



**MALAYSIAN COMMUNICATIONS AND  
MULTIMEDIA COMMISSION**

**A REPORT ON A PUBLIC INQUIRY UNDER SECTION 65  
OF THE COMMUNICATIONS AND MULTIMEDIA ACT 1998  
ON ACCESS PRICING**

**31 JULY 2002**

**PIR/AP/2/02**

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## **ABBREVIATIONS**

BHCA	Busy Hour Call Attempt
BHE	Busy Hour Erlangs
BSC	Base Station Controller
BTS	Base Transceiver Station
CoC	Cost of Capital
DLS	Digital Local Switch
DRS	Digital Remote Switch
DTS	Digital Tandem Switch
FAC or FDC	Fully Allocated Cost or Fully Distributed Cost
FCC	Federal Communications Commission
GFIA	General Framework of Interconnect and Access
GSM	Global System for Mobile Communications
HLR	Home Location Register
ISDN	Integrated Services Digital Network
COMMISSION	Malaysian Communications and Multimedia Commission
LRIC	Long Run Incremental Cost
MSC	Mobile Switching Centre
OLO	Other Licensed Operator
NERA	National Economic Research Associates
PSTN	Public Switched Telephone Network
SDH	Synchronous Digital Hierarchy
SMS	Short Messaging Service
STP	Signal Transfer Point
TRX	Transceiver
TSLRIC	Total Service Long Run Incremental Cost
TS	Tandem Switch

## **SECTION 1: SUMMARY**

### **1.1 Introduction**

- 1.1.1 On 12 March 2001, the Malaysian Communications and Multimedia Commission (the Commission) published a report entitled “A Report on a Public Inquiry under Section 55 of the Communications and Multimedia Act 1998 on Access List Determination” (the Report)<sup>1</sup>. In the Report, the Commission had set out both the principles for the application of cost-based Access Prices and a methodology for determining cost-based interconnection prices.
- 1.1.2 Further, in the Report, the Commission acknowledged that the modelling of long run incremental costs (LRIC) was complex but that the economic benefits of using forward-looking costing approaches outweighed the costs. The methodology outlined in the draft statement specified that cost-based interconnection charges should be set at a level that covers the long run incremental cost (LRIC), including cost of capital, economic depreciation and operating and maintenance costs.
- 1.1.3 Against this background, the statement included a commitment to embark on a costing study that may result in a set of interconnection prices for selective network facilities or network services in the Access List. In August 2001, the Commission engaged National Economic Research Associates (NERA) to conduct a LRIC study of both fixed and mobile interconnection prices.

### **1.2 Public Inquiry**

- 1.2.1 After NERA has concluded the Costing study, the Commission conducted a Public Inquiry process with respect to the methodology and result of the LRIC costing that was recommended by NERA. The process began on 13 May 2002 and the closing date for submissions was at 12 noon, 1 July 2002. The Commission invited written submissions from interested parties on the content of the Public Inquiry document entitled “Consultation Paper on Access Pricing<sup>2</sup>”. The purpose of the Public Inquiry process was to provide industry with opportunity to provide comments, as well as to open up the consultation process to a wider audience.
- 1.2.2 At the close of the Inquiry, the Commission received 5 submissions from the following parties:
- (a) Celcom (M) Berhad (Celcom);
  - (b) Digi Telecommunications Sdn Bhd (Digi);
  - (c) Maxis Communications Berhad (Maxis);
  - (d) Telekom Malaysia Berhad (TMB); and
  - (e) Time dotCom Berhad (Time).

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<sup>1</sup> Available at <http://www.cmc.gov.my/registerframe.htm> under “Register of Reports”

<sup>2</sup> Available at [http://www.cmc.gov.my/dis\\_papersframe.htm](http://www.cmc.gov.my/dis_papersframe.htm) under “Consultation Paper on Access Pricing”

### **1.3 Public Inquiry Report**

- 1.3.1 With respect to the Public Inquiry process, the Commission is under an obligation to issue a Public Inquiry Report under section 65 of the Communications and Multimedia Act 1998 (the Act), setting out the findings of the Inquiry.
- 1.3.2 This Report is issued in conformance with the requirement of section 65 of the Act.

### **1.4 Structure of Report**

- 1.4.1 The Commission has structured this Public Inquiry Report according to the format that was used in the Public Inquiry document (Consultation Paper on Access Pricing) where the Commission will re-produce an extract of the submissions according to the Sections (and the accompanying questions from the Consultation Paper) and provided its comments and conclusions on the submission.
- 1.4.2 This report is structured in the following manner:
  - Section 2** discusses the submissions received and the Commission's response on the approach the Commission has taken to modelling LRIC fixed interconnection services.
  - Section 3** discusses the submissions received and the Commission's response on the approach the Commission has taken to modelling LRIC mobile interconnection services.
  - Section 4** provides conclusions and recommendations with regards to the subject matter of Access Pricing.

## **SECTION 2: ESTIMATING LRIC OF FIXED NETWORK INTERCONNECTION SERVICES IN MALAYSIA**

### **2.1 Introduction**

2.1.1 This section provides an overview of the approach the Commission has taken when modelling LRIC of fixed interconnection services in Malaysia. Based on the description of the methodology and implementation principles, comments were invited on a number of key issues such as the choice of model run options, the role that the Commission should play in determining LRIC rates for fixed services and depreciation sensitivity.

### **2.2. General Comments on the Consultation Paper on Access Pricing**

#### **General comments on the LRIC approach by Telekom Malaysia**

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- TMB disagrees with the Commission on the usage of LRIC approach to calculate Access Prices. To substantiate its arguments, TMB has provided the Commission with interesting academic arguments, some of which were previously submitted during the Public Inquiry on Access List Determination.
  - TMB went on to express its doubt about adopting a cost-based approach altogether for the setting of the interconnection charges in Malaysia.
  - TMB also argued that the Commission is proposing to impose Access Prices without giving the industry an opportunity to commercially negotiate revised Access Price for call termination.
  - TMB also argued that the local loop is not necessarily a bottleneck (and therefore may not necessarily be subject to cost-based pricing) and asked for specific rules on when (or how) the local loop (or parts thereof) should cease to be considered a bottleneck facility.
  - Rejecting the options proposed by the Commission in the Consultation Paper, TMB volunteered instead new interconnection prices for call termination which are lower than the current (TRD 006/98) prices and indicated its willingness to discuss further with the Commission (as a compromise) while detailing a series of conditions prior to implementation of these new prices.
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The Commission would like to thank TMB for its constructive comments. The Commission would like to make the following points by way of clarification:

- On the adoption of LRIC approach for the setting of interconnection prices, the Commission would like to remind all interested parties about the development of policy on Access Pricing in Malaysia. The Commission's

predecessor, JTM paved the way for a major transition when it issued the Determination on Cost Based Interconnect Prices and the Cost of Universal Service Obligation or TRD006/98. TRD006/98 states that interconnection prices for fixed services are set closer to fully allocated costs, while interconnection prices for mobile services are set closer to LRIC. In accordance with section 65 of the CMA, on 11 March 2001, the Commission published a Report on Public Inquiry entitled "Access List Determination and Statement on Access Pricing Principles". The Commission's statement sets out both the principles for the application of cost-based Access Prices and a methodology for determining cost-based interconnection prices. In that Report, the Commission acknowledged that the modelling of long-run incremental costs (LRIC) was complex but that the economic benefits of using forward-looking costing approaches outweighed the costs.

- On the lack of opportunity for the industry to commercially negotiate new revised interconnection prices, the Commission would like to remind interested parties that this opportunity was made clear to the Industry ever since TRD 006/98 was issued<sup>3</sup>. More specifically, TRD006/98 stipulates<sup>4</sup> that "interconnect price regulation will take the form of a benchmark price for each service. Operators may charge below this benchmark if they wish, as long as they do not discriminate and do not act in an anti-competitive manner". The Commission would like to point out that the industry has now had over 4 years to commercially negotiate new prices. However, the Commission observes that the interconnection prices (for example, local call, single tandem and double tandem) have remained unchanged to date. This reinforces the Commission's views that the industry still needs regulatory intervention with respect to the setting on interconnection prices.
- On the issue of the local loop retaining its "bottleneck" status, the Commission has published its views on 12 March 2001<sup>5</sup>. The Commission concluded that for call termination, call origination and leased lines, the local loop should be classified as a bottleneck. Since March 2001, the Commission has not witnessed any material development in the relevant market that would justify a revision of this conclusion. The Commission is constantly monitoring the development of the local loop market and shall review the classification of local loop as a bottleneck as and when it deems justified.
- The Commission notes with great interest that TMB has proposed new interconnection prices (for termination) and that these prices are lower than the current interconnection prices. While the Commission welcomes this initiative, this confirms the Commission's view that (i) the current prices are no longer cost-based and that (ii) a price revision is long overdue and (iii) in the absence of voluntary commercial negotiations between operators over the last 4 years as highlighted above, regulatory intervention is necessary.

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<sup>3</sup> 15 July 1998

<sup>4</sup> See 2.3.1, TRD006/98

<sup>5</sup> "A Report on a Public Inquiry under Section 55 of the Communications and Multimedia Act 1998 on Access List Determination, issued on 12 March 2001. See Appendix B Statement on Access Pricing Principles (Version March 2001) in the said report.

The Commission also notes that it has taken a Public Inquiry process initiated by the Commission for an operator to volunteer a new price offer. The Commission would welcome an immediate voluntary implementation of these prices as a transition measure.

## 2.3 Model Run Options

2.2.1 The LRIC model for fixed interconnection service contains 4 main options that bring into effect changes to a given selection of input assumptions. These are set out below.

- (a) **Option 1** assumes that the modelled network is using pure TMB and Taskforce cost and network assumptions including Malaysian specific benchmarks for operating costs and indirect costs.
- (b) **Option 2** is the same as Option 1 except for the following:
  - (i) lower cost of overhead route cost per metre
  - (ii) lower cost of DLS switch unit cost; and
  - (iii) reduced number of logical transmission routes connecting switch nodes.
- (c) **Option 3** is the same as Option 2 except for the following:
  - (i) direct operating cost factors are estimated using the mid-point percentage value between Taskforce and FCC international benchmarks; and
  - (ii) indirect cost factors are estimated using the mid-point percentage value, between Taskforce and FCC international benchmarks.
- (d) **Option 4** is the same as Option 2 except for the following:
  - (i) direct operating cost factors are estimated using FCC benchmarks (in percentage form); and
  - (ii) indirect costs are estimated using FCC benchmarks (in percentage form).



**Table 1.1**  
**Final Results for Per Minute Interconnection Prices under the 4 Model Run Options**  
**(sen per minute as per Consultation Paper)**

	<b>Option 1 – Pure TMB / Taskforce</b>	<b>Option 2 – Pure Taskforce with reduced data input problems</b>	<b>Option 3 – mid way efficient opex and indirect costs</b>	<b>Option 4– fully efficient opex and indirect costs</b>
Local	3.1645	2.0300	1.8124	1.5114
Single Tandem	4.1520	2.9040	2.5934	2.0380
Double Tandem	6.9298	5.6822	5.0936	4.0454
Double Tandem with submarine cable	13.2894	12.2904	11.9389	10.7997

Source: NERA

### **Question 1**

**Please comment on the main assumptions for each option.**

### **Comments on the main assumptions used**

We summarize below the comments received on Option 1:

- Celcom commented that Option 1 is not solely applying Malaysia specific benchmarks and as a result is not efficient. Celcom noted that it should be based on the traffic volume and/or capacity.
- Digi noted that Option 1 was not representative of the cost of licensees other than TMB. DiGi argued, for instance, Option 1 reflects an over-provision of links<sup>6</sup> for the DLS-DLS and DLS-DTS routes.
- Maxis commented that the usage of Option 1 would suggest that any costs related to inefficiencies incurred by a particular operator are imputed, rendering the model inconsistent with the basic requirements under the LRIC scenario.
- Time made a generic comment for all options, noting that several underlying assumptions were not clear (FCC benchmark data; information on routing factors, traffic profile assumption, number of switch sites, number of switches, etc. and finally the depreciation rate and duration used for tilted straight line depreciation).

<sup>6</sup> as noted in the Consultation Paper

- TMB noted that the results obtained are materially lower than those obtained from its own cost-based estimates. Elsewhere in its submission, TMB implied that the Commission was partly releasing TMB data in the public domain by releasing its final figures for Option 1 results.
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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- Option 1 and 2 uses data that reflect the situation of the Malaysian communications market. For instance, all operators were asked to provide cost information for equipment, level of operating cost and of indirect costs. The model reflects the cost of an operator that operates in Malaysia with traffic volumes and network reach that is similar to that of TMB. While most of the cost information has been obtained from all players, some data was obtained from TMB specifically, i.e. routing factors (for all Options)<sup>7</sup>, traffic volumes and number of switch sites.
- On the implementation of the tilted straight line depreciation methodology, the depreciation rate was calculated to reflect (i) the asset life for each type of equipment as submitted by the industry taskforce, and (ii) the change in price overtime as submitted by the industry taskforce.
- Similar to the regime introduced by TRD 006/98, and in line with international practice, the rule of reciprocity has been retained. Once the interconnection price for a given service has been determined by the costing model, this price applies to all interconnecting fixed operators.
- The Commission does not agree with the arguments raised by some operators on inefficiencies. With the exception of the three adjustments proposed in paragraph 3.5 of the Consultation Paper, the direct capital costs produced in Option 1, 2, 3 and 4 reflect the costs of an efficient network in a Malaysian environment. Option 1 and 2 uses levels of operating costs and indirect costs that reflect the current level of efficiency (or inefficiency) of the whole Malaysian PSTN industry (it is unfair to single out a particular operator because the benchmark data used is based on the information provided by all players). Option 3 and 4 are an attempt to quantify the level of efficiency that could be achieved overtime for both level of operating costs and indirect costs (including common costs). Option 4 indicates a level of efficiency that may not be realistic in Malaysia because it is purely based on a benchmark of companies operating in a market with high level of penetration. The Commission believes that Option 3 reflects an efficiency level that is realistic.
- TMB did not provide any evidence to support its internal cost-based estimates. It is not clear whether TMB's internal cost-based estimates are derived from LRIC methodology or fully allocated cost (FAC) methodology or whether TMB has adopted current cost approach or a historical cost approach. Furthermore, it is not clear from TMB's submission whether the

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<sup>7</sup> This was done after extensive discussions with TMB until the Commission and its advisers were satisfied that TMB (i) understood the concept and (ii) provided credible figures.

new prices proposed as a “compromise” by TMB are actually its internal cost-based estimates or whether they factor in some margin to allow for negotiation.

- On the issue of releasing of information in the Consultation Paper, the Commission would like to remind the industry that the figures shown in the Consultation Paper are the output of a Costing model that used input data from TMB **as well as** other members of the industry Taskforce as mentioned above. The Consultation Paper did not therefore disclose any individual cost information from individual licensees.
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**Comments on the main assumptions used for the 4 options:**

We summarize below the comments received on Option 2:

- Celcom's comment on Option 2 was identical to its comment on Option 1.
- Digi noted that the adjustments made for Option 2 is more reasonable.
- Maxis commented that Option 2 still uses data provided by TMB and the Taskforce for operating costs and indirect costs and therefore, inefficiencies were still taken into account.
- Time's comment is the same as for Option 1.
- TMB focused its comments for Option 2 on the three adjustments described in the Consultation Paper. TMB made the following comments:
  - With respect to the adjustment on overhead route cost per metre, TMB is of the view that the Commission should seek further details on the cost of overhead deployment from TMB rather than re-estimate using certain assumptions from elsewhere. TMB noted that the source of the new assumptions is not named.
  - With respect to the cost of DLS switch sites, TMB believes it is unclear why overseas land prices should be appropriate and has requested that the Commission provide further clarification.
  - With respect to logical transmission routes, TMB believes that the Commission may have misunderstood the information provided by them. TMB asks that the misunderstanding be resolved with the cooperation of consultants and TMB internal staff.

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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- With the exception of TMB's comments, all other comments have been addressed above (under Option 1) and the Commission's views will not be repeated here.
- With regards to the Commission seeking further details from TMB rather than producing its own estimates, the Commission would like to inform the operators of the extensive discussions (including with TMB) that were held with them throughout the Costing study. While the Commission appreciates that TMB allocated considerable resources to meet the Commission's requirements (as did the other members of the Taskforce), the Commission also deployed considerable resources to explain, collect, cross-check and sanitize the data used in the model. Where, as part of this process it had to

produce estimates based on reasonable grounds, the Commission and its advisers would take reasonable steps to do so.

- The Commission appreciates the need for more information on the three adjustments described for Option 2. Clarifications are provided below.
- On the adjustment described in the Consultation Paper for overhead route costs, the Commission would like to provide the following clarification:
  - Estimates used in Option 2 for overhead route costs have been derived by multiplying the unit cost pole (cost information which included installation, provided by TMB) by the number of poles per kilometre (estimated by NERA's technical engineer) to yield a cost per meter. The cost per meter of cable (based on the Taskforce submissions) was also added.
  - On the adjustment described in the Consultation Paper for switch **site** costs, the adjustment was made based on a careful assessment. We compared the site costs provided by TMB and the other members of the Taskforce with the information on 5 developed countries. While, the land cost and operating costs are expected to be lower in Malaysia than in the group of benchmark countries (lower property prices and lower labour costs), TMB's site cost information was much higher than that of the benchmark countries. Rather than taking the data from the benchmark, the data used in the model reflect a downward adjustment to TMB's data but is still much higher (16% higher than the benchmark for DTS sites, 12% higher for DLS sites and 82% higher for DRS sites).
  - On the adjustment described in the Consultation Paper for logical transmission routes, the Commission would like to clarify that the adjustment made was derived from TMB's submission about parenting rules and number of switches. The adjustment therefore reflects the fact that the overall number of links submitted was not consistent with the parenting rules (i.e. the network design) disclosed by TMB.

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**Comments on the main assumptions used for the 4 options:**

We summarize below the comments received on Option 3 and 4:

- Celcom commented that Option 3 and 4 could be considered for estimating forward-looking costs.
  - Digi noted that Option 3 was the most reasonable assumption. Digi rejected Option 4 because it believes FCC international benchmark may not take into consideration the existing network scenario in Malaysia.
  - Maxis commented that Option 3 would still incorporate some measure of inefficiencies experienced in the Malaysian market due to the lack of competition in the fixed market. Maxis believes that only Option 4 would correctly reflect the efficiency of the fixed network.
  - Time's comment is the same as for Option 1 and Option 2.
  - Although outside the scope of the question, TMB volunteered arguments on why a LRIC approach was not appropriate in Malaysia. More relevant to the question, TMB went on to explain why it believed the use of FCC benchmarks (derived in jurisdictions where the penetration rate is much higher) was not relevant in Malaysia.
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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- With the exception of TMB's comments and comments expressing the acceptance of Option 3 or 4, all other comments have been addressed above (under Option 1 and 2) and the Commission's views will not be repeated here.
- On the issue of adopting a pure LRIC approach, the Commission's views have been summarized above in relevant section. On the usage of FCC benchmarks, these benchmarks are only used (or partly used for Option 3) for the determination of operating costs and indirect costs/common costs (FCC percentage are applied to Malaysian-based cost information) and not for the determination of the entire LRIC cost.
- For the same reason, the Commission is inclined to reject Option 4. As mentioned above, Option 3 and 4 are an attempt to quantify the level of efficiency that could be achieved overtime for both operating costs and indirect costs (including common costs). Option 4 indicates a level of efficiency that may not be realistic in Malaysia because it is purely based on a benchmark of companies operating in a market with high level of penetration. Option 3 reflects an efficiency level that the Commission believes is not unrealistic. The opportunity of adopting a gradual approach is discussed later.

## Question 2

**Should all 4 options be considered? If not, why and please explain which options should be taken into consideration.**

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### **Comments on which option(s) should be considered:**

We summarize below the comments related to the second question raised by the Consultation Paper:

- Celcom commented that Option 3 and 4 could be considered for estimating forward-looking costs.
- Digi was of the view that only Option 2 and 3 should be considered as they closely represent the cost of fixed LRIC in Malaysia.
- Maxis commented that Option 4 should be adopted as this option represents a fully efficient network operator that is in line with the spirit of adopting LRIC.
- Time commented that Option 3 should be considered as it reflects the actual scenario of the communications industry in Malaysia, while recognizing the importance of being an efficient player.
- TMB rejected all 4 Options and the arguments put forth by TMB have been highlighted above. Instead, TMB proposed what it calls a “compromise”, which is a gradually phased approach. TMB is offering new fixed interconnection prices (termination prices which appear to be peak prices) which would decrease after 3 years. The conditions attached to TMB’s proposal are:
  - Ability for TMB to undertake further rate rebalancing to align its retail rates with underlying costs;
  - No additional increases in mobile network interconnection prices;
  - No material changes in inflation and/or exchange rates or any other external shocks or events of force majeure over this period.

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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note that Option 1 is rejected by all respondents, that Option 2 is considered reasonable by 1 out of 5 respondents, Option 3 by 3 respondents and Option 4 by 1 respondents. As highlighted above, the Commission believes that Option 3 is the most reasonable Option in the context of the Malaysian market and therefore the Commission is pleased to

see that it is the Option that is deemed reasonable by most industry players as well.

- As indicated above, the Commission takes note with great interest of TMB's proposal for new interconnection prices and of the fact that these prices are lower than the current interconnection prices. While the Commission indeed welcomes this initiative, this confirms the Commission's view that (i) the current rates are no longer cost-based, (ii) a rate revision is long overdue and (iii) in the absence of voluntary commercial negotiations between operators over the last 4 years as highlighted above, regulatory intervention is necessary. We note that it has taken a Public Inquiry process initiated by the Commission for an operator to volunteer a new price offer. We would welcome an immediate voluntary implementation of these prices as a transition measure.
- Assuming that (i) TMB's figures are for peak rate, (ii) TMB's proposal would apply similarly for off-peak rates and (iii) TMB's breakdown of traffic in the peak and off-peak hours is similar to the one provided by other Taskforce members<sup>8</sup>, the 24 hour average prices proposed by TMB would be 4.80 sen per minute for single tandem termination and 8.43 sen per minute for double tandem termination. These charges would decrease to 3.87 and 6.90 sen per minute respectively after 3 years. The Commission takes note that the prices proposed by TMB in the second phase are lower than the one derived for Option 1 of the model produced by the Commission.
- The Commission notes that TMB has been allowed as of 1 March 2002 to rebalance its retail rate (notably by increasing its monthly rental fee). However, the Commission is not aware of any move by TMB to negotiate new interconnection prices aligned with its underlying costs since the new retail rates have been implemented.
- The merit of the other 2 set of constraints argued by TMB is discussed later in this report.

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<sup>8</sup> As part of the costing study, other taskforce operators provided the breakdown of traffic peak/off-peak for their outgoing traffic. We would expect this to be a good proxy for the breakdown of traffic peak/off-peak for TMB's incoming traffic.



## 2.4 Implementing LRIC-based rates

- 2.4.1 The Commission recognises that on the whole, implementation of interconnection prices in the ranges as per the findings of the Costing model would be a significant departure from the current prices in TRD 006/98.

### Question 3

#### Should MCMC

- **determine a single value for each service?;**
- **determine a range of values for each service?;**
- **leave it to industry to negotiate the interconnection prices.**

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#### **Comments on whether the Commission should determine a single value, a range of value or leave the market to agree to a value for each termination service:**

We summarize below the comments related to the third question raised by the Consultation Paper:

- Celcom commented that the Commission should determine a range of values for each service but did not provide any arguments to support.
- According to Digi, a single value for each service is desirable because it provides a standard fixed interconnection price for all services while providing a counterbalance to the leading position of TMB as the largest fixed operator. Digi also mentioned the need for a peak/off-peak price differentiation to reflect the difference in traffic pattern and to allow the interconnection regime to reflect the retail rates.
- Maxis commented that the Commission should determine a single value for each service and maintain a peak/off-peak differentiation to facilitate implementation.
- Time commented that the Commission should determine a single value for each service and maintain a peak/off-peak differentiation. Time rejected the idea of commercial negotiations because of the unlevelled playing field, which makes it extremely difficult to avoid terms that are only favourable to a particular party. Time also believe that expensive productive man-hours can be saved if the Commission determines the prices.
- TMB believes that commercial negotiation of interconnection prices is the optimal and most sustainable mechanism to secure interconnection prices. TMB also believes that the consolidation of the

industry currently taking place means that key competitors (and in particular Maxis) are now well-placed to engage in fair and equitable interconnection negotiations. As an example, TMB believes that Maxis does not need the Commission to intervene on its behalf to ensure a level playing field. TMB points out that under section 149 of the Communications and Multimedia Act 1998, the terms agreed with one operator would have to be applied to the others by virtue of non-discrimination. Therefore, TMB concludes that there is no rationale for the Commission to determine the Access Prices for a range of interconnection services.

- As a further argument not to use the prices produced by the Commission's Costing model, TMB raises an additional concern with respect to the use of a single value for each service:
  - Arbitrary choice: the modeller has to decide on a variety of key parameters and approaches that will impact the final results. According to TMB, this can be seen from the very wide variation between results produced by Option 1 and Option 4 of the Commission's model. Choosing a single value would therefore be arbitrary and inappropriate at this time.
  - Use of average values: TMB believes that the de-averaging of prices is as important as quoting time of day (that is, peak/off-peak, distance and geographical location). TMB goes on to provide examples of such de-averaging in 14 jurisdictions including 7 in the United States.
  - Finally, TMB presents the best practice figures for termination prices as calculated by the European Commission in March 2000, arguing that its compromise prices are consistent with these best practice figures. TMB also provides examples of termination and origination prices in US cents per minute in 18 countries<sup>9</sup>. These interconnection prices are a combination of local and domestic long-distance calls (although the breakdown is not provided) and TMB argues that the Commission's prices are significantly lower than the prices displayed in the table.
  - In another table, TMB illustrated how Option 1, 2, 3 and 4, along with current (TRD 006/98) prices and compromise prices would compare with the prices of 14 EU countries and 13 US jurisdictions as well as Japan, Canada, New Zealand, Australia, and Singapore. It is not clear which service the other countries represent, but it seems that the Malaysian figures reflect peak single tandem prices. According to the table, Options 2, 3 and 4 are only undercut by the States of Washington, and Illinois.

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<sup>9</sup> 14 EU countries, Canada, Switzerland, Japan and New Zealand from a 2001 Ovum study quoted in a January 2002 publication by Rohlfs & Sidak (Jeffrey H. Rohlfs & J. Gregory Sidak, *Exporting Telecommunications Regulation: The U.S.-Japan Negotiations on Interconnection Pricing*, 43 *Harvard International Law Journal* (2002), January 2002).

The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note that (i) 4 out of 5 respondents are of the view that the Commission should determine the values for interconnection prices, (ii) 3 out of 5 respondents would welcome a single value for each service, (iii) one respondent would want a range of value to be determined rather than a single value, and (iv) one respondent would prefer commercial negotiation to take place.
- The Commission agrees with the view expressed by 4 respondents out of 5 about maintaining a peak/off-peak differentiation for interconnection prices. The Commission would like to determine a 24 hour weighted average prices, leaving it to operators to calculate their peak/off-peak prices depending on the breakdown of their incoming traffic between peak/off-peak hours and taking into account the difference for their retail rates.
- The Commission is at present of the view that the playing field is not levelled enough for interconnection prices to be determined through commercial negotiations. As mentioned earlier, TRD 006/98 does allow for interconnection prices to be commercially negotiated<sup>10</sup> but over the last 4 year, there is no evidence that such negotiations have materialised. More specifically, no evidence of any negotiations have ever led to a decrease in single tandem and double tandem termination prices, whereas, from an operator's submission, it is clear that its own cost-based estimates are lower than the ceilings determined in TRD 006/98 and have in fact offered lower interconnection prices. This confirms the Commission's views that the industry still needs regulatory intervention when it comes to interconnection prices.
- Furthermore, the Commission cannot accept the argument that the current consolidation of the industry means that operators are now well-placed to engage in fair and equitable interconnection negotiations. On the contrary, the Commission observes that the current consolidation transaction may be enhancing the position of certain operator(s) in the mobile sector.
- The Commission also disagreed with the comment on the arbitrariness of choosing a single value for each service. The Commission's choice of a single value will be based on a comprehensive Costing model which has been built to reflect the cost of providing interconnection services in Malaysia. All decisions concerning the development of the model have been taken on reasonable grounds. Data was gathered from all operators instead of only one. For the first time, operators were also given a chance to view the Costing models<sup>11</sup> to test the robustness of the model and make comments on it so as to increase the transparency of the process.
- The Commission takes note of the arguments about determining prices that are location dependent, distance dependent and with set-up charges. The Commission would however like to point out that the international examples

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<sup>10</sup> See 2.3.1, TRD006/98

<sup>11</sup> specially prepared with dummy data to avoid releasing confidential material

presented by an operator itself go against such an approach. Accordingly, 11 jurisdictions out of 14 have rejected call set-up charges, 10 out of 14 have rejected location dependent interconnection charges and 8 out of 14 have rejected distance dependent interconnection charges. If one take into account that 7 jurisdictions are actually part of the same country, the conclusion would still be the same: Out of 8 countries, 5 reject call set-up charges, 6 reject location dependent charges and 6 reject distance dependent charges.

- As a consequence, the Commission does not see in the evidence presented any reason to adopt any of these three de-averaging. However, the Commission takes note of the fact that 5 out of 8 countries use a form of peak/off-peak price differentiation and, as discussed above, the Commission has no objection to this approach.
- The Commission rejects any arguments based on simple interconnection prices comparisons across countries, first, on the ground of relevance and second, on the grounds that the tables presented by TMB appear to be inconsistent.
  - Typically, simple international comparisons do not take into account the specificities of individual countries (population, density, geographic area and terrain, network architecture, traffic volume both in total and per inhabitant, level of economic development (size of business market), difference in cost of capital, cost of labour, etc. Although the EU has in the past used the principle of a best practice benchmark (as quoted by TMB), it has now abandoned this approach on the basis that Member States should use LRIC costing models instead of using international comparisons<sup>12</sup>.
  - The Commission would like to point out that the calculation in Malaysian sen per minute presented by TMB on the EU best practice interconnection prices are based on March 2000 figures and are using a 3.74 conversion exchange rate reflecting the current near parity of the US\$ and the euro. Recalculating the same figures (based on the EU interconnection prices published in December 2001<sup>13</sup> using PPP conversion rates<sup>14 15</sup>), the Commission reached an opposite conclusion to the one offered by TMB. More recently recalculated EU best practice benchmark are lower than the Commission's Options 1 to 4 for local, single tandem, and double tandem<sup>16</sup>.

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<sup>12</sup> See European Commission Recommendation, 22 February 2002 (2002/175/EC).

<sup>13</sup> See European Commission Seventh report on the implementation of the telecommunications regulatory package, Appendix 2, 26 November 2001.

<sup>14</sup> The Commission takes note that Telekom Malaysia comments at length on the necessary use of Purchasing Power Parity exchange rates when quoting the Rohlfs & Sidak publication, but does not actually implement that principle when it comes to comparing Malaysian data with other countries.

<sup>15</sup> Based on the 2001 World Development Indicators published by the IMF, the latest PPP exchange rate US\$ to Malaysian Ringgit is 1.6 (instead of the 3.8 exchange rate). In the absence of a PPP rate calculated for the Eurozone, it is reasonable to adopt a PPP exchange rate in the vicinity of 1.6 as well based on (i) the current parity Euro/US\$ and (ii) the relative strength of the different economies in the Eurozone (lower PPP economies counterbalanced by economies which account for most of the Eurozone economy and are close o PPP parity although higher).

<sup>16</sup> The higher range of the EU benchmark becomes 1.12 sen (0.7 Euro cents) for local termination, 1.60 sen (1.0 Euro cents) for single tandem termination and 2.24 sen (1.4 Euro cents) for double tandem termination (to be compared with

- By applying a 1.6 PPP exchange rate to the US\$ figures<sup>17</sup> (where TMB presents a comparison with 18 jurisdictions), so as to derive a PPP comparison in Malaysian sen per minute, produce the following figures.

<b>Country</b>	<b>Termination</b>
Austria	2.10
Belgium	2.30
Canada	1.84
Denmark	1.46
Finland	2.90
France	2.16
Germany	1.47
Ireland	1.60
Italy	2.86
Japan	2.42
Netherlands	2.83
New Zealand	4.29
Norway	1.47
Portugal	4.88
Spain	2.37
Sweden	1.41
Switzerland	1.97
United Kingdom	1.22

*Source: Adjusted from Telekom Malaysia's submission (extracted from Benchmark Comparison 2001-I (Ovum)).*

- It is not clear how the original figures were derived as they are said to be a combination of local and long-distance termination (that is a combination of local, single tandem and double tandem terminations). With 16 countries out of 18 using prices lower than 2.9 sen per minute (equivalent PPP), the Commission cannot agree with the claim that the Options 1 to 4 described in the Consultation Paper produce much lower prices than the countries presented above.

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1.51 sen, 2.03 sen and 4.04 sen respectively for the Commission's Option 4 which is the lowest of the 4 options presented in the Consultation Paper. Even if we allowed for a higher PPP rate (close to 2 for instance), the conclusion would still be the same.

<sup>17</sup> All figures had been converted to US\$ using PPP exchange rate. To be able to compare these rates with Malaysian figures, one needs to apply the Malaysia-specific PPP rate.

#### **Question 4**

**If the Commission were to set fixed network LRIC-based interconnection rates how do you think it should implement them? For example, should the implementation be gradual / phased and if so over what time period? Please explain your answer.**

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#### **Comments on whether the Commission should adopt a gradual/phased approach and over what time period**

We summarize below the comments related to the fourth question raised by the Consultation Paper:

- Celcom commented that the Commission should determine prices on a phase by phase basis with a revision every 2 years.
  - According to Digi, once the price is set and agreed by all licensees, an effective date should be announced with immediate implementation. This would have to take into account the degree of readiness among operators (billing arrangements).
  - Maxis believes that the prices should be implemented as soon as the Commission determines an effective date rather than being implemented on a gradual basis. Operational requirements to support the immediate implementation should be taken into account. Prices should be valid for 2-3 year and a review should be carried out before the expiry of the said period.
  - Time commented that new interconnection prices should be implemented with immediate effect from a determined date, with ample notice given to all interested parties. The new prices should be fixed for 3 years with a clause to review the prices at the end of the period to take into effect any changes to technology, price, competition, profit levels, etc. Time also commented that the position of TMB (as the leading fixed operator) should be taken into account to calculate prices.
  - TMB indicated that a sudden and substantial decrease in interconnection prices would have a severe impact on its financial performance, limiting its incentive to maintain or expand the network in high cost areas. This is in line with TMB's "compromise" approach of a gradual approach over a 6-year-period with a change in the prices after 3 years.
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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note that (i) 3 out of 5 respondents consider that new prices should be implemented with immediate effect and (ii) there seems to be a consensus towards taking into account the operational constraints that any implementation would generate.
- The Commission is minded that the prices described in Option 3 (the preferred Option as discussed above) of the Consultation Paper would bring an important change to interconnection revenues and costs of all operators. The Commission is therefore of the view that a gradual approach should be taken. Most operators have quoted a 3-year time frame, and the Commission also believes that this is a reasonable period of time.

## 2.5 Depreciation Method

2.5.1 The Commission has carried out depreciation sensitivity and has considered the following depreciation methods.

Straight line depreciation with no price change	This will not approximate economic depreciation; if it is applied to current costs each year then over time the depreciation will not recover the cost of the asset where prices are falling
Annuity function with no price change	This will not approximate economic depreciation; if it is applied to current costs each year then over time the depreciation will not recover the cost of the asset where prices are falling
Annuity function with price changes	A “tilted” annuity function, i.e. one in which price changes are taken into account, will tend to flatten the depreciation profile implicit in the annuity function (where prices are falling), and could even produce a downwards sloping depreciation profile for sufficiently large price decreases. However, the profile will still tend to understate depreciation in early years of an asset used compared to in later years
Sum of digits	Depreciation applied to assets with rapid technological progress, such as switching and transmission equipment. Sum of digits depreciation is thought to be a reasonable approximation to economic depreciation in cases where there is rapid technological progress. It is not appropriate for assets where there is little technological progress



**Question 5**

**Which of depreciation profile do you consider to be most appropriate here and why?**

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**Comments on the most appropriate depreciation profile:**

We summarize below the comments related to the fifth question raised by the Consultation Paper:

- Celcom commented that annuity with price change should be used but did not provide any arguments.
- According to Digi, annuity with no price change is the most appropriate depreciation profile. Digi cited the need to offset the decline in interest charges as the net book value declines.
- Maxis also believes that the annuity function with no price change is the most appropriate depreciation profile as the cost of capital would have been imputed using this methodology.
- Time commented that tilted straight-line depreciation, being more pragmatic than any other conventional depreciation methods, was the most appropriate.
- TMB believes that tilted straight-line depreciation is an acceptable method because it is the best approximation to economic depreciation.

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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note that 3 out of 5 respondents consider that some form of annuity profile should be used while the other 2 respondents welcomed the use of tilted straight-line depreciation.
- The annuity function is usually used in the construction or property development sector but has never been applied to communication facilities. The Commission agrees with the arguments raised by Time and TMB that it is important to adopt a depreciation profile which is the best approximation of economic depreciation while still being a pragmatic methodology. The Commission is therefore of the view that tilted straight-line depreciation should be used.

## SECTION 3: ESTIMATING LRIC OF MOBILE NETWORK INTERCONNECTION SERVICES IN MALAYSIA

### 3.1 Introduction

- 3.1.1 This section invites comments on a number of key issues, namely
- (a) modelling a mobile network carrying 20% of the market;
  - (b) routing factors; and
  - (c) the role the Commission should play in determining LRIC prices for mobile services.

### 3.2 Market Share

- 3.2.1 The approach of modified scorched node adopted by the Commission is as following:

Step 1	A licensee's network capable of providing efficient mobile services for 20% of the Malaysian market is modeled, considering costs such as radio net, switch processors, multiplexing equipment, microwave, cable and trench in the transmission network, but excluding elements for value added services
Step 2	The TSLRIC of providing these services is identified
Step 3	Indirect costs are modelled as a percentage mark up on either total network investment costs or total network operating costs as appropriate.

- 3.2.2 The role of a regulator in setting interconnect prices is to emulate an otherwise perfectly competitive market. In Malaysia, in a competitive market for indistinguishable products, each licensee providing mobile service would have a 20% market share.

#### Question 6

**Do you agree that it is appropriate to consider the LRIC interconnection charges for a generic licensee providing mobile services with a 20% market share? Please explain your answer.**

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**Comments on the appropriateness of considering the LRIC interconnection prices for a generic licensee providing mobile services with a 20% market share:**

We summarize below the comments related to the sixth question raised by the Consultation Paper:

- Celcom commented that all operators should be given an opportunity to discuss on the LRIC interconnection prices but does not actually answer the question.
  - According to Digi, it is appropriate to consider the LRIC interconnection prices for a generic licensee providing mobile services with a 20% market share provided there are 5 operators. However, when considering the merger between TM Touch and Celcom, DiGi is of the view that the 20% market share may not be appropriate.
  - Maxis believes that a 25% market share would be more reflective of the existing market with the merger of TM Touch and Celcom.
  - Time was of the view that only Maxis and Celcom have a market share of more than 20% and that the other 3 mobile operators have a combined market share of only 40%. Time suggested that a benchmark be established using the average of TSLRIC results for very high density area, semi urban and urban area. Time further commented that key assumptions should be derived from the two main operators (call volumes, routing factors, traffic profile, etc) while other assumptions should take into consideration such as the licensees average and worldwide benchmark data. Finally, Time commented that the underlying parameters over the analogue, D-AMPS, GSM 900 and GSM 1800 technologies were different and needed to be taken into consideration.
  - TMB believes that determining the prices for a generic operators with 20% market share is fundamentally flawed, arguing that there are no economic basis for both coverage and market share to be identical for all operators. TMB also argued that the costs for 1800Mhz and 900MHz networks are different. In conclusion, TMB believes that a more appropriate and theoretically defensible approach would be to model each mobile operator's costs separately and then compare the results, as opposed to assume that all costs are equal at the outset and produce one generic model.
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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note that 2 out of 5 respondents seem to agree on the approach while questioning the market share used and that 2 out of 5 respondents find the approach inappropriate. The Commission is aware that opting for a generic model comes with the disadvantages highlighted by Time and TMB's submissions, namely that it does not fully reflect the actual

situation of each individual operator. However, the role of the Commission (in the absence of voluntary commercial negotiations) is to provide the industry with a pragmatic solution with a minimum of distortion between operators. The risk of mapping the Costing model onto the 2 main operator's traffic profile, as suggested by Time will produce prices which reflect economies of scale that are very different from the operating scale of smaller operators (in other terms, the prices will be lower). Producing TLSRIC models for each individual operator and then compare the results as proposed by TMB is equally unsatisfactory.

- Beyond the fact that this would be a very tedious exercise indeed, it would still provide no solution as to which prices to choose. If prices were to be different for all operators, this would create a distortion in the interconnection market (it may follow that smaller operators may have higher interconnection prices) which would create distortion in the retail market (originating operators would have to adjust their call rates for calls to other mobile operators to maintain their margins).
- In conclusion, the Commission has opted for a pragmatic option which should allow operators to recover their costs not based on the economies of scale of the 2 main operators but on the costs of an average operator. The Commission agrees that the current consolidation of the industry may cause a review of the approach but it has no indication as to when Celcom and TM Touch will start operating as a single network operator for the purpose of interconnection. Until such time, the Commission believes that a 20% market share is still the most pragmatic option.

### 3.3 Routing Factors

3.3.1 Based on the information submitted by mobile operators in Malaysia, in the Consultation Paper on Access Pricing, the Commission has drawn up routing factors as shown in Table 3.1 below.

**Table 3.1**  
**Mobile Model Routing Factors**

	Fixed to Mobile (local)	Mobile to Mobile (local)	Long haul increment	East / West Malaysia
BTS – BSC link cost per minute	1.000	1.000		
BSC – MSC link cost per minute	1.000	1.000		
MSC – MSC link cost per minute			0.375	
MSC – TS link cost per minute			1.000	
TS – TS link cost per minute			0.080	
OLO – TS link cost per minute	1.000	1.000		
Submarine cable link cost				1.000
BTS cost per minute	1.000	1.000		
BSC cost per minute	1.000	1.000		
MSC cost per minute	1.000	1.000	0.167	
HLR cost per minute	0.667	0.667		
TS cost per minute			0.580	

Source: NERA

#### Question 8

**Do you consider the routing factors to be reasonable for the network that is being modelled? Please explain your answer.**

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**Comments on whether the routing factors for the network that is being modelled are reasonable:**

We summarize below the comments related to the eighth question raised by the Consultation Paper:

- Celcom commented that the routing factors did not tally with their routing factors but did not provide any explanation.
  - Digi agrees broadly with the routing factors but believes the routing factor for the MSC-TS link should be 1.0 in case of both fixed to mobile and mobile to mobile. Digi also consider that HLR costs should be charged on a per call basis.
  - Maxis believes that routing factors should be revisited including the one for MSC-TS link where calls are handed over at the tandem switch.
  - Time stated that it was not able to fully comment on this point as it was not privy to the network design of all operators.
  - TMB stated that without further information it was not able to respond to the question at this time.
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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note of the fact that 2 operators declare not to have enough information to be in a position to comment and that the other operators do not seem to agree with the routing factors presented in the Consultation Paper. The Commission would like to point out that operators were given an opportunity to assess the network design used in the Costing model during the viewing period as part of the development of the model. However, the Commission is mindful of the point made by licensees and has asked its advisers to review the routing factors in the light of the comments received.
- Noting that in the original submission only one licensee has indicated the use of Transit Switch (TS) while the other licensees are purely using Mobile Switching Centers (MSC) and/or Gateway MSC (defined in interconnection agreements as the switch where interconnection with other networks is occurring), the Commission has revised the network design of its model to reflect closer the reality of operations and to make the routing factors more understandable. The new routing factors for termination of calls on a mobile network are presented below.
- The new figures reflect a slight decrease in the fixed to Mobile/Off-net mobile to mobile “local” interconnection rate (from 13.96 sen per minute to 13.74 sen per minute) and an increase of the long-distance interconnection which reflects better the nature of the call. The new figures incorporate the slight increase in the cost of capital of mobile operators as presented in the Public Inquiry Report on Cost of Capital.

**Table 3.2**  
**Revised Routing Factors<sup>18</sup>**

	Fixed to mobile/ mobile to mobile (local)	Fixed to mobile/ mobile to mobile (long distance)	Fixed to mobile/ mobile to mobile (long distance with submarine cable)
BTS – BSC link	1.0	1.0	1.0
BSC – MSC/GMSC link	1.0	1.0	1.0
MSC/GMSC – MSC (in region) link	0.6		0.6
MSC/GMSC – MSC (long distance) link		1.0	1.0
POI – GMSC link	1.0	1.0	1.0
Submarine cable link			1.0
BTS	1.0	1.0	1.0
BSC	1.0	1.0	1.0
MSC	0.6	1.0	0.6
GMSC	1.0	1.0	2.0
HLR	1.0	1.0	1.0

<sup>18</sup> Main assumptions reflected by the routing factors: interconnection occurs at GMSC level. BTSs can be (i) directly parented on a GMSC, or (ii) on other MSCs; 1 GMSC in each region (including at each end of the submarine cable); MSC and GMSC meshed via a ring; distinction between “in-region” and “long-distance” MSC/GMSC-MSC links.

### 3.4 Implementation of LRIC Prices

3.4.1 The Commission recognises that on the whole, implementation of interconnection prices in the above ranges would be a significant departure from current prices. Should MCMC decide to set new interconnection prices for mobile services, it may consider very carefully the use of a gradual or phased introduction of LRIC-based prices and what the appropriate time frame should be.

#### Question 9

Should the MCMC:

- determine a single mobile interconnection price;
- determine separate prices for calls to mobiles outside the ATUR? or
- leave it to industry to negotiate the interconnection prices?

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**Comments on whether the Commission should determine a single value, a separate prices for calls to mobiles outside the ATUR or leave the market to agree to a value for each interconnection service:**

We summarize below the comments related to the ninth question raised by the Consultation Paper:

- Celcom commented that Commission should determine separate prices for calls to mobile outside the ATUR but did not provide any argument to support its position.
- Digi agrees broadly with the use of LRIC by the Commission to determine mobile interconnection prices and with the structure of the results presented in Table 4.2 of the Consultation Paper. Digi does not believe that the industry should be left to negotiate interconnection prices, citing past experience of negotiating bilateral interconnection agreement between communications operators. Digi described these tasks as time consuming and noted that the leading operators had the upper hand in determining standards.
- Maxis believes that the Commission should determine the prices for mobile interconnection under three categories – local interconnection, long haul and East/West Malaysia. Maxis would also like to maintain the separation of value between peak and off-peak rates to facilitate implementation. Maxis also commented that determining a single mobile interconnection price will tend to result in significant



modifications to the existing traffic handover and network arrangements between operators.

- Time commented that the Commission should determine a single interconnection price for both peak and off-peak period. Time does not see a need for separate price for calls to mobile outside ATUR exchange area as it only represents 2% of the total calls. This would then be in line with the fact that some mobile operators are offering a single (retail) rate for nationwide calls. Time is alarmed to note that the mobile prices are higher than the current figures, and believes it needs investigation on the validity of data in terms of its accuracy and consistency. Time believe that the Commission should still govern the interconnection prices.
  - TMB believes that interconnection prices should be left to the industry to negotiate. TMB further commented that the flaws identified in the underlying methodology of the mobile interconnection model make the prices questionable and therefore the prices should not be utilised as the basis for any determination by the Commission.
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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note of the fact that two operators agree with the interconnection price structure proposed, one operator would want to maintain a separate price for calls to mobile outside the ATUR, one operator would welcome a single price and one operator did not comment. The Commission believes that the new pricing structure will reflect better the reality of costs generated on the terminating network depending on whether or not a call does contain an element of long-distance or not.
- The Commission would like to point out that all the data submitted by operators was sanity-checked through extensive discussions with operators. The data used as input to the Costing model is consistent with the operators' submissions.
- The Commission would also like to point out that the mobile prices should not be longer determined based on one operator, as was the case in the 1997 Analysys study and that the extent of population and geographic coverage by mobile network has changed considerably since 1997. Furthermore, the traffic breakdown for peak/off-peak hours as provided by mobile operators is no longer consistent with the one used in the 1997 Analysys study, which was the basis of the TRD 006/98 determination. This means that mobile operators are currently under-recovering their interconnection prices because the traffic distribution has changed over the last 5 years as compared to the traffic distribution in 1997, when Analysys carried out the study.

- The Commission would like point out mobile interconnection prices in Malaysia has been and will still be (with the new figures), considerably lower than that of many countries<sup>19</sup>.

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<sup>19</sup> Although this should not be used as a benchmark, it is interesting to note that the average termination rate in the EU is 19.6 Euro Cents per minute, that is 73.3 Malaysian sen per minute using non-adjusted exchange rate or 31.4 Malaysian sen per minute using a PPP exchange rate.

**Question 10**

**If MCMC were to set mobile interconnection prices, for how long should it do so? Please justify your answer.**

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**Comments on the regulatory period for mobile interconnection prices:**

We summarize below the comments related to the tenth question raised by the Consultation Paper:

- Celcom believes that the prices should be set for 6 to 12 months although this contradicts the operator's answer to the next question. Celcom also commented that the Commission should discuss with all licensee before setting the mobile interconnection prices and that all licensees should be given the opportunity to review the revised mobile prices in order to determine the timeframe to introduce or implement the new prices.
  - Digi believes that prices should be reviewed every 3 years to reflect important changes in the industry such as evolution of technology, number of players, etc.
  - Maxis believes that the interconnection prices should be valid for a period of 2-3 years and that a review should be done before the expiry of the said period.
  - Time believes that the interconnection prices should be set for a 3-year period with an option to review at the end of the period.
  - TMB believes that interconnection prices should be left to the industry to negotiate. TMB further commented that if the Commission is to set the prices the regulatory period should not exceed 3 years, unless a review is taking place at the end of these 3 years.
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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note of the fact that if the Commission sets the mobile interconnection prices, with the exception of one licensee, there is a consensus to adopt a 3-year regulatory period.

### Question 11

**If MCMC were to set LRIC-based interconnection prices in the mobile sector, how do you think it should be implemented? For example, should the implementation be gradual / phased, and if so what time period should be used? Please explain your answer.**

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#### **Comments on the implementation of mobile termination rates:**

We summarize below the comments related to the eleventh question raised by the Consultation Paper:

- Celcom voiced its preference for a phase-by-phase approach over a period of 3 years.
- According to Digi, once the prices are set and agreed by all licensees, an effective date should be announced with immediate implementation. This would have to take into account the degree of readiness among operators (billing arrangements).
- Maxis believes the prices should be implemented as soon as the Commission determines an effective date rather than being implemented on a gradual basis. Operational requirements to support the immediate implementation should be taken into account.
- Time commented that new interconnection prices should be implemented with immediate effect from a determined date, with ample notice given to all interested parties. The new prices should be fixed for 3 years with a clause to review the prices at the end of the period.
- TMB commented that the implementation depended on the values of the actual prices to be implemented. If they represent a radical departure from current prices, then implementation should be gradual over an extended number of years. Given the significant substitution of mobile to fixed calls, TMB does however consider that any review should be in parallel with the fixed network prices.

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The Commission would like to thank all operators for their constructive comments. The Commission would like to make the following points by way of clarification:

- The Commission takes note that (i) 3 out of 5 respondents consider that new prices should be implemented with immediate effect and (ii) there seems to be a consensus towards taking into account the operational constraints that any implementation would generate.
- The Commission is minded that the prices described in the Consultation Paper would bring an important change to interconnection revenues and costs for all operators. The Commission is therefore of the view that a gradual

approach should be taken. Most operators have quoted a 3-year time frame, and the Commission also believes that this is a reasonable period of time.

**Question 12**

**MCMC is interested to hear licensees' views on the data requests issued for the interconnection Costing models. In particular, MCMC would be interested to hear the extent to which licensees' already held data that was suitable.**

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In the comments related to the twelfth question raised by the Consultation Paper, there seems to be a general consensus on the following points:

- Lack of time to study the information request. One operator mentioned a lead-time of 2 to 3 months would have been more appropriate.
  - Considerable time and effort was necessary to collate the required information.
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The Commission would like to thank all operators for their constructive comments. The Commission takes note of the operators' concerns on the time constraint and will aim to offer more time in future exercise, while also taking into account its regulatory agenda.

**Questions 13**

**Should MCMC consider determining Access Prices for access to facilities such as towers and duct which support the provision of communication services?**

**If so, what cost principles should MCMC use?**

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In the comments related to the last question raised by the Consultation Paper, there seems to be a general consensus not to determine Access Prices for access to facilities such as towers and duct which support the provision of communication services. One operator however supported the idea of the Commission determining such prices.

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The Commission would like to thank all operators for their constructive comments. There does not seem to be a call by the industry to regulate the prices for access to facilities such as towers and duct which support the provision of communication services. The Commission will look further into the issue and will let the industry know its views at a later date.

## SECTION 4: CONCLUSION AND THE WAY FORWARD

### 4.1 Assessment of TMB's "Compromise" Prices for Fixed Interconnection

4.1.1 The "compromise" prices proposed by TMB appear to be peak rates (this is substantiated by the fact that TMB compares its proposed "compromise" single tandem prices to the current peak rate of 8.5 sen per minute for single tandem) rather than 24 hour average prices as shown in the Consultation Paper. In order to be able to assess the "compromise" prices proposed by TMB, the Commission had to estimate what would be the 24 hour weighted average price corresponding to TMB's "compromise" peak price. TMB has not volunteered the actual proportion of peak and off-peak rate traffic distribution. The Commission, therefore, had to estimate the proportion. This was done based on the other operators' submissions during the data gathering process and assuming the outgoing traffic breakdown of the other operators<sup>20</sup> is a reasonable proxy for the incoming traffic breakdown for TMB. Based on these calculations, the Commission estimated:

- (a) the current 24 hour weighted average prices
- (b) the 24 hour weighted average prices corresponding to TMB's compromise prices for the period 2003-2005 and 2006-2008

	Current 24hour average	TMB proposal 2003-2005	TMB proposal 2006-2008	Option 1	Option 2	Option 3	Option 4
Single tandem	6.58	4.80	3.87	4.15	2.90	2.59	2.03
Double tandem	13.80	8.43	6.90	6.92	5.68	5.09	4.04

4.1.2 Although the "compromise" prices proposed by TMB are still higher than Option 2 and 3, the Commission is pleased to note that TMB implicitly recognises that a revision of the current prices is long overdue. The very fact that it takes a Public Inquiry process for TMB to "volunteer" new prices, confirms the Commission views that regulatory intervention is needed for the determination of interconnection prices.

### 4.2 The Issue of Local Termination as Opposed to Local Call Termination

4.2.1 The local termination service usually describes the termination of an incoming call which uses a point of interconnection at the level of a local exchange of the terminating operator's network.

4.2.2 The local call termination service describes the termination of a call which is a local call from the point of view of the retail price structure. The calls could be received by the terminating operator at the level of a local exchange switch or at

<sup>20</sup> Outgoing to TMB's fixed network.



the level of a transit switch, depending upon the interconnection arrangements between operators.

- 4.2.3 TMB has argued that all incoming calls received on its network are received at a transit switch level. This is also true for the local calls which terminates on TMB's network.
- 4.2.4 Given the situation, the Commission is proposing a phase-by-phase approach to reconcile the interconnection pricing structure with the reality of interconnection arrangements: it is proposed that over a 3-year period the price of local call termination will converge with that of single tandem termination, as long as these calls enter the terminating network through a transit switch.

### **4.3 Setting Fixed Interconnection Prices: The Way Forward**

- 4.3.1 Based on the analysis developed in this Report, the Commission is of the view that the Option 3 prices described in the Consultation Paper for Access Pricing should be adopted (taking into account the change in WACC as presented in the Public Inquiry Report on the Cost of Capital).
- 4.3.2 The Commission observes that the new prices mark a significant change from the current prices. The Commission is of the view that a gradual approach should be adopted over a 3-year period of time to facilitate the implementation of the new prices.
- 4.3.3 The Commission considers that there is a need to reconcile the interconnection pricing structure for local call termination with the reality of interconnection arrangements: it is proposed that over a 3-year period the price of local call termination will converge with that of single tandem termination, as long as these calls enter the terminating network through a transit switch.
- 4.3.4 The Commission is of the view that a single value (the 24 hour weighted average price) should be determined for each interconnection service. In setting its peak/off-peak interconnection prices, each operator will ensure that it does not recover more than the 24 hour weighted average price on a per minute basis for each calendar year. In setting its peak/off-peak interconnection prices, each operator will take into account:
  - (a) The breakdown of traffic between peak/off-peak hours for each service
  - (b) The retail gradient used in its retail rate structure (i.e. the difference between peak and off-peak retail rate of local calls for the pricing of local call termination, the average difference between peak and off-peak retail rate of national calls for single tandem and double tandem termination).
- 4.3.5 Operators will be allowed to adjust their interconnection prices as the year goes by so that overall they ensure that they do not recover more than the 24 hour weighted average price on a per minute basis for each calendar year.
- 4.3.6 The Commission is aware that the operators will need time to adjust their billing systems and deal with any operational requirement. The Commission therefore proposes to set that the effective date for the new prices to be implemented beginning 1 January 2003.

## 4.3.7 The new prices will be as follows:

**Fixed interconnection**

	TRD 006/98 sen per minute, 24H average (estimated average)	MCMC Determination		
		2003	2004	2005
Local call termination	2.00	2.60	2.60	2.60
Local termination	Nil	2.00	1.91	1.82
Single tandem termination /origination	6.60	4.80	3.53	2.60
Double tandem termination / origination	13.80	8.43	6.57	5.12
Double tandem termination / origination with submarine	19.70	19.70	15.38	12.00

## Note:

All figures are 24 hour weighted average in sen per minute and take into account the increase in the cost of capital as presented in the Public Inquiry Report on Cost of Capital. Local call termination only applies for local calls received at transit switch level. Where local calls received at local exchange level, a local termination charge should be applied.

## 4.3.8 The Commission would like to note that:

- (a) the 2003 prices for single tandem and double tandem termination are the 24 hour weighted averages estimated by the Commission based on TMB's compromise proposal for 2003;
- (b) the 2005 prices correspond to Option 3 of the Consultation Paper on Access Pricing and take into account the increase in the cost of capital as presented in the Public Inquiry Report on Cost of Capital;
- (c) the 2004 prices have been calculated as a mid-point of 2003 and 2005 prices (using a Compound Annual Growth Rate (CAGR) consideration); and
- (d) the price for local call termination is identical to the price for single tandem termination in 2005 and has been set to a similar level from 2003 to allow cost recovery.

## 4.3.9 The Commission is of the view that these prices should be revised before the end of 2005.

#### 4.4 Setting Mobile Interconnection Prices: The Way Forward

- 4.4.1 Based on the analysis developed in this Report, and on the comments received from interested parties, the Commission has revised its estimates for mobile interconnection prices.
- 4.4.2 The Commission observes that the new prices mark a significant change from the current (TRD 006/98) prices. The Commission is of the view that a gradual approach should be adopted over a 3-year period of time to facilitate the implementation of the new prices.
- 4.4.3 The Commission is of the view that a single value (the 24 hour weighted average price) should be determined for each interconnection service. In setting its peak/off-peak interconnection prices, each operator will ensure that it does not recover more than the 24 hour weighted average price on a per minute basis for each calendar year. In setting its peak/off-peak interconnection prices, each operator will take into account:
- (a) The breakdown of traffic between peak/off-peak hours for each service
  - (b) The retail gradient used in its retail rate structure (that is, the average difference between peak and off-peak retail rate of mobile calls for the pricing of mobile interconnection).
- 4.4.4 Operators will be allowed to adjust their interconnection prices as the year goes by so that overall they ensure that they do not recover more than the 24 hour weighted average price on a per minute basis for each calendar year.
- 4.4.5 The Commission is aware that the operators will need time to adjust their billing systems and deal with any operational requirement. The Commission therefore sets that the effective date for the new prices to be implemented beginning 1 January 2003.
- 4.4.6 The new rates are as follows:

Sen per minute, 24H weighted average	2003	2004	2005
Fixed to Mobile / Mobile to Mobile (local)	11.26	12.44	13.74
Fixed to Mobile / Mobile to Mobile (long distance)	14.47	15.66	16.95
Fixed to Mobile / Mobile to Mobile (long distance with submarine)	22.52	23.72	24.99

- 4.4.7 The Commission is of the view that these prices should be revised upon its initiative:
- (a) To take into account the consolidation of the industry where merged entities act as a single network for the purpose of interconnection arrangements
  - (b) In any case, before the end of 2005.