were made by the big operators in the UK in 2002 about lower MTRs:

- Vodafone: total call volumes will fall, 10-15 million customers will leave the market over the next few years, prepaid handset prices will rise by 15 to 20 GBP;
- O2: subscriber penetration will fall;
- T-Mobile: total subscribers will fall, subscription or outgoing call prices will increase, fewer calls will be made.

The opposite has evidently been the case. Large incumbent mobile operators argue that LRIC as suggested by the EU would not recover all costs, but agree with the symmetry proposed. Small mobile operators criticise the symmetry. Generally the draft recommendation is welcomed and seen as guiding the transition to harmonised cost-based termination rates in Europe. The table overleaf summarises presentations given at the 2nd Annual Mobile Termination Rates Forum which was held on 12 February 2009 in Brussels. The topic of the forum was the draft recommendation.

Table 4: Summary results of the 2nd Annual Mobile Termination Rates Forum, 12 February 2009, Brussels

Presenter	Key Points	Support EU draft
Reinald Krueger, Head of Unit B5, Information Society & Media DG	MTR > incremental cost = distortions 1) New entrants have large traffic outflows and have to make significant payments to larger, more established competitors 2) Hampers the ability of smaller operators to compete with on-net retail offers of incumbents Large differences between on-net and off-net retail prices suggest real termination cost lower than current MTRs.	Yes
Martin Cave, Warwick Business School, UK	MTRs will most likely go down quickly and wither away (as in the US) as rates approximate to zero before emergence of IP-based mobile interconnect.	Yes
Jonathan Sandbach, Head of Regulatory Economics, Vodafone Group	Asymmetric MTRs distort the market: 1) Subsidise small operators, creating inefficient dependencies on high MTRs 2) Increase off-net cost for other operators, and so result in higher off-net prices 3) Exacerbate traffic imbalances between networks	Yes, but sees LRAIC as better than LRIC
John Blakemore, Director of European Regulatory Affairs, Hutchison 3G	Implementing LRAIC+ would already lower MTRs considerably. Operators have complained before that lower MTRs would lead to lower subscribers, higher handset prices and lower usage in 2002, while the reality has been the opposite of that.	Yes
Jeff Richardson, Director Strategy BT retail	There is no alternative to the EU draft. MTRs are currently not cost oriented, are deeply damaging and unfair. The high MTRs distort competition, penalise fixed phone users and networks and divert funds away from more socially valuable uses.	Yes
Erzsebet Fitori, Regulatory Affairs Manager, ECTA	New market entrant will not be on efficient scale and immediate symmetry might prevent cost recovery. New entrant might also face technological constraints (spectrum) and customer acquisition costs are higher in mature markets.	Yes, but criticises prescribed symmetry
Eric Debroeck, Senior Vice President, Group Regulatory Affairs, Orange	Pure LRIC for MTR puts development of mobile data at risk as it would bear a higher proportion of mobile coverage costs currently covered by voice. Pure LRIC is wrong signal for all access providers	No
Emily O'Reilly, Unit B5, Information Society & Media DG	Large difference between on-net and off-net prices suggests efficient cost of termination lower than current rates. US and Hong Kong MTRs very low, suggests termination costs lower than 0.03 Euro.	Yes
Benoit Loutrel, Deputy Director General, ARCEP, France	Current MTRs distort the market: high MTRs lead to increase of on-net/off-net gap, undue transfer from fixed to mobile operators and limit convergence. EU draft is legitimate and effective.	Yes
Annegret Groebel, Managing Director BNetzA, i/ERG Chair 2009	Best practice benchmarking should be added to methodology: weighted average of the 5 lowest MTRs in the EU. MTRs have fallen 40% over past 4 years and ERG is committed to continue the decrease MTRs over next 3 years. Alternative options such as SKA and B&K should be explored.	Yes

Final EU Recommendation 7 May 2009

The final recommendation incorporated comments by operators and regulators across Europe but changed slightly from the initial draft. The recommendations are as follows (EU, 2009):

- *Cost of Efficient Operator:* National Regulatory Authorities (NRAs) should set termination rates at the cost of an efficient operator, implying symmetric termination rates.
- *LRIC:* Cost of termination should be calculated on the basis of forward-looking long-run incremental costs (LRIC), only taking into account costs that are caused by the provision of wholesale call termination (wholesale call termination being the increment).
- *Top-Down Addition:* NRAs may use a top-down approach based on audited cost data to improve the bottom-up LRIC.
- *Next Generation Network (NGN):* The core part of both mobile and fixed networks should be based on NGN, and the access part for mobile networks should be a combination of 2G and 3G.
- *Definition of incremental costs:* Costs that can be avoided if a specific service is no longer provided (wholesale voice termination service provided to third parties).
- *Definition of traffic related cost:* Fixed and variable costs which increase with increased levels of traffic.
- *Asymmetric termination rates:* "In case it can be demonstrated that a new mobile entrant operating below the minimum efficient scale incurs higher per-unit incremental costs than the modelled operator, after having determined that there are impediments on the retail market to market entry and expansion, the NRAs may allow these higher costs to be recouped during a transitional period via regulated termination rates. Any such period should not exceed four years after market entry." (EU, 2009)
- NRAs should implement cost-efficient symmetric termination rates by 31 December 2012.

The main changes since the draft recommendations are in some of the definitions and in not excluding asymmetric termination rates. Altogether, the recommendation will lead to termination rates between 1 and 2 Euro cents (N$0.12 to N$0.25) by the end of 2012 across the whole of the EU.

East African Community Interconnection Guidelines

The East African Regulatory, Postal and Telecommunications Organisations (EARPTO, 2008) issued guidelines on interconnection arrangements for members of the East African Community in April 2008. The guidelines define Significant Market Power (SMP) and the regulatory treatment of operators holding SMP. The guidelines further provide for model interconnection agreements and define the role of regulatory authorities for dispute resolution. The recommendations for termination rates are that:

- Termination rates need to be transparent and cost oriented.
- Burden of proof that charges are derived from actual cost lies with the operator.
- LRIC is the standard for calculating cost-oriented termination rates.
- LRIC is to be phased in gradually: within 6 months fully allocated cost model based on historical cost (FDC); within 12 months FDC excluding non-relevant cost; within 18 months FDC based on current cost and excluding non-relevant cost; and within 2 years LRIC.
- Termination rates shall be sufficiently unbundled.
- Operators need to keep separate accounts for the interconnection networks and services.
- Charges regarding universal service obligation should be unbundled and shown separately.

The guidelines further stipulate that accounting separation may be prescribed to operators holding significant market power. Interconnection rate caps apply and regulatory interventions are foreseen for situations where interconnection negotiations fail or where there is evidence of uncompetitive behaviour.

Fixed Mobile Convergence

In several European countries[13], as well as in Namibia, mobile network operators offer fixed-wireless services based on GSM, UMTS or CDMA technology. These are fixed-wireless services providing fixed services using wireless technology. MTC's Home Phone is such an example. It uses GSM technology but the SIM card can only be used on one or two base stations, constraining its use to a relatively small geographic area. The Home Phone subscriber pays considerably cheaper prices for on-net calls compared to a mobile subscriber. However, a caller to MTC's Home Phone has to pay mobile retail rates, reflecting also mobile termination rates.

Another concept, "Home-zones", allows a mobile user to roam on a home network linked to an ADSL router, converting the mobile to a cordless fixed-line phone when at home. Fixed-line operators that offer mobile services have also started to offer converged solutions.

Substantial differences between mobile and fixed termination rates favour mobile operators in offering converged services, using mobile termination rates to subsidise the on-net retail rate (ERG, 2009). Tanzania implemented converged termination rates, i.e. symmetry between FTRs and MTRs. Such a set-up stimulates converged solutions and prevents bias towards mobile operators.

Symmetry vs Asymmetry

The general arguments for asymmetric termination rates on a transitional basis are (ERG, 2008c):

- New entrants have a lower economy of scale due to low call volume and low subscriber numbers;
- Asymmetric termination rates could be justified where operators have different network coverage;
- New entrants may have less bargaining power and hence pay higher equipment prices; and
- Different technologies being used can lead to different costs. Operators entering the market at a later stage, that received only 1800 Mhz frequency for 2G, may face higher coverage costs compared to 900 Mhz.

Asymmetric interconnection rates are being seen as a market entry assistance. They provide an additional source for revenues and compensate for interconnection pay-outs due to traffic imbalances. This leads to the disadvantages of asymmetric interconnection charges (ERG, 2008c), which:

- Subsidise small operators, creating inefficient dependencies on high MTRs;
- Increase off-net costs for other operators, and so result in higher off-net prices;
- Exacerbate traffic imbalances between networks;
- Increase the risk of inefficient market entry.

The first and the last disadvantage would not be applicable to Namibia since CellOne has already entered the market and any asymmetric interconnection regime would be for a limited period. Asymmetry in termination rates should always be for a limited period of time and the conditions for the ending of the asymmetry need to be spelled out clearly. An efficient way of implementing asymmetry is a different starting point on a glide path towards cost-based termination rates or a delayed start on the glide path for the new entrant. Generally, there are more effective ways than using asymmetric termination rates for addressing any of the justifications for it:

- Spectrum differences can be addressed by aligning the spectrum allocation of operators and introducing a market mechanism for spectrum such as a secondary market (ERG, 2008c);

[13] See ERG (2009)

- Traffic imbalances can be addressed with retail price regulation, for example requiring off-net and on-net tariffs to be equal, once the termination rates have been reduced to cost level;
- Tax breaks;
- Reduced licence fees;
- Additional network or service licences for the new entrant.

The main reasons for symmetric termination rates are that setting termination charges at the level of an efficient operator provides incentives to be efficient and that symmetric interconnection rates promote competition (ERG, 2008c). Asymmetric interconnection rates have often been used in the past as an attempt to level the playing field and allow new market entrants to gain a foothold into the market. Generally, a new entrant needs to achieve two things in order to be able to compete fairly:

- Lower termination rates: Allow the new entrant to compete with the on-net rates of the incumbent. The new entrant's off-net rates need to be on par with the incumbent's off-net rates in order for someone changing networks not to be disadvantaged. Someone changing from the incumbent with 90% market share to the new entrant with 10% market share will see a shift from on-net calls to off-net calls in his communication basket. The new entrant needs therefore be able to offer off-net rates that are comparable to the on-net rates of the incumbent.
- Lower off-net retail rates of incumbent: Someone switching to the new entrant increases the communication costs of his friends and family that are on the incumbent's network if the incumbent's off-net rates are high. Alternatively traffic imbalances may arise, i.e. customers on the new entrant's network call the incumbent more often than vice versa.

Asymmetric interconnection rates tend to keep off-net rates of the incumbent high. The incumbent has good reason to keep them high since it is paying more for termination than it receives. Given that what the incumbent receives is cost-based, the money that it has to pay for terminating on the new entrant's network is above cost. This is good enough reason to keep the off-net retail rate high. Asymmetric interconnection charges are hence a major obstacle to levelling the playing field. Asymmetric termination charges can be considered a free hand-out to the new entrant to compensate for traffic imbalances. However, it is more effective to address the actual problem that causes the traffic imbalance: high termination rates and off-net retail rates of the incumbent.

Lower termination rates are not a guarantee that the incumbent will reduce its off-net rates. That might require further regulatory intervention. A quite simple yet very effective intervention would be that for every product the off-net rate cannot be different from the on-net rate. Such a regulatory intervention would only be possible if the termination rates are based on the cost of an efficient operator and symmetrical.

The trend in the EU shows that the proportion of operators with asymmetric termination rates is declining, from 47% in 2004 to 39% in 2007. The average asymmetry dropped at the same time from 1.4 Euro cent to 0.9 Euro cents (ERG, 2008c).

Asymmetry would not be in the interest of CellOne in any case:

- CellOne would like to reduce net interconnection payments to MTC and Telecom Namibia to improve its cash flow: lower MTR and lower FTR will accomplish this.
- CellOne needs to reduce traffic imbalance. Currently it terminates more calls on MTC and Telecom Namibia than it receives.

There could be several reasons causing traffic imbalances:

- The off-net rate of MTC is too high, too expensive;
- CellOne has customers that call more or longer than MTC's customers. If this were the case than CellOne's Average Revenue Per User (ARPU) should be be higher than that of MTC.

However, table 2 indicates that the opposite is the case. MTC has twice the ARPU of CellOne. This points to the high off-net rate of MTC being the main culprit for the traffic imbalance. MTC and TN customers will only make more calls to CellOne if it is cheaper. MTC's off-net retail rate needs to be lower. Asymmetric termination charges would mean higher costs for MTC for calls terminating on CellOne's network. They would therefore lead to the opposite of the desired outcome.

EU Commission on asymmetric termination rates in France (ERG, 2008c)

The European Commission "notes that ARCEP justifies asymmetric MTRs for Bouygues with traffic imbalances and significant net payments of Bouygues to the two other operators. However, such traffic imbalances may in fact be caused by the current asymmetric level of MTRs as well as by an on-net/off-net retail price differentiation that is within the control of the operators. For this reason, the Commission stresses the importance of reducing MTRs to the level of costs of an efficient operator, which takes into account objective cost differences as defined above.

In view of the need to ensure that asymmetries are phased out over time unless objective justifications persist, the Commission notes the transitional nature of the draft measure and the acknowledgement by ARCEP that the different factors presently justifying asymmetry may no longer apply in the future. The Commission further notes that ARCEP makes this move towards symmetric MTRs dependent also on the outcome of harmonisation activities at European level. In this respect, the Commission recalls its earlier comments on the need for a coherent European approach (made in Case BE/2007/0665) in order to ensure that the MTRs of each MNO are brought down to the cost of an efficient operator as soon as possible."(Case FR/2007/0669)

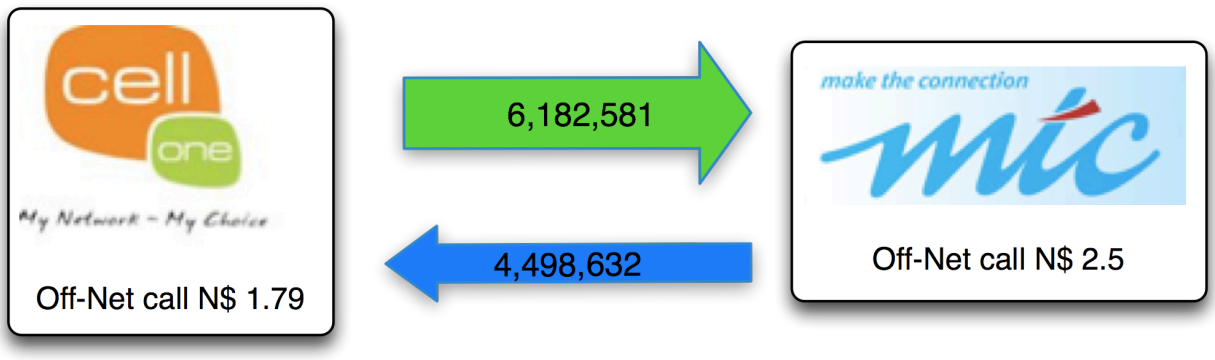

Figure 10: Off-net traffic exchange between MTC and CellOne in minutes (Source: CellOne, financial year ending June 2008)

IP-based Next Generation Networks

Next Generation Networks (NGN) denote the convergence between traditional fixed and mobile telecommunication networks with the Internet. The migration towards NGNs raises many issues, in particular interconnection arrangements. The migration towards NGNs can be differentiated into core and access NGNs (ITU, 2006):

- Access NGNs: Fibre in the local loop; and
- Core NGNs: Replacement of legacy transmission and switching equipment by IP technology in the core network (backbone).

Currently fixed and mobile network billing systems in Europe and Africa are based on Calling Party Pays (CPP) on the retail level and Calling Party's Network Pays (CPNP) on the wholesale level.

Table 5: Traditional communication networks, the Internet and NGNs compared (Source: ERG, 2007; WIK, 2008; ITU, 2006)

		Current mobile and fixed-line networks	Current Internet	Future NGN
Billing	Wholesale	Calling Party Network Pays (CPNP): The calling party's network pays a termination rate to the terminating network. Bill & Keep (B&K) / Sender Keeps it All (SKA)	B&K / SKA and peering agreements are without payment flows Transit agreements involve a payment to the upstream provider.	Most likely same principles that are being used today for the Internet
	Retail	Calling Party Pays (CPP) Billing is per minute pricing or flat rates	Receiving Party Pays (RPP): Both receiver and sender pay (a call is upload and download for receiver and sender at the same time) Billing can be per minute for modem or ISDN dial-up or per MB traffic volume or flat rate	Can be left unregulated as long as the wholesale part is sorted out (WIK, 2008) Current trends suggest flat rate pricing will dominate
Market power, Termination Monopoly		Fixed and mobile operators have a termination monopoly	Internet is mostly B&K, termination monopoly does not arise (ITU, 2006)	Operators that currently have a termination monopoly will continue to have one in an IP-based world (WIK, 2008). However if B&K then the problem will not arise.
Service Differentiation and price discrimination		Various rates for peak/ off-peak minutes, on-net/off-net/fixed-line, contract/prepaid	"size of pipe", speed, traffic volume	Quality of Service (net neutrality discussion) "size of pipe", speed, traffic volume

Consider an off-net call: A caller is being charged per minute for a call to the other network by his network operator. The network of the caller has to pay a termination fee to the network terminating the call, the network of the receiver of the call. The originating network sets the retail price in such a way that the cost of origination and the money it has to pay for the termination to the other network still results in a profit.

For the Internet, however, end-users have been used to Receiving Party Pays (RPP), where both the receiver and the sender pay. A Skype VoIP call is upload and download for receiver and sender at the same time, for example. The same applies to downloading music (receiving data)

or uploading a movie clip to www.youtube.com (sending data). Both cause traffic and both would be charged, either per minute spent online or per megabyte up- or downloaded (unless the customer has a flat rate arrangement). On a wholesale level Bill & Keep or peering agreements are being used that do not require any termination payments. Transit agreements have also been used for situations of traffic asymmetry. They involve a payment to the upstream provider.

Operators that currently have a termination monopoly will continue to have one in an IP-based world (WIK, 2008). An IP-based network will not shift market power. As long as no other service provider can complete calls on an operator's network, this operator will still hold a termination monopoly.

The WIK (2008) report on the Future of IP interconnection, commissioned by the European Commission, found that current termination arrangements generate significant inefficiencies and economic distortions in Europe. "The transfers from fixed users to mobile operators continue to distort the evolution of both networks." (Marcus, 2008). It concludes that MTRs need to come down close to zero in the next three to five years to reduce economic distortions to fixed and mobile networks and help establish necessary preconditions for a smooth migration to IP-based services.

Conclusion

Regulators across Europe and Africa agree that termination rates should be cost-based and that the forward-looking long-run incremental cost (LRIC) of an efficient operator is the appropriate way of determining the cost of interconnection. Termination rates at cost of termination will remove economic distortions witnessed in Europe and Africa today and prepare the markets for a smooth transition to IP-based Next Generation Networks. Symmetry between mobile and fixed termination rates supports fixed-mobile convergence and removes distortions that would advantage mobile operators. It is also quite clear from international best practice and economic theory that asymmetric termination rates are not the most appropriate for facilitating market entry. More effective tools exist that do not lead to economic distortions and enshrined traffic imbalances.

Termination Rates

This section benchmarks termination rates from African countries that have cost-oriented termination rates already, as well as European termination rates. Asian termination rates (for example in India), which are usually only a fraction of those charged in Europe, have not been considered.

Selected African Countries

Five African countries have been selected as case studies for this benchmarking exercise. The selection criteria were mainly that benchmarked countries needed to have conducted cost studies for setting termination rates. All five countries used consultants to conduct LRIC studies.

Uganda: Uganda is in the midst of finalising a LRIC study conducted by Price Waterhouse Coopers in terms of statutory instruments supplement No. 10 (Uganda Gazette No14 XCVIII 11 March 2005) referred to as The Telecommunications (Interconnection) Regulations, 2005. There was a second round of public consultations in March 2009. Generally, all operators have service-neutral licences, though Uganda Telecom and MTN were originally granted fixed and mobile licences. MTN is now the largest mobile operator, followed by Zain (formerly Celtel, which was the first mobile licence in 1997). Other operators include HITS Telecom, Warid Telecom and Reliance. The latter received a licence in 2008 to become Uganda's sixth mobile operator. Current rates are symmetrical between fixed and mobile and UCC anticipates that these will come down further with the current review. Voice termination, in Ugandan Shillings (UGX), is 181 (N$0.86). There is a set discount rate of UGX30 on 5 million minutes. SMS termination rates are set at UGX30 (N$0.14). These prescribed termination rates are ceilings but have to be applied in a non-discriminatory way. UTM recently lodged a lower rate for the new entrant, Warid. Domestic and international termination rates are currently asymmetrical but asymmetry is likely to be removed in forthcoming determination currently under review.

Tanzania: Two interconnection determinations have been made. The second determination, Review of Telecommunications Network Interconnection rates, was issued in 2007 on the basis of a consulting report by Analysys (UK) following a panel of inquiry (public hearings). At the time, six network operators were offering services, of which Vodacom had 47.8% market share, Celtel 29.1%, MIC (TIGO) 12.8%, Zantel 7.2%, TTCL 3%, and Benson Informatics Ltd 0.1%. Outgoing calls are not subject to regulation because call termination agreed commercially with operators in foreign countries over which Tanzania does not have jurisdiction, though incoming international calls that transit through a gateway in Tanzania and terminate on networks over which it does have jurisdiction are subject to regulation. Tanzania prescribes the same ceilings for fixed and mobile termination rates. Tanzania's reasons were twofold. First, only 1.3% of the outgoing off-net mobile traffic goes to fixed lines. Secondly, most retail mobile tariffs do not distinguish between fixed and mobile. As a result there is a single voice termination glide path determined in US$ but paid in Tanzanian Shillings (TZS). No SMS or other data rate set. The current determination prescribes a glide path that reduces termination charges over a four year period to US$0.07.

Table 6: Mobile and fixed termination ceilings for Tanzania (Source: TRCA)

	2008	2009	2010	2011
US $	7.83	7.65	7.49	7.16
N$	0.64	0.63	0.61	0.59

Kenya: Operators include Telecom Kenya, Orange, Zain, Econet Wireless and Safaricom. Orange offers fixed and mobile services. Safaricom is the biggest player in the market followed by Zain (formerly Celtel) and Econet Wireless. There are also two local loop operators. In 2006-2007 Analysys (UK) was commissioned to conduct an assessment of interconnection rates

for Kenya using LRIC. Implementation in 2007 on the basis of a determination by the Communications Commission of Kenya proposed to reduce the mobile-to-mobile rate, then of Kenyan Shillings (KES) 10. The intention was to reduce it in the first year to KES 8, but one operator was already offering a retail rate of around KES 8, so in the first year they started with the second year target. The mobile termination ceiling prices for commercial agreements can be negotiated "in a non-discriminatory manner". There are no agreed discount rates. Fixed termination rates are dependent on single or double tandem. Fixed to mobile and mobile to fixed is treated as single tandem and set at KES 1.65. Double Tandem Termination is set at KES 4.35.

Table 7: Mobile and fixed termination ceilings for Kenya (Source: CCK)

		2007	2008	2009
MTR	KES	6.28	5.27	4.42
	N$	0.74	0.63	0.52
Fixed to mobile and mobile to fixed: Single Tandem	KES			1.65
	N$			0.20

Mozambique: In Mozambique interconnection rates were symmetrical based on international benchmarks for the period 2003 to 2007. In 2007, INCM contracted Mr. Matthias Halfmann, an interconnection expert who worked together with INCM and TDM, MCel and Vodacom Mozambique to develop a cost model based on long-run incremental cost (LRIC). The interconnection regulation in Mozambique requires that interconnection rates shall be determined using a LRIC cost model. Based on the data collection from each of the operators involved in the interconnection of the networks, Mr Halfmann developed a LRIC cost model and calculated the asymmetrical interconnection rates to be implemented for 2008 and 2009. The interconnection regulation in Mozambique foresees that the interconnection rates shall be revised every two years to reflect changes in the market. As a result, a cost model was developed and a gradual (glide path) implementation of asymmetrical rates was agreed upon by operators.

Table 8: Mobile and fixed termination ceilings for Mozambique (Source: INCM)

		2008	2009
TDM	MT	0.9	0.95
	N$	0.30	0.32
MCell	MT	2.59	2.42
	N$	0.87	0.81
Vodacom	MT	2.98	3.10
	N$	1.00	1.04

Botswana: Botswana Telecommunication Corporation is the *de facto* monopoly fixed-line provider in Botswana. This was part of the rationale for it not initially receiving a mobile licence when Mascom and Orange were granted mobile licences. It has subsequently been granted a mobile licence (beMobile). Botswana contracted McCarthy Tetrault and Analysys UK in 2004/5 to develop a cost model and pricing framework for the telecommunication sector. The recommendations were price ceilings for mobile and fixed termination rates. It is currently conducting a market study with the assistance of Analysys UK, which we will include in a review of termination rates.

Table 9: Mobile and fixed termination ceilings for Botswana in 2009 (Source: BTA)

	Peak	Off-Peak	Average
Average (unweighted) MTR in Pula	0.63	0.55	0.59
N$	0.76	0.67	0.71
Average (unweighted) FTR in Pula	0.17	0.17	0.17
N$	0.21	0.21	0.21

Table 10: Termination rates and cost models for selected African countries, first quarter 2009

		Botswana	Mozambique	Tanzania	Kenya	Uganda
Cost Model		LRIC	LRIC	LRIC	LRIC	FDC
Consultants		Analysys/ McCarthy Tertault	Matthias Halfmann	Analysys	Analysys	PWC
Year of last review		2005	2007	2007	2007	2005, currently ongoing
Local currency		Pula	MT	US cents	Kenya Shilling	Uganda Shilling
2009 MTR	Local currency	0.59	2.42 (MCel)	7.65	4.42	181
	N$	0.71	0.81	0.63	0.52	0.86
2009 FTR	Local currency	0.17	0.95	7.65	1.65	181
	N$	0.20	0.32	0.63	0.20	0.86
Can negotiate lower rates?		Yes, ceiling	No, fixed	Yes, ceiling	Yes, ceiling	Yes, ceiling
Further reductions planned?			Yes	Yes		MTR below N$0.3 expected with current review
MTR – FTR Symmetry		No	No	Yes	No	Yes
Asymmetric MTR		No	Yes	No	No	Yes (Warid)
Termination rates are ceilings that have to be applied in a non-discriminatory way?		Yes	No	Yes	Yes	Yes
Source		*BTA*	*INCM*	*TRCA*	*KCC*	*UCC*

The table above compares mobile termination rates and the way there were derived for Botswana, Mozambique, Tanzania, Kenya and Uganda in local currency as well as in N$. Uganda and Mozambique have the highest MTRs and both countries are in a review process at the moment (as is Botswana). Both countries also use asymmetric mobile termination rates to facilitate market entry. Tanzania and Uganda have converged MTRs and FTRs. Draft calculations for Uganda's review suggest termination prices will be reduced to UD$0.03 (source: UCC).

European Union

The European Regulators Group (ERG) compiles mobile termination rates (MTR) for EU countries based on an average of mobile termination charges for each operator in a country, weighted by subscriber numbers. Generally, MTRs are set above cost. The distance to cost varies considerably from country to country within the EU, even though MTRs in Europe are cost oriented. The table below lists the MTRs for 2008. The countries with the lowest mobile termination rates were Cyprus, Sweden, Finland, Austria and Slovenia.

Table 11 Mobile Termination rates in 2008 in EUROs (Source: ERG, 2008a)

Country	Population density 2006	Mobile termination rates		
		Peak	Off-peak	Total
Cyprus	83.50	0.020	0.020	0.020
Sweden	22.10	0.046	0.046	0.046
Finland	17.30	0.053	0.053	0.053
Austria	99.50	0.060	0.060	0.060
Slovenia	99.60	0.064	0.064	0.064
Romania	93.90	0.068	0.068	0.068
France	99.90	0.069	0.069	0.069
Spain	87.20	0.088	0.055	0.071
United Kingdom	250.00	0.077	0.077	0.077
Lithuania	54.20	0.104	0.052	0.078
Iceland	3.00	0.079	0.079	0.079
Germany	230.70	0.082	0.082	0.082
Norway	15.30	0.084	0.084	0.084
Denmark	126.20	0.085	0.085	0.085
Hungary	108.30	0.086	0.086	0.086
Belgium	347.80	0.087	0.087	0.087
Estonia	30.90	0.088	0.088	0.088
Latvia	36.70	0.088	0.088	0.088
Luxembourg	182.80	0.096	0.083	0.090
Netherlands	483.80	0.094	0.094	0.094
Malta	1,287.80	0.096	0.096	0.096
Ireland	62.30	0.127	0.072	0.099
Greece	85.20	0.100	0.100	0.100
Poland	122.00	0.107	0.106	0.107

Country	Population density 2006	Mobile termination rates		
		Peak	Off-peak	Total
Italy	199.70	0.108	0.108	0.108
Croatia	78.50	0.111	0.105	0.108
Portugal	114.90	0.110	0.110	0.110
Slovakia	110.00	0.113	0.113	0.113
Switzerland	187.10	0.114	0.114	0.114
Czech Republic	132.90	0.126	0.126	0.126
Bulgaria	69.40	0.159	0.142	0.151

ERG suggests that regulators complement the bottom-up LRIC model with best practice benchmarking based on weighted average MTRs of the five lowest countries.[14] That benchmark would have been in 2008 the average MTR of Cyprus, Sweden, Finland, Slovenia and Austria, weighted by subscribers.

The general trend of bringing termination rates gradually down to cost continues. Several new developments have taken place since ERG published its last MTR snapshot. The UK, France, Austria and Finland reduced their termination rates and published new glide-paths.

UK: Ofcom released the "Mobile Call Termination – Amendment to SMP Service Conditions" on 2 April 2009. The UK Competition Commission had determined that the charges for connecting to O2, Orange, T-Mobile and Vodafone networks should be reduced to 4.0 pence (in 2006/7 prices) per minute by 2010/11. The Competition Commission also determined that the charge for connecting to the H3G network should be reduced to 4.4 ppm (in 2006/7 prices) by 2010/11.[15] Ofcom implemented the directive from the Competition Commission through its amendment.

Austria: The Telekom Control Commission (TKK) determined that mobile termination rates have to be cut to 2 Euro cents per minute by 1 July 2011. The first cuts will be made retroactively with calls terminated between 1 July and 31 December 2008 being charged at 5.7 Euro cents per minute. For the period 1 January 2009 to 30 June 2009 the rate will drop to 4.5 Euro cents per minute. The rates will then decrease incrementally every six months until 1 July 2011. TKK says that the wholesale reductions will be passed on to the consumer and that fixed-line operators will benefit as well. The MTR reductions are in line with the recommendations of the EU and aim to reduce economic distortions currently caused by too high MTRs.[16]

Finland: The Finnish Communications Regulatory Authority (FICORA) has announced that the three major mobile operators have agreed on new mobile interconnection charges, introducing symmetric prices in December 2009 at 4.9 Euro cents. The MTR will fall to 4.4 Euro cents per minute in December 2010. FICORA has stated that it expects to see further rate cuts in 2011.[17]

France: The French regulator ARCEP determined that MTRs for Orange and SFR should be reduced to 3 Euro cents by July 2010 and to 4 Euro cents for Bouygues Telecom. ARCEP estimates termination cost will reach 1 or 2 Euro cents in the next couple of years based on a LRIC model. The EU Commission endorsed the regulatory measures. "ARCEP's overall approach is to reduce termination rates towards the long-run incremental cost (LRIC) of an

[14] Source: Interview with Annegret Groebel, Managing Director BNetzA, i/ERG Chair 2009

[15] http://www.ofcom.org.uk/consult/condocs/mobile_call_term/CTMAmendment2009final.pdf

[16] http://www.rtr.at/de/pr/PI21042009TK

[17] http://www.ficora.fi/en/index/viestintavirasto/lehdistotiedotteet/2009/P_13.html

efficient operator resulting in symmetric rates which will eventually be in line with the Commission's forthcoming Recommendation on termination rates. ARCEP set the target efficient cost-based mobile termination rate between €0.01 and €0.02 per minute, to be eventually reached by all mobile operators."[18]

Table 12: ARCEP latest decision on MTR in Euro Cents and N$ (Source: ARCEP and ECB)

		Jan 2008 – Jun 2009	Jul 2009 – Jun 2010	Jul 2010 – Dec 2010
Orange	Euro cents	6.5	4.5	3
	N$	0.78	0.54	0.36
SFR	Euro cents	6.5	4.5	3
	N$	0.78	0.54	0.36
Bouygues Telecom	Euro cents	8.5	6	4
	N$	1.03	0.72	0.48

Ireland: Ireland's three largest mobile phone operators – Vodafone, O2 and Meteor – have agreed to reduce mobile termination rates (MTRs) by 47% over three years to 5 EURO cents. H3GI has indicated to ComReg its intention to reduce its MTRs to follow suit by 1 January 2013 in a stepped approach, to a symmetrical maximum rate per minute of 5 EURO cents.[19] ComReg anticipates that the mobile operators will pass on their wholesale savings to end-users.[20]

India: The Telecom Regulatory Authority of India (TRAI, 2009) reduced termination charges on 9 March 2009 for all types of domestic calls (fixed to fixed, fixed to mobile, mobile to fixed and mobile to mobile) from 30 paise to 20 paise per minute. (Euro cents 0.47 to 0.31; from N$0.057 to N$0.038)

[18] http://www.itu.int/ITU-D/ict/newslog/Viviane+Reding+Welcomes+French+Plans+To+Lower+Mobile+Termination+Rates.aspx

[19] http://www.comreg.ie/publications/comreg_secures_reductions_in_termination_charges_from_mobile_operator_3.583.103357.p.html

[20] www.WirelessFederation.com/news:

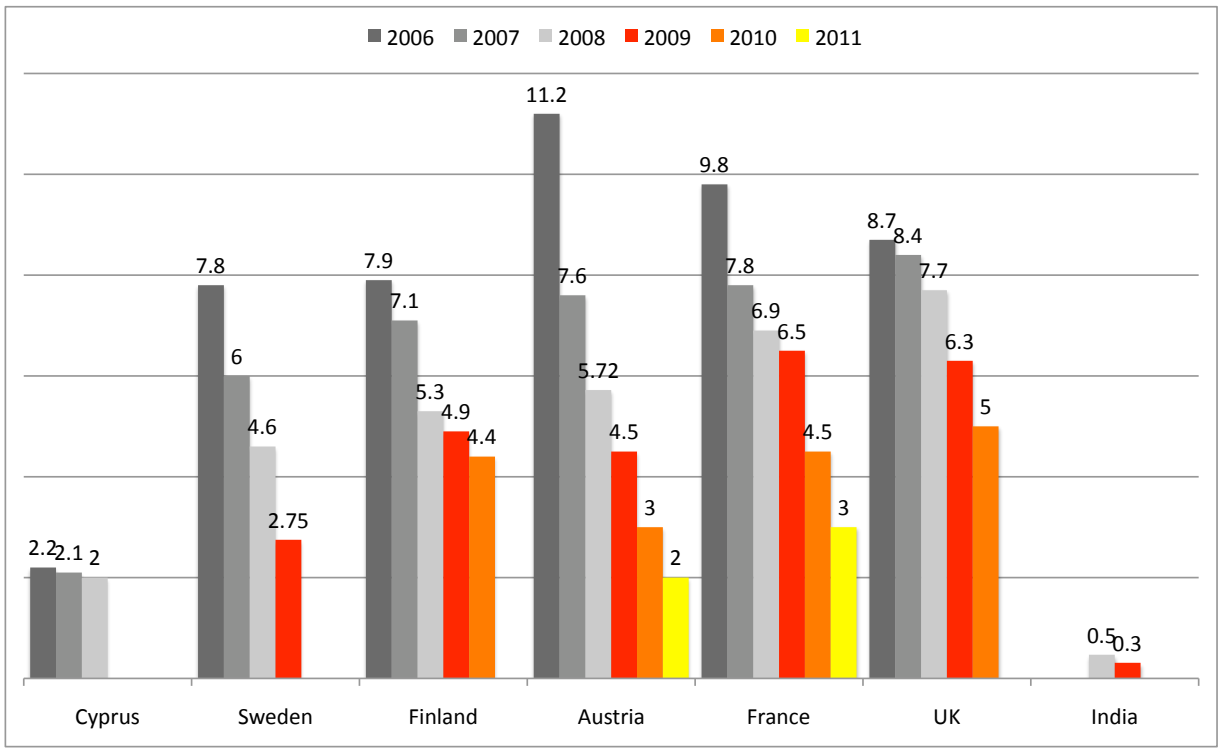

Figure 11: MTR Trends in Euro cents (Source: ERG, Ofcom, ARCEP, RTR, FICORA)

Conclusion

International comparison indicates that Namibia's mobile termination rates are very high. Generally, MTRs are still far away from cost of termination in Europe and elsewhere. The international trend for mobile termination rates is towards the cost of an efficient operator. Austria and France see this at between 1 and 2 Euro cents (N$0.12 to 0.24). Namibia's termination rates should equally aim towards that. The mobile licence of MTC and CellOne required the MTRs to be cost-based, transparent and sufficiently unbundled.

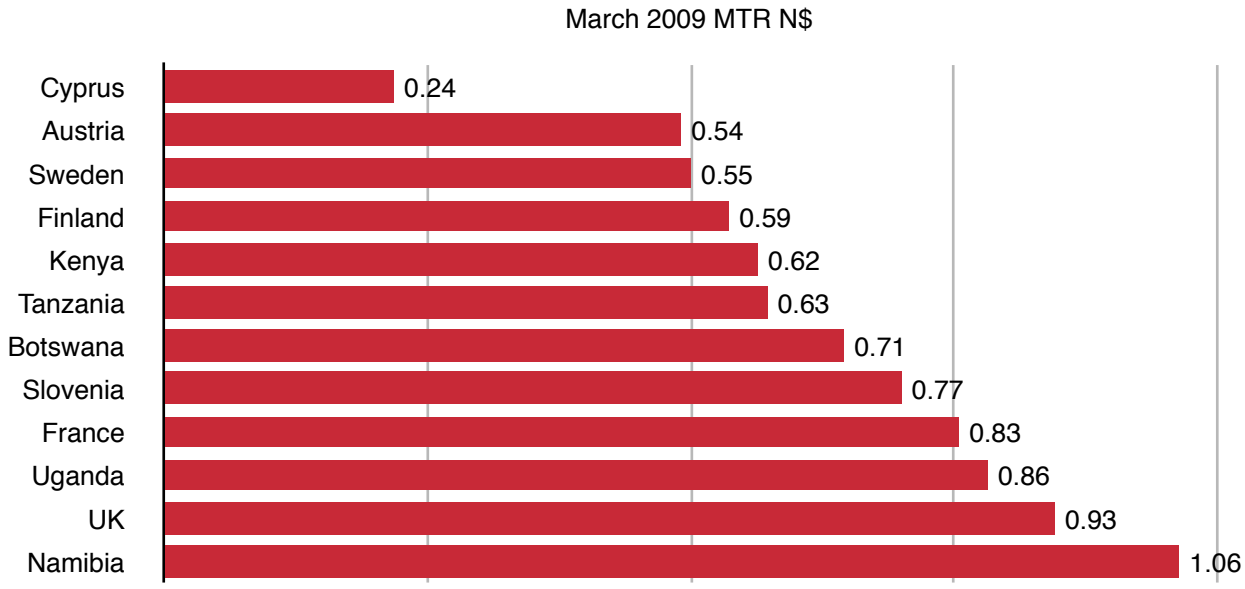

Figure 12: Mobile termination rates in N$ compared (annual average exchange rate for 2008)

Cost of Termination

To derive cost-based benchmarks for termination rates for Namibia it would not be enough to look at termination rates in other jurisdictions. The previous chapter demonstrated how heterogeneous mobile termination rates are across Europe. The trend is towards termination rates that are equal to the cost of an efficient operator, but most European countries will only get there in 2011 or later. Another aspect is taking into account country-specific cost factors. Namibia is sparsely populated and MTC has always argued that the cost of termination is higher because of that. Looking at termination rates in Europe tells us very little about the link between population density and termination rates, let alone cost of termination.

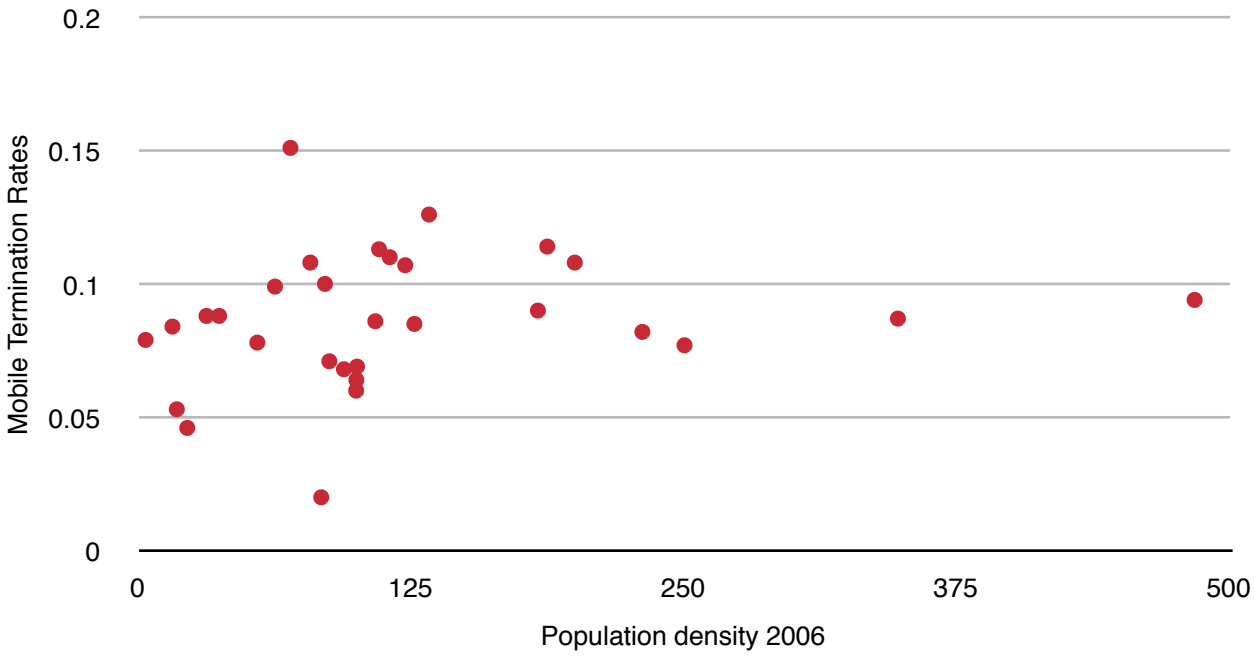

Figure 13: Population density plotted against mobile termination rates (Source: ERG)

The figure above shows that there is no correlation between population density and MTRs in Europe. Countries like Sweden and Finland, which have among the lowest population densities, are also among the five countries with the lowest MTR.

Population density is not necessarily correlated with termination costs in most countries, for a variety of reasons. Some costs are lower in rural areas, e.g. wages, smaller volumes of traffic but larger cell sizes and less costly traffic management. Users in concentrated areas are mobile and want service when they travel to rural areas. Systems are constructed to provide for cross border links and international traffic. Costs may be higher in many African countries than in Europe because of equipment prices, which are often subject to import duties/taxes, but other costs may be lower such as labour and site costs.

Constructing cost-based termination rates therefore requires costs to be benchmarked. Cost data is very difficult to come by and most regulators and operators consider it highly confidential. Cost data from Austria, Sweden, Tanzania, Australia and France were made available by regulatory authorities to the NCC for the purpose of this study.

Tanzania

Analysys UK conducted two LRIC cost studies for Tanzania in 2004 and 2007. Following a panel of inquiry the Tanzania Communications Regulatory Authority issued the Interconnection Determination No.2 with the following key points (TCRA, 2007):

- The value of Weighted Average Cost of Capital (WACC) is 22% in the final model.

- The interconnection rates are in USD, but settlement will be made in Tanzania Shillings (TZS) based on a weighted average exchange rate as provided by the Bank of Tanzania for the previous 12 months to 15 December.
- The Converged Licensing Framework (CLF) issued by TCRA in February 2005 is technology neutral and service neutral. The result is that there will only be one single termination rate for all types of networks irrespective of service and technology used.
- Alignment of fixed and mobile termination rates, based on the facts that on average only 1.3% of the outgoing off-net mobile traffic goes to fixed lines, that most retail mobile tariffs make no distinction between outgoing calls to fixed lines and other mobiles, and that the CLF is service neutral, making no distinction between fixed and mobile.
- Outgoing international calls are not subject to regulation because an international gateway operator must pay an international carrier to terminate a call in a foreign country.
- Incoming international calls transit through an international gateway within Tanzania and terminate on a national network, irrespective of their origin, falling within the scope of the regulation and this determination (i.e. they have to comply with the termination rate ceiling).

The cost of termination for a new entrant in a converged environment is given in the table below in real USD and nominal USD prices. The cost includes LRIC plus an equi-proportionate mark-up for common costs and overheads.[21]

Table 13: Cost of termination and MTR/FTR glide path of termination rate ceiling (Source: TRCA).

		01 Jan 08	01 Jan 09	01 Jan 10	01 Jan 11	01 Jan 12
LRIC + equi-proportionate Mark-Up (EPMU)	Real 2007 US cents	7.15	6.88	6.63	6.51	6.39
	Nominal US cents	7.30	7.18	7.08	7.12	7.16
	N$	0.60	0.59	0.58	0.58	0.59
Glide Path for MTR &FTR & international incoming	Nominal US cents	7.83	7.65	7.49	7.32	7.16
	N$	0.64	0.63	0.61	0.60	0.59

[21] Common Costs and overheads that are not traffic related should not be included in the cost of termination, according to the draft recommendation of the EU. Tanzania's termination rates are therefore higher compared to what could be expected if the EU definition were applied.

Austria

The Telekom-Control-Kommission of Austria commissioned a study which was finalised in December 2008. Based on a top-down approach, the study calculated the actual cost of termination from audited financial data. The regulator's stated best practice is to take the costs of the lowest cost (i.e. most efficient) operator as the basis for its price controls. These are highlighted in the table below for each year. Operator 1 was the most efficient operator for 2005 and 2006 and Operator 3 for 2007, 2008 and 2009.

Table 14: Cost of mobile termination in Euro cents and N$, conversion based on annual exchange rate for 2008 from the ECB (Source: RTR, 2008)

		2005	2006	2007	2008	2009
Operator 1	Euro Cents	**6.67**	**5.69**	4.40	3.40	3.08
	N$	**0.80**	**0.69**	0.53	0.41	0.37
Operator 2	Euro Cents	12.83	6.41	6.49	3.39	2.70
	N$	1.55	0.77	0.78	0.41	0.33
Operator 3	Euro Cents	12.88	10.21	**4.03**	**2.42**	**1.87**
	N$	1.55	1.23	**0.49**	**0.29**	**0.23**
Operator 4	Euro Cents	16.06	12.45	8.32	4.52	2.71
	N$	1.94	1.50	1.00	0.55	0.33
Operator 5	Euro Cents		11.64	8.41	8.74	
	N$		1.40	1.01	1.05	

Sweden

Sweden's National Post and Telecom Agency (PTC) commissioned Analysys UK to conduct an upgrade to its hybrid LRIC model in 2008 (PTS, 2008). Both the fixed and mobile termination rates are regulated in Sweden, based on LRIC. As a general principle, symmetry applies for all operators regarding termination, mobile and fixed respectively. The current mobile termination rate is SEK 0.43 per minute. This level is under review and the initial indication is that there will be a significant drop by July 2009 to SEK 0.275 per minute. However, this cost result is currently subject to consultation with the industry, hence the final level, to be applicable by July 2009, will be finalised mid/late June 2009.

Table 15: Cost of mobile termination in SEK (Source: www.pts.se, www.ecb.int)

		2008-09	2009-10	2010-11	2011-12	2012-13
Based on costs of highest operator	SEK	0.358	0.275	0.227	0.201	0.183
	N$	0.449	0.345	0.285	0.252	0.230
Based on costs of lowest operator	SEK	0.213	0.204	0.175	0.144	0.125
	N$	0.267	0.256	0.219	0.181	0.157

The current fixed termination rate depends on the segments used. The most recent cost result can be seen in the table below. The cost of mobile termination is expected to be SEK 0.183 SEK (N$ 0.23) for the highest cost and SEK 0.125 (N$ 0.157) for the lowest by 2012/3.

Table 16: Cost of fixed termination for 2009 in SEK-conversion in EUROs and N$ based on annual exchange rates (FX) of the European Central Bank (Source: www.pts.se, www.ecb.int)

Fixed Termination	SEK	N$
Local Segment	0.035	0.043
Metro Segment	0.037	0.047
Single Segment	0.037	0.046
Double Segment	0.043	0.053
Single Transit	0.013	0.016
Double Transit	0.016	0.020

Australia

WIK Consult GMBH developed a mobile termination cost model for Australia on behalf of the Australian Competition and Consumer Commission (ACCC). The model is based on either 96% or 92% population coverage and a weighted average cost of capital (WACC) of either 11.68% or 15%. The WIK (2007) study used Total Service Long Run Incremental Cost (TSLRIC). The table below provides cost estimates for various market share scenarios. Two interesting points to be observed are:

- Cost of termination is higher than cost of origination; and
- Cost of termination declines as market share increases.

Table 17: Cost per minute (CPM) of service: Australian cents and N$, conversion using annual exchange rates for 2008 from the ECB (Source: WIK, 2007)

Market Share	17%		25%						31%		44%	
Coverage	96%		96%		92%		96%		96%		96%	
WACC	11.68%		11.68%		11.68%		15%		11.68%		11.68%	
	A$ cents	N$	A$ cents	N$	A$ cents	N$	A$ cents	N$	A$ cents	N$	A$ cents	N$
Voice on-net	13.4	0.93	10.7	0.74	10.2	0.71	11.5	0.80	9.6	0.66	8.9	0.62
Voice termination	7.3	0.51	5.9	0.41	5.6	0.39	6.2	0.43	5.3	0.37	5	0.35
Voice origination	6.4	0.44	5.2	0.36	4.9	0.34	5.5	0.38	4.6	0.32	4.2	0.29
Termination share of on-net	54.48%		55.14%		54.90%		53.91%		55.21%		56.18%	

France

The French regulator ARCEP estimates the cost of mobile termination of an efficient operator to be between €0.01 and €0.02 per minute.[22] This translates into N$0.12 to N$0.24 using the average exchange rate for 2008.

[22] http://www.itu.int/ITU-D/ict/newslog/Viviane+Reding+Welcomes+French+Plans+To+Lower+Mobile+Termination+Rates.aspx

Namibia

The table below presents a rough estimate of cost of termination in Namibia. Telecom Namibia and CellOne provided the requested information to the NCC. MTC refused to provide cost data other than which is contained in its annual report. For CellOne and MTC the direct costs and depreciation as indicated in the latest financial statement are divided by the total call volume. An estimate of the cost termination is 50% of that figure.

Table 18: Estimates of the cost of termination in Namibia based on annual reports and cost and traffic data submitted by operators to the NCC

	Telecom Namibia	CellOne	MTC
Direct cost in N$ '000 as per information provided to NCC	155,456		
Direct cost and depreciation in N$ '000 as per annual report		77,962	371,219
Total minutes	537,141	31,914	775,819
Direct cost and depreciation per minute in N$	0.29	2.44	0.48
Estimated termination cost (50% of direct cost and depreciation per minute)	0.14	1.22	0.24

MTC is, following the definitions used in the EU, the most efficient mobile operator in Namibia. CellOne's cost of termination is very high due to low traffic on its network. Its termination cost would not be a suitable ceiling for the cost of an efficient operator.

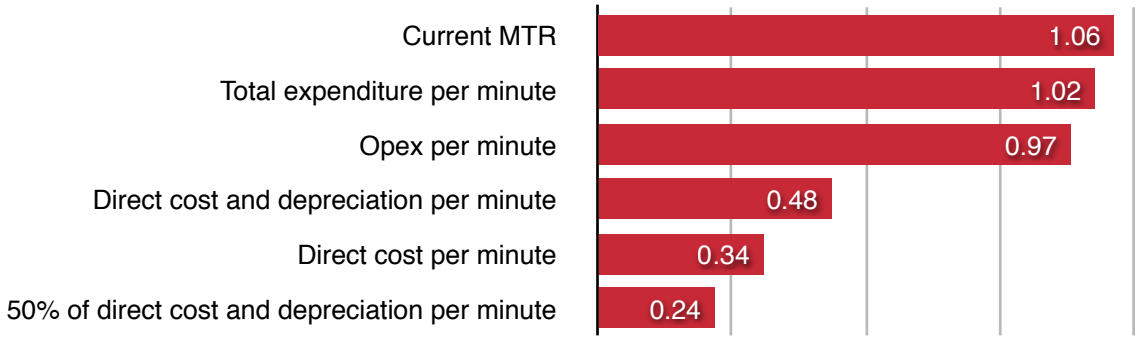

Figure 14: MTC's cost per minute (Source: MTC annual report 2008 and information submitted to NCC)

How far away current termination rates are from cost of termination can be seen from the figure above. MTC's total expenditure for the financial year ending September 2008 divided by call volume is less than the current MTR.

Conclusion

The average cost of termination seems to be in the region of N$0.20 to N$0.35. Australia has nearly identical population density to Namibia and used a model with 96% population coverage but only 44% market share. MTC has 87% market share and 95% population coverage. The figures for Australia should therefore be comparable with Namibia. Higher labour and site costs in Australia should be offset by higher minutes use per user compared to Namibia.

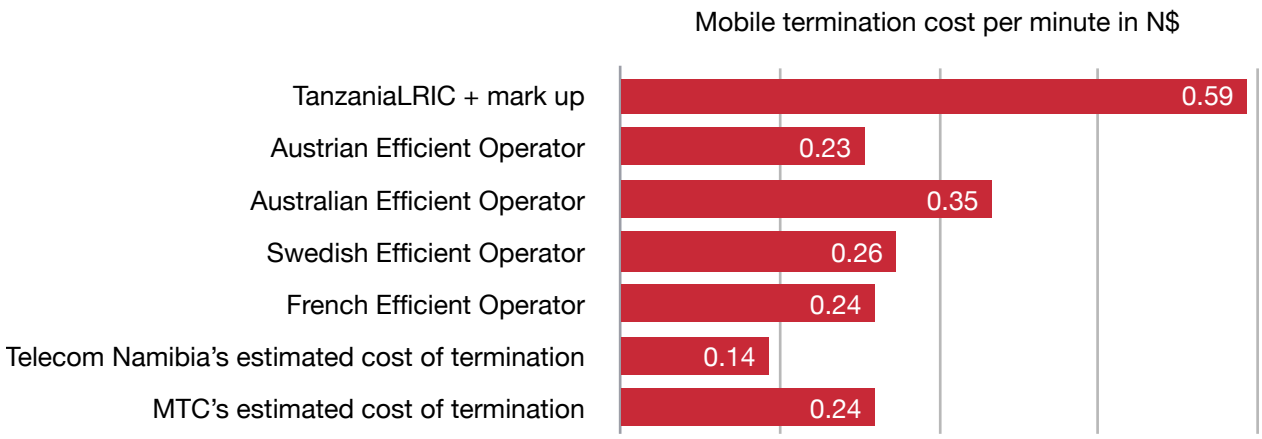

Figure 15: Cost of termination in N$

In the absence of more detailed cost data from MTC, which it refused to provide, it would be reasonable to assume that its cost of termination would not be higher than N$0.30, based on a LRIC model following the EU draft recommendation.

Namibian Benchmark Model

The principles for the Namibian Benchmark Model, in line with international best practice and international trends, are that:

- Termination rates should be close to the cost of an efficient operator;
- Cost of termination is determined based on benchmarking the cost of termination in jurisdictions that implemented accounting separation or other means to establish the cost of termination;
- Termination rates should be technologically and service neutral in line with Namibia's ICT policies and the anticipated new telecommunications bill and licences;
- Termination rates should facilitate emergence of IP-based NGNs; and
- Recommendation should be implemented in terms of the current licence conditions and acts.

The recommendation emerging from this is that the new termination target rate should be N $0.30 based on the cost of termination of the most efficient operator, which is MTC. Facilitating fixed-mobile convergence and migration to IP-based next generation networks, this target rate should be applicable for any voice termination regardless of technology used. Four models are discussed below:

- Model 1: Immediate drop to N$0.30 starting 1 July 2009
- Model 2: Symmetric glide path to N$0.30 that started 1 July 2006
- Model 3: Symmetric glide path to N$0.30 starting 1 July 2009
- Model 4: Asymmetric glide path to N$0.30 starting 1 July 2009

The proposed termination glide path for each model is a ceiling. Operators would be free to negotiate lower termination rates given compliance with their licences, which require non-discriminatory treatment.

Model 1: Immediate drop to N$0.30

The first model sets the termination rate immediately to the cost of an efficient operator. The reasoning behind this is that high termination rates have distorted the market for too long and Namibia cannot afford to wait for another two years before all operators are being allowed to compete fairly. CellOne and Telecom Namibia are currently under severe financial strain and a real risk of market exit exists. Such a drastic reduction in termination rates is rarely applied internationally; however, the situation in Namibia is equally rare in its unfairness to new entrants.

Table 19: Proposed glide path for the termination rate ceiling

	Current	1 July 2009
MTR	1.06	0.30
FTR	0.63	0.30
Originating internationally, terminating locally via Telecom Namibia	0.59	0.30
Originating in Namibia and terminating internationally	Government Gazette	0.30+international settlement rate

The immediate reduction to N$0.30 would allow Switch and CellOne to compete with their off-net-rates with MTC's on-net rates immediately, which is crucial to win subscribers. What is key is to establish what the likely consequences for all current operators would be. For that purpose a static sensitivity analysis has been performed. The analysis is based on information provided by Telecom Namibia, CellOne and MTC. The information from MTC was incomplete (MTC chose to provide only information that it felt was necessary). The missing MTC data was estimated based

on the information from CellOne and Telecom Namibia. The analysis is static since it simulates the situation for the financial year ending in September 2008 in the case of a symmetric fixed and mobile termination rate of N$0.30. It assumes the same traffic as the actual traffic in 2008.

Lower termination rates will likely lead to lower retail rates, at least for Telecom Namibia and CellOne, and hence a change in traffic flow from Telecom Namibia and CellOne to MTC. The net termination payment flows are hence underestimations; i.e. CellOne and Telecom Namibia are likely to have had to pay more, and MTC to receive more in this scenario. The two tables below simulate key financial indicators for 2008 if the termination rate had been N$0.30.

Table 20: Current situation constructed based on information from Telecom Namibia, CellOne and MTC

	CellOne	Telecom Namibia	MTC
Minutes terminated for CellOne on own Network	NA	2,299,797	6,182,581
Minutes terminated for Telecom Namibia on own Network	706,358	NA	97,655,773
Minutes terminated for MTC on own Network	4,498,632	21,903,758	NA
Off-net minutes terminated on CellOne	NA	706,358	4,498,632
Fixed-line minutes terminated on Telecom Namibia	2,299,797	NA	21,903,758
Off-net minutes terminated on MTC	6,182,581	97,655,773	NA
MTR	1.06	1.06	1.06
FTR	0.68	NA	0.63
Average fixed retail rate	1.79	NA	2.55
Average off-net retail rate	1.79	1.75	2.5
Termination payment to CellOne	NA	748,739	4,768,550
Termination payment to Telecom Namibia	1,563,862	NA	13,799,368
Termination payment to MTC	6,553,536	103,515,119	NA
Termination Revenue from CellOne	NA	1,563,862	6,553,536
Termination Revenue from Telecom Namibia	748,739	NA	103,515,119
Termination Revenue from MTC	4,768,550	13,799,368	NA
Cost of termination	8,117,398	104,263,859	18,567,917
Revenue from termination	5,517,289	15,363,230	110,068,655
Retail revenue from off-net and fixed-line calls	15,183,457	172,133,729	67,101,163
Net revenue from off-net and fixed-line calls (retail revenue – cost of termination)	7,066,059	67,869,870	48,533,245
Net Income revenue from off-net and fixed-line calls (retail revenue + revenue from termination – cost of termination)	12,583,348	83,233,100	158,601,901

The table above shows the results for actual termination rates, and the table overleaf the results in a situation where termination rates had been converged and symmetrical at N$0.30. The figures show that MTC would be the net loser and CellOne and Telecom Namibia the net gainers from lower termination rates, though CellOne and Telecom Namibia would still be net payers because of small market share and traffic imbalances. In particular, Telecom Namibia would be relieved of a large part of the cost of termination.

Another way of looking at the decrease in net interconnection payment received by MTC at a termination rate of N$0.30 is that this amount represents MTC overcharges in the past. This has been made possible by an absence of regulation of MTR.

Table 21: Financial ratios if the termination rate had been N$0.30

	CellOne	Telecom Namibia	MTC
Minutes terminated for CellOne on own Network	NA	2,299,797	6,182,581
Minutes terminated for Telecom Namibia on own Network	706,358	NA	97,655,773
Minutes terminated for MTC on own Network	4,498,632	21,903,758	NA
Off-net minutes terminated on CellOne	NA	706,358	4,498,632
Fixed-line minutes terminated on Telecom Namibia	2,299,797	NA	21,903,758
Off-net minutes terminated on MTC	6,182,581	97,655,773	NA
MTR	0.3	0.3	0.3
FTR	0.3	0.3	0.3
Average fixed retail rate	1.79		2.55
Average off-net retail rate	1.79	1.75	2.5
Termination payment to CellOne		211,907	1,349,590
Termination payment to Telecom Namibia	689,939		6,571,127
Termination payment to MTC	1,854,774	29,296,732	
Termination Revenue from CellOne		689,939	1,854,774
Termination Revenue from Telecom Namibia	211,907		29,296,732
Termination Revenue from MTC	1,349,590	6,571,127	
Cost of termination	2,544,713	29,508,639	7,920,717
Revenue from termination	1,561,497	7,261,067	31,151,506
Retail revenue from off-net and fixed-line calls	15,183,457	172,133,729	67,101,163
Net revenue from off-net and fixed-line calls (retail revenue – cost of termination)	12,638,743	142,625,090	59,180,446
Net Income revenue from off-net and fixed-line calls (retail revenue + revenue from termination – cost of termination)	14,200,240	149,886,156	90,331,952

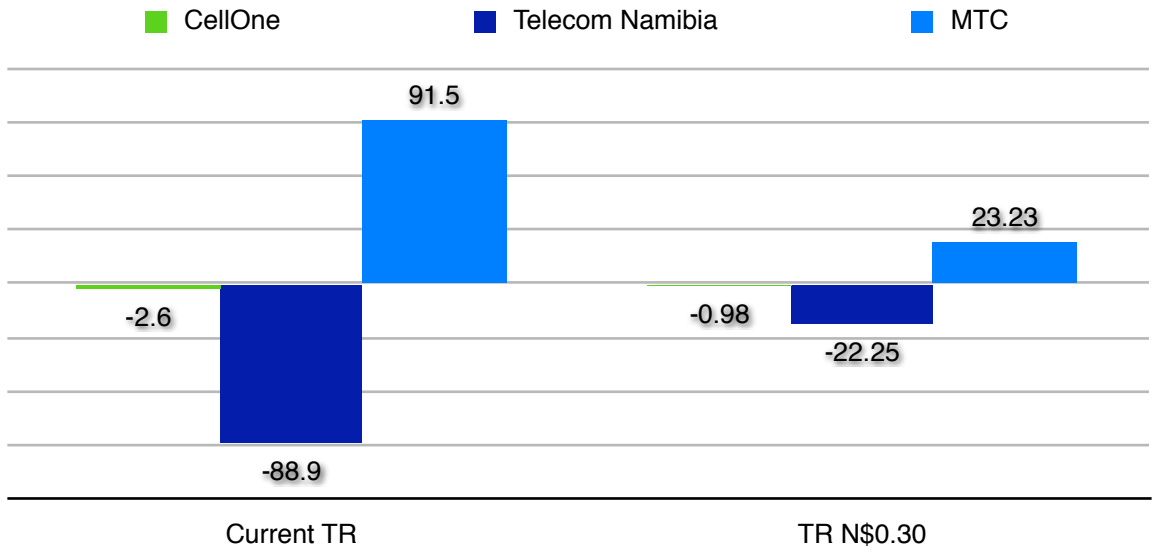

Figure 16: Net termination payment flow in N$ million

Generally, net termination payments would be reduced for all operators. CellOne would have to pay N$1.6 million less, while Telecom Namibia would pay N$66 million less. MTC would still be a net receiver of termination payments, to the tune of N$23 million. One needs to bear in mind that these are underestimations of net interconnection payments due to the fact that changes in traffic are not considered. CellOne and Telecom Namibia are likely to have to pay more and MTC will receive more if Telecom Namibia and CellOne reduce their off-net retail rates and hence terminate more calls on MTC's network.

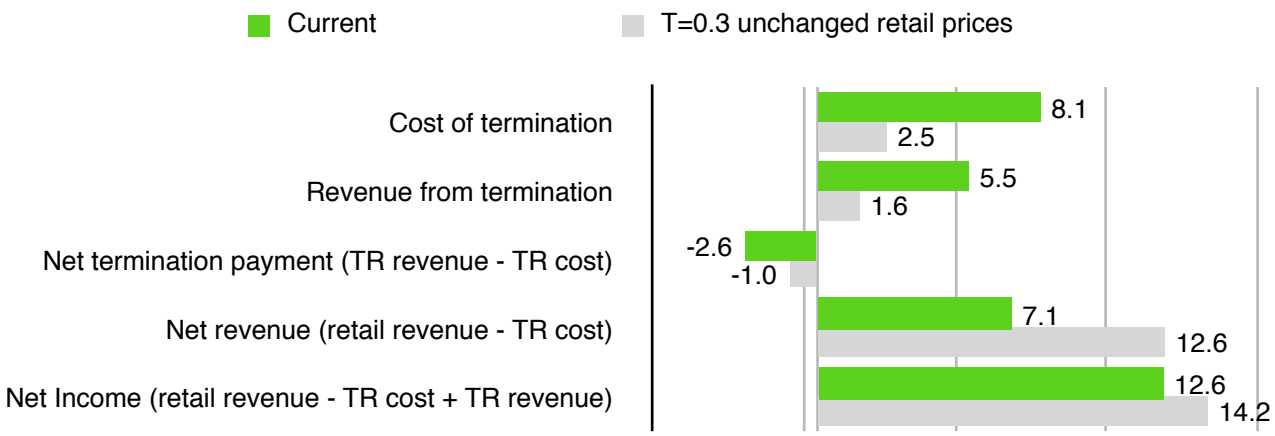

Figure 17: Impact in N$ million of N$0.30 termination rate on CellOne

CellOne will not benefit much from reduced net interconnection payments. The main benefit will come from being able to use its off-net tariffs to compete with MTC's on-net tariffs and hence being able to attract more subscribers.

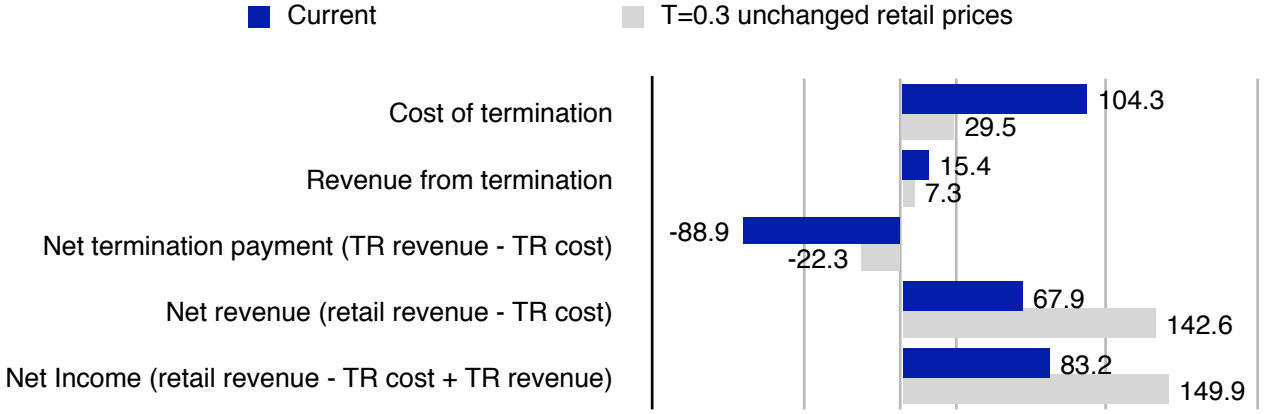

Figure 18: Impact in N$ million of N$0.30 termination rate on Telecom Namibia

Telecom Namibia will benefit most from the reduction in termination rates. It will reduce its net payment to MTC considerably. Another factor is that Telecom Namibia suffers from the operation of Least Cost Routers (LCR). Lower termination rates will weaken the value of LCRs to customers and bring traffic back to Telecom Namibia's network. This will increase termination rate payments to MTC but also the retail revenue of Telecom Namibia. Currently, MTC accepts less payment from LCRs than it would have received from Telecom Namibia in the form of MTRs. MTC could therefore boost its profitability by cutting out LCRs.

MTC's net revenue from termination will be reduced considerably, assuming constant traffic. CellOne and Telecom Namibia will terminate more calls on MTC's network if they reduce their retail rates, which they will have to in order to gain market share. This will ease that effect to some extent. Revenue from termination will be a smaller share of MTC's total revenue in future. However, MTC's profit in terms of revenue from off-net and fixed-line calls minus termination cost will increase, if MTC does not reduce its retail prices.

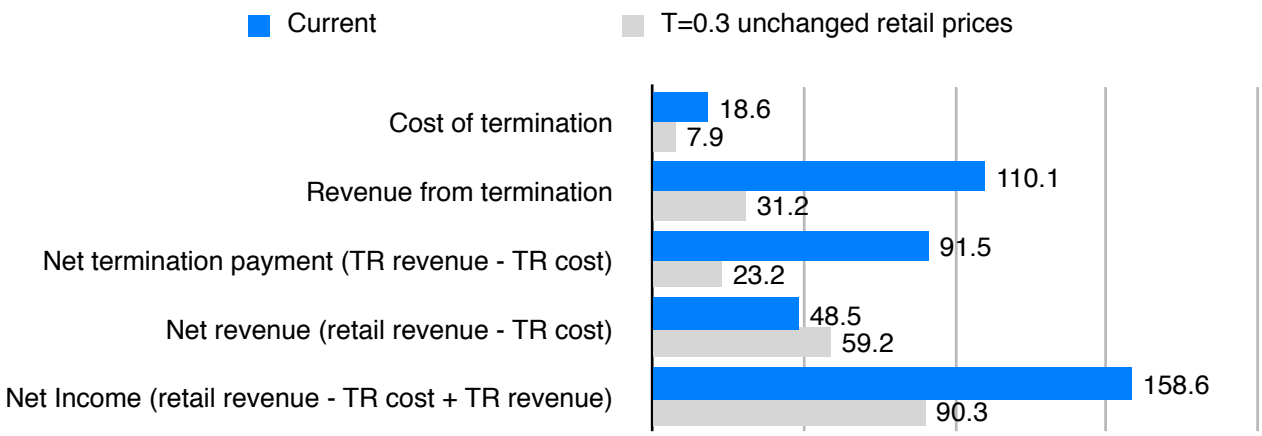

Figure 19: Impact in N$ million of N$0.30 termination rate on MTC

The table below provides an estimate of the impact of lower termination revenue for MTC. Its EBITDA margin would have been 47.4% instead of 49.9% in 2008 if retail prices and traffic had been the same. Levelling the playing field by setting the termination rate ceiling at the cost of an efficient operator means that MTC would face stiffer competition by CellOne and Switch in future. MTC would have to react to it by either competing on price or service quality. This competition would expand the Namibian subscriber base and/or quality of service. It would also lead to EBITDA margins modestly closer to what can be observed in other markets, but still at a level associated with monopoly rather than competitive markets (around 30%). MTC estimates that its EBITDA margin would drop in a worst case scenario to about 37% as a result of competitive pressure.[23] This data suggests that further reductions in the MTC EBITDA margin to a more competitive level will require action by the regulator to reduce retail rates.

Table 22: Static impact of a N$0.30 termination rate on MTC's EBITDA margin for for the financial year ending in 2008

N$0.30 MTR	2008
EBITDA in N$ million	627.00
Revenue in N$ million	1,257.00
EBITDA margin	49.88%
Estimated revenue reduction	78.92
Estimated EBITDA reduction	68.27
New EBITDA in N$ million	558.73
New revenue in N$ million	1,178.17
EBITDA Margin	47.42%

[23] See responses from operators in appendix.

Model 2: Symmetric glide path to N$0.30 starting 1 July 2006

This model takes into account that interconnection rates should have been regulated with the opening of the sector to competition in 2006. It applies a glide path to the previous three years and operators would be required to compensate each other for the difference in net termination cash flows for 2006, 2007 and 2008. Telecom Namibia would be a net gainer from the differences in MTRs but a net payer for the call originating from MTC or CellOne and terminating internationally.

Table 23: Proposed glide path for the termination rate ceiling for model 2

	Current	1 July 2006	1 July 2007	1 July 2008	1 July 2009
MTR	1.06	0.87	0.68	0.49	0.30
FTR	0.63	0.55	0.47	0.38	0.30
Originating internationally, terminating locally via Telecom Namibia	0.59	0.52	0.45	0.37	0.30
Originating in Namibia and terminating internationally	Government Gazette	0.52 + international settlement rate	0.45 + international settlement rate	0.37 + international settlement rate	0.3 + international settlement rate

Not enough detailed information was available to Research ICT Africa to estimate the magnitude of compensating payments required.

Model 3: Symmetric glide path to N$0.30 starting 1 July 2009

The termination rates will approach the cost of an efficient operator within two years. It would allow MTC more time to adjust its business plans to new termination rates. However, it also shields it to a decreasing degree for another two years from competition from CellOne and Switch.

This approach would also allow operators to agree to the target termination rate of N$0.30 immediately. CellOne and Telecom Namibia would both benefit from such an agreement between each other. Telecom Namibia could offer cheaper calls to CellOne and CellOne could offer cheap rates to Telecom Namibia, both making their networks more attractive. It would be unlikely that MTC would want to agree to the targeted termination rate immediately.

Table 24: Proposed glide path for the termination rate ceiling for model 3

	Current	1 July 2009	1 January 2010	1 July 2010	1 January 2011
MTR	1.06	0.87	0.68	0.49	0.30
FTR	0.63	0.55	0.47	0.38	0.30
Originating internationally, terminating locally via Telecom Namibia	0.59	0.52	0.45	0.37	0.30
Originating in Namibia and terminating internationally	Government Gazette	0.52 + international settlement rate	0.45 + international settlement rate	0.37 + international settlement rate	0.3 + international settlement rate

Model 4: Asymmetric glide path to N$0.30 starting 1 July 2009

Adopting asymmetric interconnection rates in order to facilitate market entry can be justified based on the higher cost per minute and on traffic imbalances faced by new entrants. It is important that the period of asymmetry be finite and transparent. The most effective way is to delay the termination rate reductions for the new entrant by a year, in this case for CellOne and for Switch.

Table 25: Delayed MTR ceiling reduction for CellOne and Switch

	Current	1 July 2009	1 January 2010	1 July 2010	1 January 2011	1 July 2011	1 January 2012
MTR MTC	1.06	0.87	0.68	0.49	0.30	0.30	0.30
MTR CellOne	1.06	1.06	1.06	0.87	0.68	0.49	0.30
MTR Switch	1.06	1.06	1.06	0.87	0.68	0.49	0.30
FTR	0.63	0.55	0.47	0.38	0.30	0.30	0.30
Originating internationally, terminating locally via Telecom Namibia	0.59	0.52	0.45	0.37	0.30	0.30	0.30
Originating in Namibia and terminating internationally	government gazette	0.52 + intern. settlement rate	0.45 + intern. settlement rate	0.37 + intern. settlement rate	0.3 + intern. settlement rate	0.3 + intern. settlement rate	0.3 + intern. settlement rate

For Namibia, asymmetric termination rates can be justified given that CellOne's cost of termination is much higher than MTC's due to low traffic volume and hence low economies of scale. The same applies to Switch. However, asymmetric termination rates also carry disadvantages for CellOne and Switch. MTC has little incentive to reduce its off-net rates, which are the main cause of traffic imbalances and net interconnection outflows at CellOne and Switch. The Asymmetric glide path will re-balance the interconnection net cash flow to some extent, but is likely to maintain or increase the traffic imbalance. A disadvantage for the ICT sector and Namibia is that the convergence of termination rates would only be reached one year later. This might slow down fixed-mobile convergence.

The licence conditions of MTC and CellOne do not allow the regulator to implement a discriminatory interconnection arrangement. This solution therefore requires industry consensus. It is unlikely that MTC would agree to this model.

The static sensitivity analysis for this model is confined to CellOne's net termination flow with MTC. Switch would benefit equally from asymmetric termination rates, and fixed termination rates are not affected by the asymmetry. The tables overleaf simulate the termination net payment flow for 2008 for the symmetric and the asymmetric termination rate glide paths.

Table 26: CellOne's net termination flow with MTC for the symmetric glide path

	01 Jul 09	01 Jan 10	01 Jul 10	01 Jan 11	01 Jul 11	01 Jan 12
Minutes terminated by Cellone for MTC	2,249,316	2,249,316	2,249,316	2,249,316	2,249,316	2,249,316
Minutes terminated by MTC for CellOne	3,091,291	3,091,291	3,091,291	3,091,291	3,091,291	3,091,291
MTR	0.87	0.68	0.49	0.3	0.3	0.3
Termination payment to MTC	2,689,423	2,102,078	1,514,732	927,387	927,387	927,387
Termination revenue from MTC	1,956,905	1,529,535	1,102,165	674,795	674,795	674,795
CellOne's net termination flow with MTC N$ million	-0.73	-0.57	-0.41	-0.25	-0.25	-0.25

Table 27: CellOne's net termination flow with MTC for the asymmetric glide path

	01 Jul 09	01 Jan 10	01 Jul 10	01 Jan 11	01 Jul 11	01 Jan 12
Minutes terminated by Cellone for MTC	2,249,316	2,249,316	2,249,316	2,249,316	2,249,316	2,249,316
Minutes terminated by MTC for CellOne	3,091,291	3,091,291	3,091,291	3,091,291	3,091,291	3,091,291
MTC MTR	0.87	0.68	0.49	0.3	0.3	0.3
CellOne MTR	1.06	1.06	0.87	0.68	0.49	0.3
Termination payment to MTC	2,689,423	2,102,078	1,514,732	927,387	927,387	927,387
Termination revenue from MTC	2,384,275	2,384,275	1,956,905	1,529,535	1,102,165	674,795
CellOne's net termination flow with MTC N$ million	-0.31	0.28	0.44	0.60	0.17	-0.25

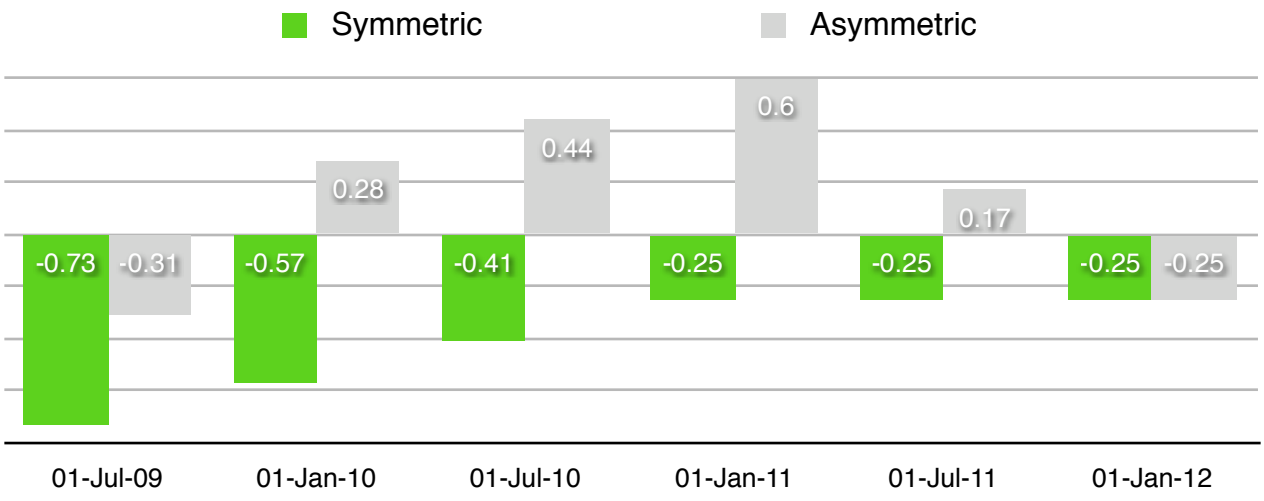

Figure 20: Net termination flow of CellOne with MTC in million N$ for symmetric and asymmetric glide paths

Assuming unchanged traffic, the net benefit of asymmetry for CellOne would be N$ 3.4 million over a period of two years. Traffic will change however, since CellOne, is likely to pass on some of the cost reduction associated with lower termination rates,to retail customers. That should lead to an increasing traffic imbalance and hence higher termination payments than indicated in the simulation.

Discussion of the Responses from Operators[24]

Models 1 and 2 would be a compromise from the side of CellOne and Telecom Namibia. For CellOne these models need to be complemented by other regulatory interventions.

Table 28: Summary of operator comments

	CellOne	Telecom Namibia	MTC
Model 1: Immediate drop to N$0.30 starting 1 July 2009	2nd choice: if accompanied by other regulatory interventions	2nd choice: Removing distortionary factors immediately but request higher transit charge for outgoing international calls	No comment
Model 2: Symmetric glide path to N$0.30 that started 1 July 2006	2nd choice: if accompanied by other regulatory interventions	**1st choice: Compensates for market distortions of past years**	No comment
Model 3: Symmetric glide path to N$0.30 starting 1 July 2009	Rejected: sees no reason to wait to remove market distorting factors	Rejected: only gradually removes market distortions and disadvantages TN and consumers unjustifiably for two years longer	No comment
Model 4: Asymmetric glide path to N$0.30 starting 1 July 2009	**1st choice: because of current traffic imbalance**	Rejected: only gradually removes market distortions and disadvantages TN and consumers unjustifiably for two years longer	No comment
MTC model: reduction to N$0.60 until 2011	Rejected: same as for Model 3	Rejected: same as for Model 3	Drop in EBITDA margin to 37% because of having to compete on a level playing field

CellOne

CellOne complained that the study is too Europe focused and far removed from African markets. India has been added to the study with converged termination rates of below N$0.04. It had originally been omitted due to its market size. The USA and other countries that use Receiving Party's Network Pays billing system could not be considered because of the difference to Calling Party's Network Pays billing system which is being used in Africa and Europe. Furthermore, the African countries that were considered for this study are mostly in a review process and their MTRs/FTRs are expected to drop considerably during 2009. Namibia cannot afford to look at past termination rates but needs to look ahead and anticipate what future termination rates will be in Africa, or continue to lag behind.

CellOne clearly prefers the asymmetrical model. Its costs are higher as a new entrant and it fears that it will continue to make losses if not compensated for its cost of termination. However, asymmetric termination rates also mean that MTC can and will not reduce its off-net prices to the same extent as it could under symmetric termination rates. Traffic imbalances will thus be maintained or even increased considering that CellOne will reduce its off-net rates to match MTCs on-net rates to gain market share. Asymmetric termination rates would also limit the possibilities of the regulator for retail price regulation. CellOne also sees model 1 and 2 as feasible if they could be accompanied by other regulatory interventions:

- International voice gateways for mobile operators;
- Retail price regulation;

[24] The unedited responses from Telecom Namibia, CellOne and MTC can be found in the appendix.

- Reimbursement of once-off licence fee paid by CellOne;
- Enforcement of national roaming;
- New regulator which is also responsible for regulating Telecom Namibia;
- Regulation of infrastructure sharing;
- Mobile number portability; and
- Accounting separation until technology neutral licences are in place.

Most of these regulatory interventions are covered in the draft bill. The once-off licence fee and retail price regulation are not. These interventions are discussed in the appendix in more detail.

Interconnection rate regulation can remove competitive distortions in the marke. However, it is not the magic bullet that sets the playing field level immediately. Dominant market power can be abused in other ways, and retail price regulation for off-net and fixed-line rates may be required in this case.

Accounting separation until technological neutral licences are in place is impossible to implement since the new bill is still expected for 2009. It took regulators in the UK and South Africa many years to implement accounting separation – it is not a short-term measure.

Telecom Namibia

Telecom Namibia prefers Model 2 as it addresses some of the market distortions of the past years. It estimates that N$150 million would have to be paid back by MTC to Telecom Namibia if this model were to be implemented. However, Telecom Namibia acknowledges that it was part of the systemic failure of the past and will not insist that this model be implemented at any cost.

Model 1 is put forward as it is the second choice and absolute minimum requirement. Telecom Namibia points out that MTC will still remain a net receiver of interconnection net payments.

Models 3 and 4 are rejected by Telecom Namibia since it will face increasing competition in the fixed-line market through MTC's HomePhone. With MTRs higher than FTRs, MTC would have an unfair advantage. It also argues that a gliding scale only starting in 2009 will only gradually remove market distortions and disadvantage Telecom Namibia and consumers unjustifiably for two years longer.

Telecom Namibia notes that its international transit costs are likely be higher than N$0.30, arguing that their own model (COSITU, FDC) "demonstrates a ratio of over 2.7 times the local FTR = 81c + international terminating cost". The 2.7 times were however applied to the proposed converged termination rate of N$0.30. Table 18 estimates the cost of fixed-line termination to be N$0.14, 2.7 times which would be N$0.38. The COSITU model uses FDC and overestimated termination costs compared to the LRIC approach of the EU.

MTC

MTC admits freely in its response to profit from market dominance. The main arguments for threatening with not investing as planned is that the EBITDA margin would drop to 37% because of competition from CellOne and Telecom Namibia. First, its calculation assumes that usage and subscriber numbers do not increase with intensified competition and lower prices. Secondly, to argue that one is only able to invest if shielded by high termination rates against competition, thus limiting the investment potential of other operators, bears little credibility. Interestingly, MTC does not comment on the estimated cost of termination of N$0.24, other than requesting a mark-up for non-traffic related common costs to be included, indirectly acknowledging the estimate as correct. The following statements from MTC's response are commented on individually.

Statement 1: Namibia would have the lowest MTRs, not just on the continent, but in the world.

Firstly, Asia and the US have much lower rates. The international trend is towards significant reductions to cost-based MTRs. Namibia will be in line with international trends and no longer

limping behind. Namibia needs to take into account termination rates that will be applied in the future – not just those that were applied in the past for its benchmarking.

Statement 2: Reduction in EBITDA margin from 50.0% to 47.9% directly and possibly to 36.8% due to competitive pressure will dramatically reduce MTC's capacity to invest in new technology.

MTC argues that competitive pressure might lead to lower EBITDA margins. However, this is exactly why termination rates need to come down, to allow CellOne and Telecom Namibia to compete fairly. It is obvious that excess profits that were possible because of MTC's market power cannot be maintained once the playing field is level.

However, a 37% EBITDA margin, which reflects a far greater reduction than available data would suggest, is still very high in international comparison. Moreover, MTC's calculation ignores several market dynamics:

- Intensified competition will increase subscriber numbers and usage. If MTC could maintain its market share through price reduction it would mean that if would have more subscribers.
- Off-net price reductions at Telecom Namibia and CellOne that will lead to more traffic being terminated on MTC's network and therefore higher termination revenue. MTC will remain a net receiver of termination revenue until its market share is even with CellOne and Telecom Namibia.

The table overleaf is based on MTC's model, but takes into account price elasticities. Taking usage increases through lower prices into account, MTC's margin would only drop to 42.2%, not 36.8%. This is still an overestimation of the financial impact, since it does not account for additional subscribers and increased interconnection traffic. The sensitivity analysis becomes very complex when combining various strategies of operators. If CellOne reduces its prices by 30%, Telecom Namibia by 10% and MTC by 20%, then the outcome would be different to MTC changing by 10%, Telecom Namibia keeping them constant and CellOne reducing them by 20%. The possible combinations are infinite and any assumptions about the likely outcome are somewhat arbitrary.

The key point to make is that the direct impact on MTC's EBITDA is not dramatic. The competitive impact could be more significant if serious price competition develops among the operators over several years, conceivably resulting in a reduction to a 37% EBITDA margin. By international standards, this would be a very good result for a company operating in a competitive environment. MTC can and should not be expected to have its very high rate of monopoly profit maintained any longer.

MTC's net cash flow from operating activities has been N$711 million for the financial year ending in September 2008. About 40% of that was invested in property, plants and equipment. Even if its net cash flow were reduced by N$207 million, as MTC claims, that would still be enough to maintain MTC's investments (reduced N$504 million net cash flow from operating activities compared to N$286 million investment for 2008). It would still generate N$218 million in excess cash over the amount it invested.

Basic economic theory shows that firms invest as long as the rate of return exceeds the cost of capital. Monopoly profit is the residual – what is earned in excess of that. Firms will invest less in monopoly markets than competitive ones because they can profit from higher prices and lower traffic, and their costs tend to be higher with little pressure for efficiency or innovation. With competition and lower prices, they invest more to meet the greater demand and improve their own efficiency, as long as its covers the cost of capital. Monopolists typically argue that if their profits are reduced and competition increased, they will cut back on investment. In reality, they expand their investment to make themselves more competitive and to respond to the increased demand arising from lower prices.

Table 29: EBITDA effect on MTC of a 20% price reduction across the board of MTC's products and N $0.30 converged termination rate

Positions	Estimates
Prepaid call revenue in '000 N$	641,844
Prepaid calls in minutes in '000	437,149
Average prepaid revenue per minute	1.47
Postpaid call revenue in '000 N$	195,461
Postpaid calls in minutes in '000	184,509
Average postpaid revenue per minute	1.06
Total revenue from postpaid and prepaid minutes in '000 N$	837,305
New average prepaid revenue per minute	1.17
New average postpaid revenue per minute	0.85
New prepaid minutes in '000 assuming price elasticity	524,579
New postpaid minutes in '000 assuming price elasticity	221,411
New prepaid revenue in '000 N$	616,170
New postpaid revenue in '000 N$	187,643
New Total Revenue in '000 N$	803,813
Revenue Difference in '000 N$	33,492
Increased direct cost through higher call volume in '000 N$	42,273
EBITDA effect from price reduction in '000 N$	75,765
Direct EBITDA effect from net termination payments in '000 N$ (see Table 22)	68,270
MTC's estimated EBITDA margin for the financial year ending September 2008, taking into account 20% price reduction from competition and N$ 0.30 termination rate	42.19%
Actual net cash flow from operating activities in N$ million	710.7
Actual purchase of property, plant and equipment in N$ million	286.4
Share of purchase of property, plant and equipment of net cash flow from operating activities	40.3%

Statement 3: A drastic reduction in financial resources at NPTH will make it difficult for them to avail funds to Telecom Namibia and CellOne for purposes of honouring their contribution to the WACS.

MTC currently exercises market dominance at the cost of CellOne and Telecom Namibia. Telecom Namibia going bankrupt is a far more significant threat to NPTH than MTC making a little bit less money each year. With Telecom Namibia performing better NPTH will also benefit as a 100% shareholder.

Statement 4: Reduced Net profits may delay the development of Namibia's information society.

One cannot provide one operator with excess profits at the cost of other operators to hope that it will invest more. Telecom Namibia and CellOne also need to invest but will only do so if they have a fair chance of competing with MTC. Furthermore, the opening of the market has seen MTC's prices drop in real terms by more than half and its subscriber numbers more than double while net profits soared. Namibia's information society doesn't depend on MTC maintaining monopoly profit. It depends upon establishing a modern telecom network with several competitive operators and service providers supplying many services at low prices.

Table 30: MTC's performance before and after opening of the market

	2005	2008
Subscribers	400,000	1 million
Net profit after tax	293 million	358 million
Staff	302 (2006)	364

Statement 5: The consultant only considered the off-peak prices ... A full analysis, taking into account the total traffic (i.e. including peak traffic) and including the monthly fees paid by post-paid customers, reveals that in fact all MTC´s analysed tariffs have retail prices for on-net calls that are considerably above the current MTR.

MTC's on-net peak tariffs are above MTR. This report never states differently. However, the off-peak and off-off peak rates are mostly below MTR. The figure below has been modified to include the on-net peak prices as well. That does not change the results from the analysis. CellOne and Telecom Namibia still cannot compete with their off-net prices with MTC's on-net prices.

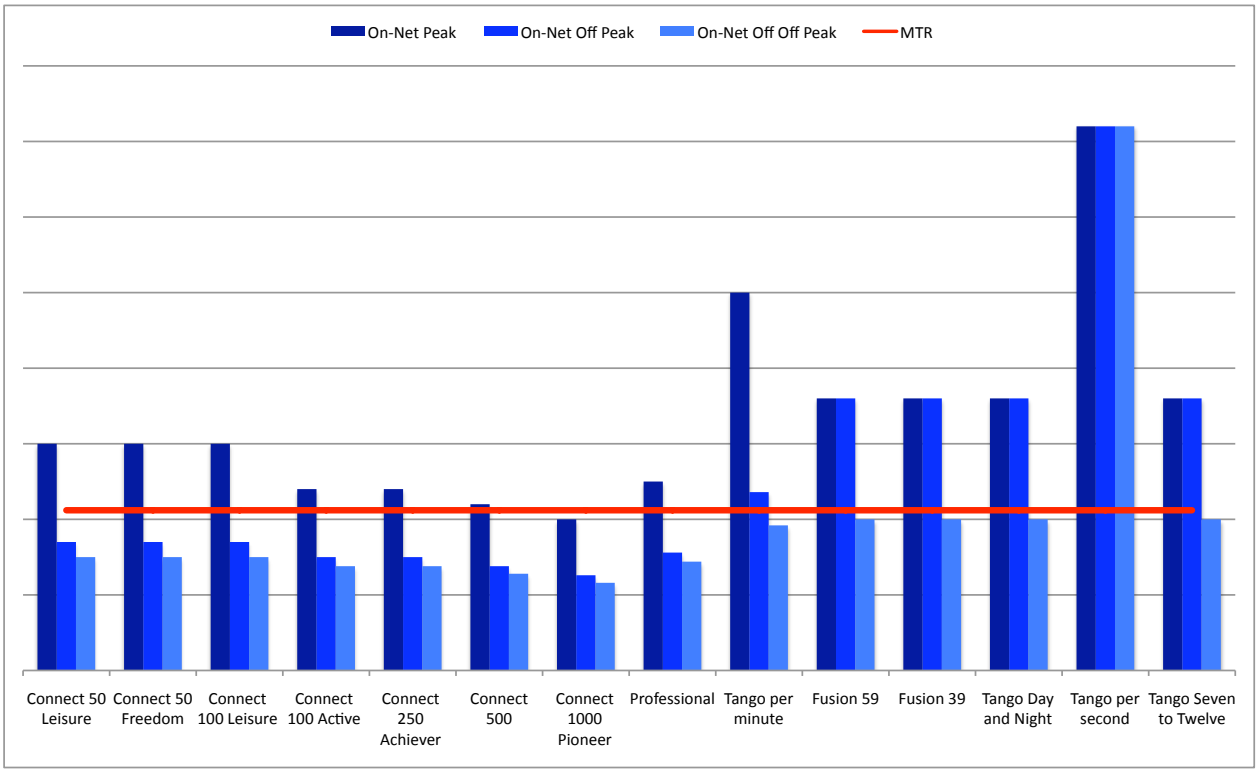

Figure 31: MTC on-net rates compared to MTR of N$1.06

MTC also claims that monthly subscription fees and free SMSs and airtime need to be factored in. This has been done in the table below. It shows that the value of bundled airtime and SMSs

outweighs subscription fees considerably. This supports rather than contravenes the point being made about CellOne and Telecom Namibia not being able to compete with Telecom Namibia's on-net rates, since the bundled airtime and SMSs effectively reduce the monthly cost for users.

Table 31: Comparing monthly subscription fees to monetary value of bundled airtime and SMS for MTC's contracts based on corresponding average rates

Product	Monthly Subscription	Monetary value of free SMS and bundled airtime including double up on-net minutes
Connect 50 Leisure	69	147.5
Connect 50 Freedom	119	168.61
Connect 100 Leisure	139.00	300.33
Connect 100 Active	179.00	289.00
Connect 250 Achiever	375.00	672.50
Connect 500	700.00	1,280.00
Connect 1000 Pioneer	1,200.00	2,424.44
Professional	95.00	-

Statement 6: A mark-up for non-volume related common cost should be allowed for setting termination rates.

A simple top-down analysis shows that MTC's cost of termination is around N$0.24. Common costs were not excluded from this calculation. MTC did not dispute this figure in its response to NCC. A N$0,30 MTR would hence cover the cost of termination and include a mark-up of N $0.06, or 25%.

Statement 7: The EC recommends a MTR decrease of 70% spread over 3 years and the EAC Guidelines also recommend a gradual decrease.

Gradual decreases are the most common practice. However, Namibia is an extreme case. The very late entry of the second operator and the insufficient regulation of the market for many years has provided a barrier to competition that has lasted much longer than in other countries, and endangered foreign direct investment. These market distortions need to be rectified immediately to catch up with international best practice. The glide path should have started in 2006.

Statement 8: Proposed decrease of the international MTR may lead to wider margins for TN or foreign operators.

Lower termination rates will lead to either wider margins or lower prices for all operators, not just Telecom Namibia. Further, the new bill will end Telecom Namibia's monopoly for international voice. The bill is expected to come into force this year.

Compromise Model

MTC and CellOne were both uncomfortable with setting the termination rate at the cost of an efficient operator, and both mentioned they might prefer a LRIC study in the longer run. Telecom Namibia wished to have higher termination rates for outgoing international calls due to costs of the international gateway. Below is a model that has advantages for all operators and comprises the following elements:

- Immediate drop of termination rates to N$0.60 to catch up with the region and international developments;
- Immediate converged termination rates;
- Glide path to the estimated cost of an efficient operator; and
- Immediate fixed-mobile convergence of termination rates.

The advantages are:

- MTC and CellOne have time to conduct LRIC studies and contest the results of the cost estimate of this study if they wish to do so;
- Telecom Namibia would benefit from similar fixed termination rates as the current ones for 6 months while mobile termination rates are lower; and
- The NCC can monitor market development and assess further regulatory interventions to safeguard fair competition.

Table 1: Compromise Model

	Current	1 July 2009	1 January 2010	1 July 2010	1 January 2011
MTR	1.06	0.60	0.50	0.40	0.30
FTR	0.63	0.60	0.50	0.40	0.30
Originating internationally, terminating locally via Telecom Namibia	0.59	0.60	0.50	0.40	0.30
Originating in Namibia and terminating internationally	Government Gazette	0.60 + international settlement rate	0.50 + international settlement rate	0.40 + international settlement rate	0.30 + international settlement rate

Telecom Namibia and CellOne were willing to accept this model as a compromise to achieve an industry consensus. MTC however could not agree to this model and instead suggested two new models that are not compliant with its licence and would not be acceptable to other operators. An industry consensus could not therefore be reached.

Conclusion

MTC declined to supply cost and other data that would have benefited this study. Rather it proposes its own glide path model with termination rates that are not cost based, transparent, sufficiently unbundled, or subject to independent corroboration. This is uncooperative and self-serving. The present study has benchmarked the cost of termination and used a top-down cost estimation for a common sense check on the results. An LIRC study using international best practice is likely to get similar or even lower results. MTC's suggestion can hence be dismissed as unsuitable and non-compliant with its licence conditions. The initial recommendations are upheld after receiving comments from all three operators to the initial draft and to the compromise model. Telecom Namibia accepted the proposed model and CellOne agrees to it if other regulatory interventions, most of which would be conducive to fair competitive, are undertaken.

Conclusion and Recommendations

This study proposes that NCC set the ceiling for symmetric converged termination rates to N $0.30 immediately. This is in line with cost data from France, Austria, Sweden and Australia and in line with determined rates and glide paths in progressive regimes in Africa. MTC's cost of termination is generously estimated at N$0.24, significantly below N$0.30. At N$0.24 termination cost the prescribed ceiling includes a 25% mark-up.

Symmetric converged termination rates will facilitate fixed-mobile convergence and the migration to IP-based next generation networks. Operators would be able to negotiate for lower termination rates including Sender Keeps it All or Bill & Keep.

Table 32: Recommended Ceiling for termination rates

	Current	1 July 2009
MTR	1.06	0.30
FTR	0.63	0.30
Originating internationally, terminating locally via Telecom Namibia	0.59	0.30
Originating in Namibia and terminating internationally	Government Gazette	0.30+international settlement rate

Setting the termination rate at forward-looking long-run incremental cost of termination is a licence requirement. Neither CellOne nor MTC can argue that this rate cut is a surprise since the licence is clear about the applicable termination rate.

Any operator wishing to change the prescribed termination rate ceiling would have the option to demonstrate that its forward-looking long-run incremental cost of termination is above the prescribed ceiling.

The market developments need to be closely monitored by the NCC on an ongoing basis and a full review of termination rates should be conducted in two years time. At that stage a LRIC study could be conducted if the benchmarked termination rates have not led to the desired results. For the purpose of monitoring market developments, draft quarterly and annual reporting templates have been designed for the NCC by Research ICT Africa, and are included in the appendix.

The traffic imbalances and interconnection payment outflows currently crippling Telecom Namibia and CellOne will be partially addressed by lower termination rates. Lower termination rates will allow CellOne and Switch's off-net prices to compete with MTC's on-net prices, a condition for new entrants to gain market share.

To implement this model two steps would be required:

1) Telecom Namibia would need to commit itself to the model in a legally binding way.

2) The NCC needs to gazette a directive limiting mobile termination rates to N$0.30 from 1 July 2009.

Further pro-competitive interventions would be required to level the playing field such as number portability and retail price regulation. A suitable retail price regulation would be to set a ceiling for off-net or fixed line rates as on-net + termination rate. Off-net and fixed-line rates cannot then exceed on-net rates by more than N$0.30.

The NCC needs to move swiftly to avoid market exit and ensure that operators compete fairly for market share.

References

- Cave, M., Bomsel, O., Le Blanc, G. and Neumann, KH. (2003): How mobile Termination Charges Shape the Dynamics of the Telecom Sector, Paris, Warwick, Bad Honnef.
- EARPTO (2008): Guidelines on Interconnection and access for telecommunications networks and services within the East African Community, East African Regulatory, Postal and Telecommunications Organisations, April 2008.
- ERG (2007): Final report on IP Interconnection, http://www.erg.eu.int
- ERG (2008a): ERG (08) 41, final MTR Snapshot 081020, http://www.erg.eu.int
- ERG (2008b): Regulatory Accounting in Practice 2008, http://www.erg.eu.int
- ERG (2008c): ERG (08) 45, ERG's Common Position on symmetry of fixed call termination rates and symmetry of mobile call termination rates, February 2008, http://www.erg.eu.int.
- ERG (2008d): IRG/ERG Response to Public Consultation on Termination Rates, ERG (08) 31 rev1, September 2008, http://www.erg.eu.int
- ERG (2009): Report on Fixed-Mobile Convergence: Implications on Competition and Regulatory Aspects, March 2009.
- EU (2008): Draft Commission Recommendation of [...] on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU, October 2008.
- EU (2009): Commission Recommendation of 7.5.2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU, 7 May 2009, C(2009) 3359 final.
- Frontier Economics (2008): Assessing the impact of lowering mobile termination rates: A report for Deutsche Telekom, Orange, Telekom Italia, Telefonica and Vodafone, July 2008.
- Frontier Economics (2009): Comments on the EC's Impact Assessment of the Draft Recommendation for the treatment of fixed and mobile termination rates: A report for Deutsche Telekom, Orange, Telekom Italia, Telefonica and Vodafone, February 2009.
- ITU (2006): Interconnection in an NGN Environment, ITU, April 15, 2006.
- Marcus, J. (2008): IP-based NGNs and Interconnection: The Debate in Europe, Communication & Strategy, DigiWorld Economic Journal, No 72, 4th Quarter 2008, www.idate.org
- PTS (2008): Model documentation for the National Post and Telecom Agency (PTS), Documentation for the upgraded hybrid mobile LRIC model 2 June 2008, Ref: 6216-232.
- RTR (2008): Wirtschaftliches Gutachten für die Telekom Control Kommission im Verfahren M1/08, Wien December 2008.
- Stork, C. (2008): Draft Telecommunications Bill 2008: lessons from South Africa, NEPRU Policy Brief, Issue 21, ISSN 1860-659X.
- Stork, C. and Deen-Swarray, M. (2007): Switch to Competition, NEPRU Policy Brief, Issue 18, ISSN 1860-659X.
- Stork, C. and Esselaar, S. (2006): Telecommunication Sector Reform for Development, NEPRU Policy Brief, Issue 17, ISSN 1860-659X.
- TRAI (2009): Telecom Regulatory Authority of India Information note to the Press, Press Release No. 25/2009.
- TCRA (2007): Tanzania Communications Regulatory Authority, Determination on Review of telecommunications network interconnection rates in the United Republic of Tanzania, issued in 2007, interconnection determination No. 2 issued in 2007.
- WIK (2007):Mobile Termination Cost Model for Australia, Report for the Australian Competition and Consumer Commission, WIK Consult GMBH, Bad Honnef, January 2007.
- WIK (2008): Future of IP Interconnection: Technical, Economic and Public Policy Aspects, March 2008, prepared for the EU.

Appendix

Interviews & Consultations

Table 33: List of persons interviewed

Name	Institution	Position	Date	Location	Other
John Blakemore	Hutchison 3G	Director of European Regulatory Affairs	12 February 2009	The 2nd Annual Mobile Termination Rates Forum	Email contact, Provided information on termination rates in Sweden and Austria
Paul Sidney	Credit Suisse	Vice President	12 February 2009	The 2nd Annual Mobile Termination Rates Forum	Email contact, Simulation Model for the impact in MTRs on operators
Eric Debroeck	France Telecom	Senior Vice President Group Regulatory Affairs	12 February 2009	The 2nd Annual Mobile Termination Rates Forum	Discussion around asymmetry: fixed duration
Paul Pisjak	Rundfunk & Telekom Regulierungs GMBH	Director Economic Division	12 February 2009	The 2nd Annual Mobile Termination Rates Forum	Email contact, Cost study mobile operators in Austria
Annegret Groebel	BNetzA (I/ERG Chair 2009)	Managing Director	12 February 2009	The 2nd Annual Mobile Termination Rates Forum	Advice on how to define European efficient operator
Benoit Loutrel	ARCEP	Deputy Director-General	12 February 2009	The 2nd Annual Mobile Termination Rates Forum	Advice on level of asymmetry in termination rates
Charles Njoroge	Communications Commission of Kenya	Director General		Communications Commission of Kenya	
James Njeru	Communications Commission of Kenya	Manager, Policy & Regulation		Communications Commission of Kenya	
David Ongong	Uganda Communications Commission	Head of Competition and Market Analysis		Uganda Communications Commission	
Abdul Musoke	Uganda Communications Commission	Market Analysis		Uganda Communications Commission	
Jonas Bautulaki	Uganda Communications Commission			Uganda Communications Commission	

Name	Institution	Position	Date	Location	Other
Prof John Nkomo	Tanzanian Communications Regulatory Authority	Director General		Tanzanian Communications Regulatory Authority	
Dr Ray Mfungahema	Tanzanian Communications Regulatory Authority	Head Market Competition and Analysis	22 March 2008	Tanzanian Communications Regulatory Authority	Intensive consultation, email and telephone conversation
Fredrik Blomstrom	Swedish Post and Telecom Agency, PTS	Expert Adviser	26 March 2009	Email and Telephone	
Americo Muchanga	INCM	Councilor	23 February 2009	South Africa	
Luis Rego	INCM	CEO		Email	
Murphy Setshwane	BTA			Gaborone	
Mphoeng Tamasiga	BTA	Deputy Chief Executive		Gaborone	
T. Koonste	BTA	Director of Communica-tions and Consumer Affairs		Gaborone	

Responses from Operators to the first Draft

The responses in the following sections are formatted but not edited.

Telecom Namibia

Mobile Network Operators to TN for International calls:

- International calls are not terminating on TN's network and thus technically not part of the terminating rates presently under discussion. Telecom Namibia is however willing to include International calls in the present discussion provided that the cost of operating an international service is taken into account and an additional N$0.30 is allocated per Namibian originated call.
- International satellite bandwidth is a recurring cost to TN, subject to fluctuating exchange rates. This is an out-payment made over and above the cost TN incurs in its own network and the labour and overhead costs TN incurs to operate and maintain international routes to correspondents. All calls also have to be settled and this cost must be recouped from the calls made. A cost based transit charge will have to apply to all international calls, instead of only the settlement and national terminating rate.
- It is our considered opinion that the 30c for International transiting cannot be applied as endogenous tariff for calls originating from MNOs via TN to International Operators. These calls utilises more resources than locally terminated calls hence we believe it cannot be a one-to-one ratio. In other words, 30c + international out payment per minute rate is not reasonable. Any costing distribution matrix may demonstrate this. Our own model, though FDC demonstrates a ratio of over 2.7 times the local FTR = an absolute minimum of 40c + international terminating cost.
- Any lowering of interconnect rates between the operators that is not given through to the Namibian public is just being taken off-shore to the other international operators without benefiting the Namibian economy at all. It even strips out the handling fee being levied on calls and transfer it to the off-shore principal that carries the call and retains most of the call profit. Telecom Namibia then fights the big league without a cost benefit of being local or cheaper.

Summary of our options for International transit and terminating charges in order of priority:

- International outgoing = National .30c + International .30 + Actual Settlement rate
- International outgoing = National .30c + Mobile Settlement rate
- Should this be followed, we are rendering an international service for free, for which we would require the single right to provide the service for a guaranteed period of time. It is also not in the best interest of the Namibian economy that we move our international service offering offshore with Portugal Telecom and Orascom in competition with Telecom Namibia.
- Not include in present proposal and status quo remains until new Bill is in operation

Model 2 is the first choice for TN:

- TN supports Model 2 as it addresses some of the gross market abuses perpetrated over the past 3-4 years.
- TN has been a net out-payer since 1996 with a skew interconnect in favour of MTC since inception.
- MTC had the monopoly of mobility and could offer fixed-like services for the past 14 years, while TN remained restricted to a fixed service and could not provide a mobile service.
- MTC will remain a net-receiver of interconnect charges as market leader in terms of its customer base.
- MTC has deprived TN from more balanced interconnect charges for too long.
- The MTC move away from interconnect linked to tariffs exacerbated the skewing much more than when they were linked.

- However, TN do realise that we were all part of the systemic failure of the past and will not insist that this model be implemented at all cost. Our main requirement will be an effective in date of 1st July 2009. An estimated N$ 150 million will have to be paid back by MTC to TN.

Model 1 is the second choice for TN:

- TN fully supports the statements of Model 1 but not the implementation date.
- MTC will remain a net-receiver of interconnect charges as market leader in terms of its customer base.
- For reasons stated under Model 2, this is the absolute minimum required by TN.
- For the future benefit of the consumer and to put an end to the abuse of market power by MTC.

Why Model 3 and Model 4 is NOT acceptable to TN:

- Telecom Namibia has been the victim of a skewed interconnect regime since the inception of interconnect with MTC in 1995. It is high time that it be corrected.
- Should MTC and/or CellOne receive their international voice gateway, TN could lose that business overnight, all at once.
- MTC introduced fixed-like services such as LCR and HomePhone yet TN was paying terminating rates as for a full mobile termination.
- The dominant player (MTC) abuses their critical mass to exploit TN and CellOne with Least Cost Routing and abnormally high retail pricing for off-net calls.
- MTC receives a 12% discount on all international calls.
- Telecom Namibia, being predominantly a post-paid business, carries the credit risk of most off-net calls. The lower the terminating rates and the sooner a traffic balance can be reached, the sooner TN's credit risk on behalf of the mobile operators becomes less of a burden.
- CellOne now had more than two years to gain market share while SWITCH remained restricted.
- CellOne already had the benefit of a skew interconnect regime for two years. Due to their lower traffic they will also benefit further from Model 2.
- To off-set the initial license fee of CellOne, TN had to carry the rural burden until now with unprofitable ventures as demanded by Government to the tune of N$284 million.
- A gliding scale only starting now will mean that TN can only pass on the benefits to the consumer gradually. This will not cause MTC to lower tariffs to consumers and prolong confusion in the market.
- It will hamper market efficiency which is not beneficial to the consumer.
- MTC will remain with a >73% market share and subsequent traffic imbalance, benefiting as a net receiver in the interconnect area of business. (TN = 13% and CellOne = 14%)
- TN is in an overall disadvantaged position, inherently from the CDMA technology with a lack of international roaming capability and the cost of offering attractive handsets to potential customers.

International traffic to and from Namibia:

- International traffic incoming to Namibia can be treated as other local traffic as the operator can set his transit rates to suit the delivery and terminating costs.
- Outgoing traffic originating from an operator in Namibia needs to take both the international delivery cost as well as the international settlement rate into consideration.
- International settlements are done over a period of months and to get the actual settlement costs per individual call will be costly. Groups of destinations will have to be agreed upfront to limit the processing costs.

- The public needs to benefit from a cost reduction and not suffer extremely high international mobile rates as at present where the mobile mark-up is more than the retail tariff of the comparable fixed call.
- As a compromise the Mobile Terminating Rate (MTR) could be used for all calls from mobile operators to all other countries to partially compensate for operating the International service. The 30c Namibian Terminating fee and the MTR would then apply to both call directions.
- One would expect that Mobile operators would pass on savings to Mobile customers. To date that has not been the norm with all international calls costing the same irrespective of destination. As stated before destination groups will be used to determine the Settlement Rate, which will be adjusted on a three monthly basis.
- If neither of the foregoing proposals (In opening paragraph or V. above) is acceptable, the status quo for International calls must prevail until the new Bill is in place.

Interconnect negotiations with MTC:

- Prior to 2004 TN and MTC had interconnect tied to the Tariffs charged the customers. When MTC introduced a multitude of packages TN did not get the benefit of the best available package anymore and the interconnect fee became independent of the Tariffs.
- This had the effect that TN tariffs remained relatively constant and MTC moved Pre-pay up from N$ 1.83 to N$ 1.95 and now up to N$ 3.35 per minute while paying N$0.63.
- During the course of 2007 and 2008 Telecom Namibia and MTC had discussions on the lowering of interconnect rates between our companies. We agreed that the NCC should be approached to conduct a tariff study and that we would then implement new lower tariffs.
- Cell One then came into operation and we implemented tariffs based on those we had with MTC.
- Cell One started a public campaign to highlight the prohibitive cross network tariffs on prepay and the effect that had on customer behaviour. TN further pointed out that the mobile profit on International calls were more than that made by TN as the international operator.
- The Minister called in all the players and required us not to discuss this any further with the media.
- MTC gives discount to LCR operators, but refuse to pass anything on to TN although we are the largest LCR supplier. A small adjustment from N$1.13 to N$ 1.06 was granted from 1 October 2006.
- Proposals to lower rates to N$0.99 in early 2008 were not entertained.
- A Consultative Workshop on Interconnect on 13 October 2008 Agreed to Prescribed Rates by the Regulators.
- The urgent implementation of the N$0.30 both way interconnect is now an absolute necessity to ensure a future for all operators and better rates to customers.

The MTC suggestion:

- MTC is certainly not dependant on less than 4% of their revenue for their investment program. Both for MTC and TN the net change in revenues will be in the magnitude order of 3.6%. There is no reason that this be implemented over a two year period. In a developing economy like Namibia, affordability is ranking higher than coverage and being price competitive is key. The abuse of dominance must come to an end immediately.
- MTC is also requesting the regulator to act on the TN monopoly on international calls. This is not a monopoly but merely an undesirable dependency. In terms of service offering, they could all the time offer international calls to their customers, though at mark-up's in the magnitude order of +400%, Why?
- With regard to new proposed benchmark of 60c should be looked at by the regulator and the Dr. Stork as we are not privy to the details of study done by MTC, hence the basis for the 60c is unknown to us.

1 June 2009

25-2009 MG/jo

Mr David Imbili
Namibian Communications Commission
Communications House
Robert Mugabe Avenue
Windhoek

Dear Mr Imbili

Re: Interconnection Rate Benchmarking

1. Following the conclusions of the recent researchICTafrica.net study on interconnection in Namibia as commissioned by the NCC and presented to MTC on 14th May 2009, we would like to share with you our understanding of the potential impacts resulting from the implementation of the recommendations contained therein. For your ease of reference, we have attached the appendix to this letter with details of our rationale.

3. According to MTC's observations, the study proposes to reduce all call termination fees in Namibia, from the current N$1.06 (national mobile termination), N$0.63-N$0.68 (national fixed termination), and N$0.59-N$0.62 (international mobile termination) to N$0.30. In addition, the fee for international call termination paid to Telecom Namibia (TN) is to be changed from TN´s retail tariff less a discount to a fee of N$0.30 plus the international settlement rate.

4. The proposed decrease of the national MTR will place Namibia in an unprecedented position with one of the lowest MTRs, not just on the continent, but in the world as well. In Europe, only two countries currently have lower MTRs, and all of the decreases being planned until 2011 will still result in rates considerably above the proposed rate of N$0.30 in Namibia (see appendix). On the African continent, of the countries that were benchmarked in the report, only Kenya presents a lower MTR (and only for fixed-to-mobile calls).

5. One of the recommended models is to drop the rates immediately to a ceiling of N$0.30. The proposed abrupt decrease of national and international MTR will have a negative direct impact ("*ceteris paribus*" – with all other things being equal) decreasing MTC´s EBITDA by 12% (less N$ 74 million per year) or EBITDA margin from 50.0% to 47.9% (values from Jan to Dec 08).

6. There is also a potential indirect negative impact that should be taken into account to properly predict the full impact of the proposed decrease. Resulting from increased competitive pressure, MTC may be forced to decrease retail prices or it may lose part of its customer base. The combined effects may

reduce MTC´s EBITDA margin to 36.8% and its Net Profit Margin to 20.9%. This decrease in cash generation of more than 44% (less N$ 284 [207+77] million per year) will dramatically reduce the capacity to invest in new technology and will certainly put the following projects at risk that have already been planned:

- Access to West African Cable System (WACS) to which MTC has already committed US$12.5 million.
- A drastic reduction in financial resources at NPTH will make it difficult for them to avail funds to Telecom Namibia and Cell One for purposes of honouring their contribution to the WACS.
- Completion of the coverage in rural areas and tar roads of Namibia to the amount of US$18.0 million.
- Investments of US$15 million in the latest 3G technology to properly manage the take-off of the data revenues that mitigate the drop of interconnect revenues in the future and to allow the smooth transition to 4G through single RAN (Radio Access Network) solution.
- An investment of US$6 million for the utilization of the current Nampower fibre facilities to spread the capacity of the WACS submarine cable through the country.
- The planned investment to introduce 4G Networks in 2010 for which an investment of US$10 million is envisaged.

In total US$61.5 million (more than N$500 million) in the next three years may have to be revisited and prioritized. This may even hamper the country's development: like in most African countries, the mobile networks will be the driver of broadband internet services, and thus are crucial for the development of the information society in Namibia. Reducing the funds available may thus delay the development of Namibia's information society.

7. With regards to the two main reasons for the reduction of interconnection fees as proposed by researchICTafrica.net, namely the margin squeeze analysis (comparison of on-net prices with interconnection rates) and the cost of the most efficient operator to terminate a call, we think that additional factors should have been taken into account.

   In the margin squeeze analysis, the consultant only considered the off-peak prices which are invalid for a complete analysis, in our view. A full analysis, taking into account the total traffic (i.e. including peak traffic) and including the monthly fees paid by post-paid customers, reveals that in fact all MTC´s analyzed tariffs have retail prices for on-net calls that are considerably above the current MTR (see appendix). This shows that MTC´s on-net prices currently leave perfect room for other operators to compete with their off-net tariffs.

8. Not including a mark-up for non-volume related common cost may have negative impacts for certain customer segments**.** This view has also been strongly expressed in Europe by the German Ministry of Economics in response to the EC draft Recommendation May 2009 in recognizing that the definition of

costs on which MTRs are based should include this mark-up. In fact, these costs are inherent to making the mobile telephony services available and are therefore also incurred by the call termination service. Excluding these costs (mark-up for non-volume related common costs) when determining the MTR level may mean:

- Mobile operators may be forced to recover these costs through their retail (call origination) services; thus, the equilibrium of the tariff system may be artificially changed
- Mobile operators may increase retail tariffs for customers that today only generate a positive margin because of their high level of incoming calls (many prepaid and low consumption customers). As the British regulator Ofcom stated in their response to the EC Draft Recommendation, the impact of an MTR decrease on these customers should be carefully analyzed.

9. We would also like to make reference to the EC Recommendation of May 2009 and East African Community (EAC) interconnection guidelines of April 2008.

   The EC recommends a further MTR decrease of 70%, but spread over 3 years, but the starting point is not comparable with Namibia today because of the weight of data in total revenues of the Operators (example of Vodafone UK that reach 28.8% in first quarter of 2009 and Ofcom is recommending 5cts (Euro) in 2010 (N$0.60)).

   The East African Community EAC, an intergovernmental organization consisting of Tanzania, Uganda, Kenya, Ruanda and Burundi, focusing on regional co-operation and economic integration in East Africa, provides a recommendation that MTC believes is much more appropriate to be adopted in Namibia. The EAC in its above-mentioned Guidelines makes recommendation for a gradual decrease while simultaneously introducing LRIC including a fair proportion of common costs ("mark-up"). An implementation of this approach in Namibia would result in a glide path with a final value of around **N$0.60** by 2011 (for details see appendix).

9. We also believe that the proposed decrease of the international MTR may have negative impacts on the Namibian economy:

   - If TN, who currently has the monopoly for the transport of international calls, does not decrease its termination tariffs for international operators, this will mean that TN´s wholesale margin will rise substantially. This additional margin may eventually be used to cross-subsidize its fixed or mobile retail business, resulting in unfair competition.
   - TN may maintain its wholesale margin by reducing its termination tariffs to international operators by an amount similar to the MTR reduction. However, it cannot be expected that the international operators will pass on this reduction totally and immediately to their retail customers. Therefore, the only parties that will benefit from this reduction will be the

operators in the main countries with traffic to Namibia (South Africa, USA, and Angola).
- For Namibia as a country, the reduction of international MTR would mean a significant reduction in the inflow of foreign currency, and therefore a strong negative impact on the international balance of payments.

10. For these reasons, MTC proposes the following options for NCC's serious consideration:

- **MTR: A glide path including a reduction of 9cts (N$) per semester, reaching N$0.60 in 2011.**
- **International traffic: NCC should be very active to end TN´s monopoly in this area, letting the market work under agreements based on commercial negotiations.**
- **Develop a serious LRIC process during the next two years.**

We remain at your disposal to discuss and further elaborate on these important issues.

Sincerely yours,

Miguel Geraldes
Managing Director

My Network - My Choice

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26 May 2009

The Chairperson/Senior Control Officer
Namibian Communications Commission
Private Bag 13309
Windhoek

Dear Mr Imbili

RE: CELL ONE INTERCONNECTION POSITION

Following the benchmarking study conducted by Dr Stork on behalf of the NCC and the Ministry of ICT, Cell One has evaluated the proposal and has the following comments and proposal.

The contents of the benchmarking study show a strong preference to European markets, which we believe is flawed, as the European markets have been regulated for a long time, the market entry of operators have been closer in time and the imbalance of traffic to be addressed has been less than in the Namibian context. Furthermore, the proposed converged interconnect rate is considerably less than comparable African markets, such as Tanzania, Kenya, Mozambique and Uganda (in terms of the compared rates). Accordingly it appears that the most unregulated market, with the highest traffic imbalance in Africa will now have the lowest interconnection rates in Africa. We believe this shows clearly that what is being proposed reflects best practice in Europe and is far removed from what should be applied in an emerging African market.

Model 4 : Asymmetric Glide Path

The Asymmetric glide path is in Cell One's opinion the correct approach to deal with the current traffic imbalance and club effect to the MTC network. We fully understand the interpretation of Dr Stork that this is difficult for the Regulator to make a ruling on, however we believe the Regulator can make this ruling in light of the total interpretation of the license terms. We also believe the proposed glide path should be higher than the proposed 20% asymmetry. It is important to note that the use of asymmetry has been the norm in Europe for many years. The new European Regulatory position is based on a market that has been regulated and has matured to the level position where asymmetry is less required. Even in the revised position asymmetry is still recognized to be used in appropriate markets, for a period of 4 years. Asymmetry is currently in use in Mozambique, after a similar benchmarking study was completed as we have completed in Namibia.

Model 3:

As we all agree, the interconnect should be lowered; we see no reason to wait. Accordingly, we don't feel delaying the implementation would be of use.

HOWEVER in relation to Model 1 or 2:

Our hope is that the recent unrestricting of Switch and the current benchmarking exercise is an opportunity to address some of the lingering regulatory issues which require addressing and have been lacking for some time. We have been awaiting the Bill to put in place more Regulatory powers to address all the outstanding issues together with the technology neutral license of Telecom Namibia, but as this has been pre-empted, we feel it is appropriate to also address the other issues the Bill should have dealt with at this stage.

As there are various issues with asymmetry and the implementation thereof, Cell One is prepared to step down from its asymmetry position to Model 1 or 2 (we suspect model 2 would also lead to objections, but leave that to you). This concession would however be conditional on the following:

- All Operators must be dealt with on a level playing field and accordingly the mobile operators must immediately receive international voice gateways.
- Retail off net rates must be capped and the MTC off net retail rate must be lowered as it is an abuse of dominant position and exclusionary (predatory) pricing.
- License fee position must be the same for all operators, which in our case should lead to a refund of the Cell One License fee already paid.
- National Roaming must be enforced.
- Telecom Namibia (and Switch) must also be regulated by the NCC.
- Infrastructure sharing must be regulated on a non discriminatory cost basis, this includes leased lines and tower rentals.
- Mobile number portability must be enforced (this would include Switch having an accredited mobile number series allocation).
- Until technology neutral licenses are in place, accounting separation should be applied to avoid cross subsidization, e.g. leased lines and international gateway of Telecom Namibia and Switch.
- During the next two years, we retain the option to have a real cost study conducted to find the actual interconnection cost.

We appreciate your efforts in relation to the benchmarking study and attempting to find common ground between the operators. We hope this process will lead to a more competitive market and eventually a level playing field.

Yours Sincerely

Soban Pasha
Chief Executive Officer

Responses from Operators regarding the compromise model

MTC

12 June 2009

32-2009 MC/jo

Dr. Christopher Stork
c/o Namibia Communications Commission

MTC's Response to the proposed compromise:

Following our meeting of Tuesday 9th June 2009 at the NCC Offices, MTC wish to place on record the following:

1. MTC is not opposed to a decision to revise and reduce the interconnection rates in Namibia. Thus, MTC was part of the decision during 2008 to have a study conducted on interconnection under the auspices of the NCC.

2. MTC agrees that mobile termination rates in Namibia must be among the cheapest in the region, and therefore, MTC is not proposing a new model but simply a different rate and timeframe within which to achieve the desired rates.

3. MTC has noted Dr Stork's proposed compromise which is an improvement from the earlier proposed recommendation as presented at the meeting of Monday 9th June 2009 at the NCC's Office. However, MTC is completely opposed to a proposal for a dramatic and immediate drop in the rate based on arguments that, namely "*the current rate is not complying with the License*" or there is a need "*to compensate distortion of the market of the past years*".

3.1 MTC maintains that it has entered into an interconnection agreement with both TN and Cell One respectively, which Agreement(s) are in substantial compliance with its Licence conditions.

- Neither Cell One nor TN has terminated such Agreement(s) in terms of the relevant provisions (Section 11) of such Agreement(s).
- Therefore, such Agreements are still binding on the Parties and the Parties can only approach the NCC to mediate over their dispute should they fail to agree on the new arrangement within 4 weeks after termination (see Section 11)
- Alternatively, should the Parties fail to reach an agreement on the terms and conditions of interconnection (see Section 20.5 of the Licence) or on the fees and tariffs, then the matter can be referred to the NCC for adjudication or further intervention (see section 20.7 of MTC Licence).

However, notwithstanding the above provisions, MTC together with the other two operators, have agreed and supported the decision to conduct the above study for purposes of benchmarking the termination rates.

3.2 Section 20.1(c) of the Licence provides that cost should not cover components or facilities that are not required for the service. As per our position in our earlier Submission to NCC, there is a

need to recognize the costs inherent to making mobile telephony services available included in the cost of termination[1].

3.3 The above position is maintained by the majority of the operators and even important Regulators in the African region, for example Tanzania, which is applying a mark-up. Therefore, there is no illegality in the current situation so as to justify the proposed considered immediate drop in the rate.

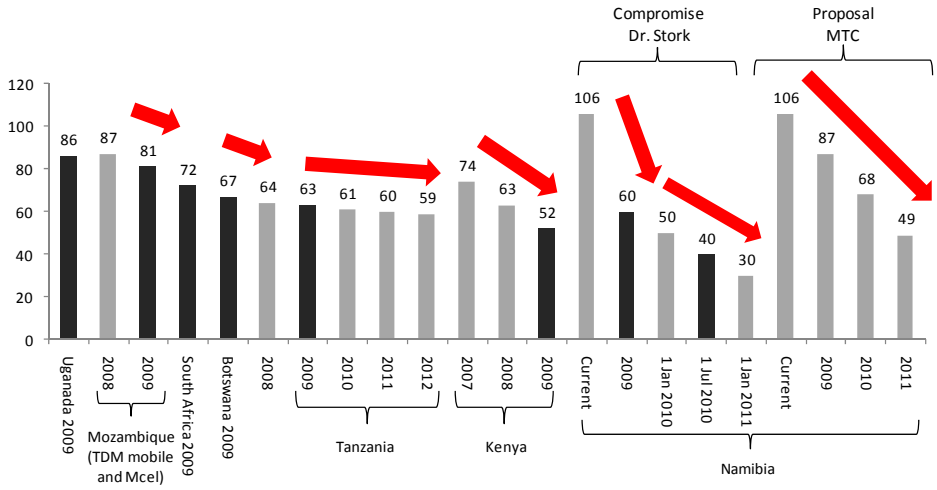
3.4 Even in the markets that are often cited such as Tanzania or even Kenya they did long LRIC process and they charge almost the double of what Dr. Stork is prescribing for MTC, based on crude calculation of a cost of a minute.

3.5 The alleged past distortions in the market as contained in Dr Stork's comments to MTC's submission, is in our view to a large extent in a favour of Telecom Namibia, given its statutory monopoly over the International Voice Calls where they generate more than 100 million/year in EBITDA reselling calls from/to MTC customers for excessive cost (see table below on Interconnection Net Payment).

4. <u>MTC therefore wishes to recommend to the NCC the following options:</u>

4.1 OPTION 1

The NCC should define an ambitious target in the reference of the Region (MTC proposed one of the lowest in the Region) and draw a glide path of 24 months to reach there.

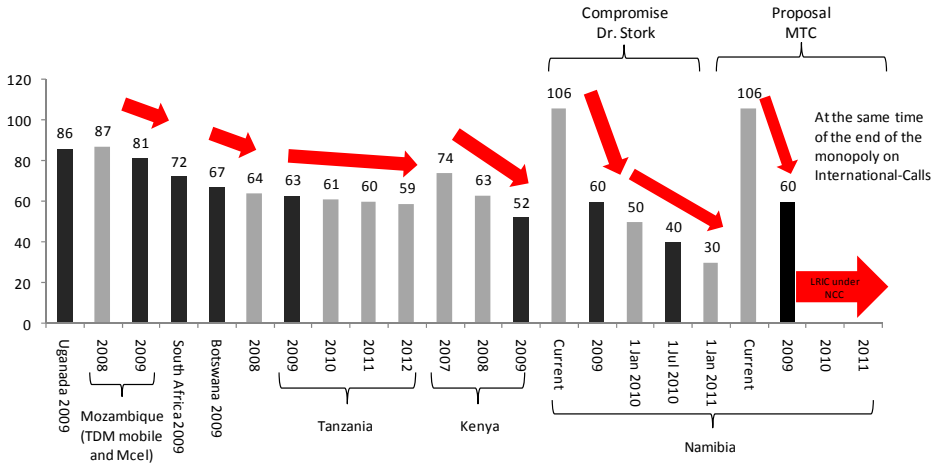


[1] The submission by the Germany Economic Ministry in its comments to the EC Recommendation

The above option is based on the assumption that TN's monopoly on International Voice Calls shall be in place for some time (probably until 2011).

4.2 OPTION 2

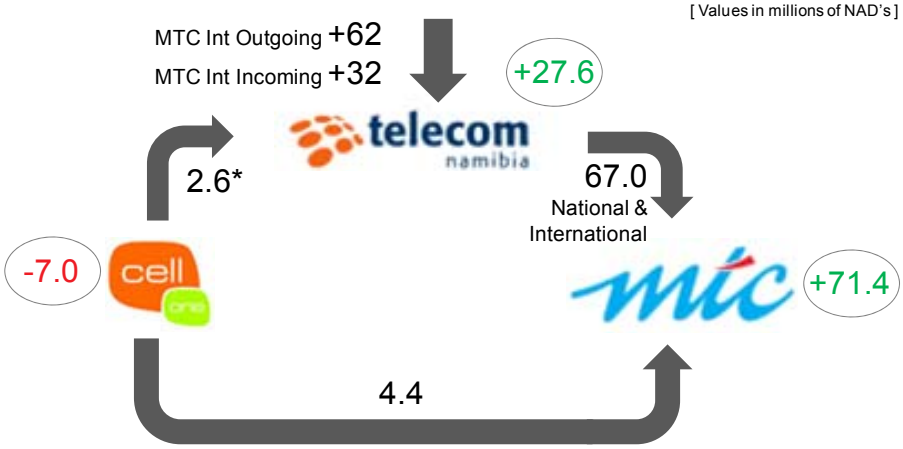
MTC shall accept the proposed immediate drop of termination rates to N$0.60 provided that TN's monopoly on International Voice Calls shall also be removed simultaneously, and shortly thereafter, a LRIC study on all the operators shall be conducted under the auspices of the NCC to determine the desired rate over the next 2-3 years.



Explanation about the imbalance of the traffic

- In spite of the imbalanced traffic to MTC from TN, it is not valid for the study not to consider the International traffic that TN is reselling
- It is critical to highlight that MTC, in the past, only accepted the proposals from TN and Cell One and it is very unfair and incorrect to accuse MTC of charging want it wants

[Values in millions of NAD's]



* Information from researchICTAfrica.net report
Estimated in the outgoing/income International calls of MTC in 2008 (Jan to Dec) compared with other carreiers (Liquid Telecom was the example)

- International Income 42 million minutes (TN sells for 1.311875 less 0.59 and cost of transit – half of the circuit) = 32 million
- International Outgoing 17 million minutes (TN charge MTC average 5.8/min comparing with Liquid 2.15 = difference 3.65)

Interconnect 2008
N$'000

	Telecom Nett Receivable Local		Telecom Nett Payable International	Cellone Nett Receivable	Total Nett Receivable
Jan-08	7,620	-	1,782	124	5,962
Feb-08	7,362	-	1,914	127	5,575
Mar-08	7,057	-	1,847	127	5,336
Apr-08	7,440	-	1,912	182	5,709
May-08	7,121	-	1,927	233	5,427
Jun-08	7,129	-	1,670	286	5,745
Jul-08	8,055	-	1,913	354	6,496
Aug-08	7,490	-	2,099	533	5,925
Sep-08	8,170	-	1,952	524	6,742
Oct-08	8,498	-	1,881	720	7,337
Nov-08	7,364	-	2,030	547	5,882
Dec-08	6,851	-	2,012	618	5,458
	90,158	-	**22,939**	**4,376**	**71,596**

My Network - My Choice

Cell One
4 Dr. A B May Street
P O Box 40799
Windhoek, Namibia.
Tel: 08 5555 0000
Fax: 08 5520 2008/11
Email: info@cellone.com.na
www.cellone.com.na

12 June 2009

The Chairperson
Namibian Communications Commission
Private Bag 13309
Windhoek

Dear Mr Imbili

RE: CELL ONE RESPONSE TO PROPOSED COMPROMISE ON THE INTERCONNECTION POSITION

At the interaction with Dr Stork on 09 June 2009, we discussed the potential compromise position, as attached. Cell One would be willing to accept the proposal, but would again state the conditions we see as being crucial to being addressed as a matter of urgency, being:

- All Operators must be dealt with on a level playing field and accordingly the mobile operators must immediately receive international voice gateways.
- Retail off net rates must be capped and the MTC off net retail rate must be lowered as it is an abuse of dominant position and exclusionary (predatory) pricing.
- License fee position must be the same for all operators, which in our case should lead to a refund of the Cell One License fee already paid.
- National Roaming must be enforced.
- Telecom Namibia (and Switch) must also be regulated by the NCC.
- Infrastructure sharing must be regulated on a non discriminatory cost basis, this includes leased lines and tower rentals.
- Mobile number portability must be enforced (this would include Switch having an accredited mobile number series allocation).
- Until technology neutral licenses are in place, accounting separation should be applied to avoid cross subsidization, e.g. leased lines and international gateway of Telecom Namibia and Switch.
- During the next two years, we retain the option to have a real cost study conducted to find the actual interconnection cost.

We appreciate your efforts to reach an agreed position in this regard.

Yours Sincerely

Soban Pasha
Chief Executive Officer

CC: Dr Stork

Additional observations and notes regarding existing licences

Several aspects of the licence conditions have, to date, not been enforced:

- The NCC does not have the annual reports of CellOne for example (section 6).
- Also, section 7 - Quarterly / bi-annual (CellOne/MTC) reporting on services provided and network developments have not been enforced by the NCC.
- Section 20.3 required that the "licensee will make publicly available either its interconnection agreements or reference interconnection offers." Interconnection agreements have not been made public in Namibia. The interconnection agreement between MTC and Telecom Namibia is, for example, still considered confidential by MTC.

The licences will need to be re-issued with the passing of the new telecommunications bill. It would be important to improve on the way they are formulated currently. Below are a few suggestions:

- 4.1 iv of CellOne's licence requires annual payment of N$1,000,000 additional to 1.5% of all turnover. 4.1 ii of MTC's licence requires annual payment of N$1,000,000 additional to 1.5% of Net turnover. Net turnover is turnover reduced by taxes linked to it such as VAT. The annual licence fees therefore vary between CellOne and MTC. Also, these amounts are very high. 1.5% of turnover would have been N$36.5 million for all three operators in the financial years ending in 2008 and combined industry turnover will continue to grow in future.
- 7.1 is different for MTC and Cellone. CellOne is required to report every quarter while MTC only needs to report very six months. This should be harmonised.
- The reporting obligations under 7 needs to be made more clear. MTC interprets it as only being obliged to report on activities 11 and 12 of the licence (see letter to the NCC dated 18 March 2009). MTC insisted on only providing information it views as important. The new licence needs to state clearly that the regulator my request any information it sees fit concerning the operation of the licensee.
- 11.2e i of of MTC's and CellOne's licence requires an independently audited annual report on the quality of service. This report should be required to be made public. MTC and CellOne are currently competing on network quality, both claiming to be the best.
- 18: Currently, only price increases must be lodged with the regulator. In future the regulator needs to also be able to tackle predatory pricing, i.e. low prices to distort competition or harm the competitor. New licences should hence allow the regulator to regulate price reductions as well.

Further Regulatory Remedies to level the playing field

CellOne's market entry in 2006 disadvantaged it in several ways:

- MTC had had, for 11 years, a monopoly, and with 87% market share and about 1.1 million subscribers, significant economies of scale that will be difficult to match by CellOne for the next 5 years.
- The payment of a once-off licence fee of N$65.3 million: NCC did not ask for one, it was offered by CellOne in its licence application. Nonetheless, this fee did pose an obstacle to network investment and does not serve any regulatory purposes.
- High mobile and fixed termination rates that prevent CellOne's off-net retail prices from competing with MTC's on-net prices, a requirement to attract new customers.

CellOne has been operating in an insufficiently regulated environment for three years and sustained considerably financial losses. The new regulator could level the playing field with several measures other than termination rates:

Number portability: Number portability will make it easier for mobile subscribers to change networks and hence increase competition.

Retail price regulation: Retail price caps for off-net and fixed-line calls could be set should competitive pressure and reduced termination rates not lead to lower retail rates. Off-net and fixed line rates could be required to be equal to on-net rates. It could be a suitable regulatory remedy if off-net rates stay high after termination rates have come down. Such a directive would also protect small players from being flooded by traffic in a Sender Keeps it All or Bill and Keep arrangement. Otherwise the new entrant could offer off-net rates for free or very cheap to gain new subscribers, for example. Another approach would be to determine that off-net and fixed line rates cannot be more expensive than the corresponding on-net rate plus termination rate.

Lagged licence conversion: A lagged licence conversion for MTC would allow CellOne to enjoy a competitive advantage for a limited period of time. It could use this advantage to build its own international voice gateway and attract more high-end customers.

Once-off licence fee: Once-off licence fees are being used for new entrants and grant the right to operate, use or provide network services. Once-off licence fees can provide a powerful source of revenue for government. However, once-off fees can limit market entry, which can be positive or negative for an economy. It is positive if it limits the market entry of those that are not qualified players in terms of capital outlay and/or technical expertise. It is negative if limited market entry leads to an uncompetitive market where existing players collude. It needs to be borne in mind that licence fees change the behaviour of market participants. Once-off fees that are too high will be passed on to consumers if demand for services is inelastic. If prices are elastic they might lead to investors not being able to recover the licence fee. An argument for high once-off licence fees is that they force operators holding licences to put them to economic use. An incumbent might buy up limited licences and not do anything with them, just to prevent other operators entering the market. Annual turnover-based licence fees would not be a financial disincentive to do so, while high once-off licence fees would pose such a disincentive. In Namibia however, such a disincentive would not be required, since the NCC could award additional licences should existing licences not be used effectively. Granting new licences would be the most effective way to avoid a negative situation of scarcity, causing uncompetitive behaviour amongst market participants. CellOne already paid most of its once-off licence fee of N$65,3 million, and will make final payment in May 2009. This disadvantaged CellOne considerably, since Telecom Namibia never had to pay such a fee, and MTC's licence fee, paid in 1995, was very small (N$ 500,000). The CellOne licence fee did not serve any regulatory purpose and has no effect other than stifling the capacity of CellOne to roll out a nation-wide network. A remedy to rectify this would be to allow CellOne to write this amount off against annual licence fees to be collected over the next five years.

Table 34: Principles and Application: Once-Off Licences

Licence Principles	Evaluation for Namibia
Cover the cost of regulating the market	Cost recovery can best be obtained through annual licence fees since costs arise on an annual basis and not once-off. Once-off fees are therefore not required.
Scarce resources are put to economically efficient use	To limit market access once-off licence fees are not necessary. New market entrants are limited due to the requirement that the NCC needs to issue a licence.
Promote a competitive ICT sector	The NCC can award additional licences should existing licences not be used effectively. Once-off licences are therefore not required to stimulate the best use of licences.
Promote network investment	High once-off licence fees provide an obstacle to network investment. They limit the financial resources of the new entrant.
In line with international trends and best practice	Auctions are most widely used to determine once-off fees. This is usually only applied to once-off licence fees for scarce resources. Licences are not scarce resources!

Exchange Rate Conversion

All exchange rate conversions were performed using average exchange rates for 2008.

Table 35: Average exchange rates for 2008 per EURO (Source: ECB)

	2008 Average Exchange Rate per Euro
Australian dollar	1.74
UK pound sterling	0.80
Japanese yen	152.45
Swedish krona	9.62
US dollar	1.47
South African Rand	12.06

Table 36: Average exchange rates for 2008 per RAND (Source: Standard Bank SA and Central Bank of Botswana)

	2008 Average Exchange Rate per Rand
Kenyan Shilling per Rand	8.43
Mozambique MT per Rand	2.98
Uganda New Shilling per Rand	210.79
Tanzania New Shilling per Rand	147.38
Botswana Pula per Rand	0.83

Abbreviations

ABC: Activity Based Costing

ADSL: Asymmetric Digital Subscriber Line

BSC: Base Station Controller

BTA: Botswana Telecommunication Authority

BTS: Base Transceiver Station

BU: Bottom up

CCA: Current Cost Accounting

CDMA: Code division multiple access

COSITU: ITU Model for the Calculation of Costs, Tariffs and Rates for Telephone Services

CPE: Customer Premises Equipment

EPMU: Equi-proportionate mark-up

FAC: Fully Allocated Cost

FDC: Fully Distributed Cost

FTR: Fixed Termination Rate

GPRS: General Packet Radio Service

GRC: Gross Replacement Cost

HCA: Historical Cost Accounting

HLR: Home Location Register

ISDN: Integrated Services Digital Network

IT: Information Technology

KCC: Kenya Communication Commission

LRIC: Long Run Incremental Costing

MSC: Main Switching Centre

MTC: Mobile Telecommunication Corporation

MTR: Mobile Termination Rate

NCC: Namibian Communications Commission

OPEX: Operational Expenditure

POI: Point of Interconnection

PSP: Public Service Provider

PTO: Public Telecommunications Operator

PWC: Price Waters Coopers

RIO: Reference Interconnect Offer

SMP: Significant Market Power

SMS: Short Message Service

TCRA: Tanzania Communication Regulatory Authority

TN: Telecom Namibia

TR: Termination Rate

TSLRIC: Total Service Long Run Incremental Cost

UCC: Uganda Communications Commission

WACC: Weighted Average Cost of Capital

PLMN: Public Land Mobile Network

PSTN: Public switched Telephone Network

Annual Report Template

The costing requirement proposed does not require operators to implement a complex Fully Allocated Costing system, but it does require a process of data collection in the format enclosed in the Appendix. The framework has the following structure:

- **Service Net Revenue Statement:** The Service Net Revenue statement should provide the revenues, direct costs and volumes by services as defined below. Services that are not listed below have less relevance for regulatory purposes and have been aggregated in category 'Others'. Total revenues should reconcile with the statutory reporting. Direct costs include cost of sales and out-payments directly related to the service in question. Volumes (e.g. minutes of traffic for fixed and mobile services and for interconnection services, number of subscribers for Internet and Leased Lines) would allow the calculation of the average unit price and net price by service. Service revenue statements will enable the NCC to perform relevant analysis of services, in particular the analysis of revenue, volume, and average unit revenue trends over time, by operator. Furthermore, this information will lend itself to inter-operator comparisons. The information required may be extended if concerns about specific services arise in the future.
- **Operating Cost Statement:** The operating cost statement provides a breakdown of the Profit and Loss account costs.
- **Asset Cost Statement:** The asset cost statement provides the total costs associated with the different categories of assets, including gross book value, accumulated depreciation and net book value movements. This information will provide the NCC with the visibility required to analyse assets' age profiles, the extent to which assets are dismantled as well as new capitalisations.

Service Net Revenue Statement			Volume	Volume Unit	Revenue	Direct Cost
					N$'000	N$'000
Retail services	Fixed voice services	Connection and rentals		subscribers		
		Calls		minutes		
		Pay phones		booth		
	Mobile voice services and SMS	Postpaid connection and rentals		subscribers		
		Postpaid calls		minutes		
		Prepaid connections		subscribers		
		Prepaid calls		minutes		
		Mobile Roaming		minutes		
		SMS		SMSs		
		Mobile Internet		MB		
		Handsets		Handsets		
		Sim cards		SIMs		
	Internet			subscribers		
	Leased lines			lines		
	Other retail services		n/a	n/a		
Wholesale services (Interconnection)	Fixed termination	Local		minutes		
		International		minutes		
	Mobile termination	Local		minutes		
		International		minutes		
	Fixed origination			minutes		
	Mobile origination			minutes		
	Transit			minutes		
	International access			minutes		
	Infrastructure rentals	Transmission link rental		E1s		
		Site rentals		sites		
	Wholesale Leased Lines			subscribers		
	Other wholesale services			n/a		
Total						
Total per audited financial statement						

Operating Cost Statement		Total operating cost (excluding tax and interest) N$'000
Direct Costs		
Network Costs	Fixed Network Costs	
	Mobile Network Costs	
	Data Network costs	
Retail costs		
Support Costs		
Depreciation		
Other Operating costs (may include non-telecom related costs)		

Asset Cost Statement		Network tangible assets			Total Network tangible assets	Non-network tangible assets	Intangible assets	Total assets
		Fixed network	Mobile network	Data network				
Opening Gross Book Value (GBV)	N$'000							
Additions	N$'000							
Disposals	N$'000							
Transfers	N$'000							
Other adjustments	N$'000							
Closing Gross Book Value (GBV)	N$'000							
Opening Accumulated Depreciation (AD)	N$'000							
Annual depreciation	N$'000							
Disposals	N$'000							
Closing Accumulated Depreciation (AD)	N$'000							
Opening Net Book Value (NBV)	N$'000							
Closing Net Book Value (NBV)	N$'000							

Quarterly Report Template

Fixed

Fixed telephone lines in operation	Residential	Corporate	Total
Copper			
ISDN			
WIMAX			
Others			
Total			

Exchanges	
Total capacity of fixed line switch	
Number of main lines connected to digital exchanges	
Number of lines connected to analogue exchanges if any	
Switch capacity of the digital exchange	

	Fixed line Subscribers	Number of Payphones
Caprivi Region		
Erongo Region		
Hardap Region		
Karas Region		
Kavango Region		
Khomas Region		
Kunene Region		
Ohangwena Region		
Omaheke Region		
Omusati Region		
Oshana Region		
Oshikoto Region		
Otjozondjupa Region		
Total		

Fixed Network Traffic, Calls and performance	minutes	calls	Success call rate
Outgoing – Fixed to own fixed network			
Outgoing – Fixed to own mobile network			
Outgoing – Fixed to off-net fixed networks			
Outgoing – Fixed to off-net mobile networks			
Outgoing – Fixed to the rest of the world networks			
Outgoing – Fixed to Toll Free			
Outgoing – Fixed to Premium numbers			
Outgoing – Fixed to Emergency services			
Outgoing – Internet Dial-up minutes			
Outgoing – International transit traffic			
Total outgoing			
Incoming – From other local fixed networks			
Incoming – From other local mobile networks			
Incoming – From international to fixed network (Excluding transit traffic)			
Incoming – International transit traffic			
Total Incoming			
Total Traffic			

Mobile

	Residential	Corporate	Total
Active mobile subscribers – Postpaid			
Active mobile subscribers – Prepaid			
Active mobile subscribers – 3G			
Active mobile subscribers – 2G and 2.5G (GPRS & EDGE)			
Active mobile subscribers – Voicemail			

Mobile Network Traffic & performance	Traffic minutes	Traffic calls	Success call rate by service (ASR)
Outgoing – Mobile to mobile own network			
Outgoing – Mobile to fixed own network			
Outgoing – Mobile to off-net fixed networks			
Outgoing – Mobile to off-net mobile networks			
Outgoing – Mobile to the rest of the world networks			
Outgoing – Mobile to Toll Free			
Outgoing – Mobile to Premium numbers			
Outgoing – Mobile to Emergency services			
Outgoing – International Transit			
Outgoing – Visiting roamers outbound traffic			
Total outgoing			
Incoming – From other local mobile operators			
Incoming – From other local fixed operators			
Incoming – From international to own mobile network			
Incoming – International transit			
Incoming – Visiting roamers inbound traffic			
Roaming – Own subscribers in other networks			
Total Incoming			
Total Traffic			

Mobile Data	Volume
Outgoing – SMS on-net	
Outgoing – SMS off-net	
Outgoing – SMS to international	
Incoming – SMS off-net	
Incoming – SMS from international	
Mobile internet traffic (volume in Mb)	

Internet

Total international uplink bandwidth	
Total international downlink bandwidth	
Total local bandwidth	
Provide details of non-speed based internet access usage e.g. capacity based pricing	

Number of fixed internet subscribers	Number of fixed internet subscribers		Volume (MB)
	Residential	Corporate	
ADSL			
CDMA			
Wimax			
VSAT			
Dial-up			
ISDN			

Distribution of wireless hotspots	
Region	City / Location

Number and distribution of public internet access cafes served regardless of access speeds		
Number	Region	City / Location

Number and location of educational institutions served with internet access regardless of access speeds		
Number	Region	City / Location

Leased Line

Retail leased lines price list – local end (by distance and capacity)	…kbps	…kbps	…kbps	…kbps	…kbps	…kbps	…kbps
…km							
…km							
…km							
…km							
…km							
…km							
…km							

Retail leased lines price list – trunk (by distance and capacity)	…kbps	…kbps	…kbps	…kbps	…kbps	…kbps	…kbps
…km							
…km							
…km							
…km							
…km							
…km							
…km							

Wholesale leased lines price list – local end (by distance and capacity)	…kbps	…kbps	…kbps	…kbps	…kbps	…kbps	…kbps
…km							
…km							
…km							
…km							
…km							
…km							
…km							

Wholesale leased lines price list – trunk (by distance and capacity)	…kbps	…kbps	…kbps	…kbps	…kbps	…kbps	…kbps
…km							
…km							
…km							
…km							
…km							
…km							
…km							

Network

	BTS – number, type, distribution, capacity			BSC – number, capacity		MSC – number, capacity
	No BTS sites	No BTS	No Transceivers	No BSC	Max TRX	
Caprivi Region						
Erongo Region						
Hardap Region						
Karas Region						
Kavango Region						
Khomas Region						
Kunene Region						
Ohangwena Region						
Omaheke Region						
Omusati Region						
Oshana Region						
Oshikoto Region						
Otjozondjupa Region						

	Points of interconnection
Telecom Namibia	
CellOne	
MTC	

	Network performance
TCH Congestion	
Call Drop rate	
Call Block Rate	

	Number of faults on network
Fixed-wireline	
CDMA	
GSM	

Billing

Billing and Complaints	Value
% of postpaid accounts that have been billed in a month	
Billing complaints as a % of total bills issued	
% of billing complaints resolved within 5 days of receipt of complaint	
% of billing complaints resolved within 20 days of receipt of complaint	
% of billing complaints resolved within 30 days of receipt of complaint	
Volume and number of non-billing complaints received	
Number of non-billing complaints resolved within 1 working day of receipt of complaint	
Service activation/provisioning time	
% of service restoration requests fulfilled within 1 working day. Specify the various services.	
% of service restoration requests fulfilled within 2 working days of reporting	

Employment

Employment	No
Total full-time staff	
Number of expatriate staff	
Number of female permanent employees	
Number of male permanent employees	
Number of contract/semi-permanent employees	