Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

PUBLIC INQUIRY PAPER

ACCESS PRICING

2 September 2005

This Public Inquiry Paper was prepared in fulfilment of Section 61 of the Communications and Multimedia Act 1998.

CONTENTS

PREFACE

The Malaysian Communications and Multimedia Commission ("MCMC") invites submissions from members of the public and participants of the industry on the questions and issues raised in this paper concerning the review and expansion of the Access Pricing Determination. Written submissions, in both hard copy and electronic form, should be provided to the MCMC in full by 12 noon, 31 October 2005. The MCMC will not consider any submissions received after the closing date.

Submissions should be addressed to:

The Chairman
Malaysian Communications and Multimedia Commission
63000 Cyberjaya
Selangor

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In the interests of fostering an informed and robust consultative process, the MCMC proposes to make submissions received available to interested parties upon request. Any commercially sensitive information should be provided under a separate cover clearly marked `CONFIDENTIAL'. However, for any party who wishes to make a confidential submission, it would be of assistance if a "public" version of the submission were also provided (if possible).

The MCMC proposes to undertake a public hearing on 3 October 2005 from 9 a.m. to 12.30 p.m. which will be held at the MCMC Auditorium in Cyberjaya. The purpose of the public hearing is to allow members of the public to seek clarification on issues discussed in the Public Inquiry Paper. Members of the public who wish to seek clarification on that date are encouraged to provide written questions to the MCMC in hard copy or electronic form by 12 noon on Monday, 19 September 2005 to the above address or via e-mail to accessprice@cmc.gov.my.

The MCMC would like to thank members of the public in advance for their participation in this consultative process and for providing written submissions.

ABBREVIATIONS

ALD	Commission Determination on Access List, Determination No. 1 of 2005
CCA	Current Cost Accounting
CMA	Communications and Multimedia Act 1998 / Act 588
DNTS	Domestic Network Transmission Service
DPD	Commission Determination on Dominant Position in a Communications Market, Determination No. 2 of 2004
FDC	Fully Distributed Cost
HCA	Historical Cost Accounting
LRIC	Long Run Incremental Cost
LTIE	Long-Term Interests of the End Users
MCMC	Malaysian Communications and Multimedia Commission
MSA	Commission Determination on Mandatory Standard on Access, Determination No. 2 of 2005
MSAP	Commission Determination on the Mandatory Standard Access Pricing, Determination No. 1 of 2003
NERA	National Economic Research Associates
POI	Point of Interconnection
PSTN	Public Switched Telephone Network
TSLRIC	Total Service Long-Run Incremental Cost

1. INTRODUCTION

In February 2005 the Communications and Multimedia Commission ("MCMC") appointed National Economic Research Associates ("NERA") to conduct a costing study to, among others, calculate the Long-Run Incremental Costs ("LRIC") of facilities and services on the Access List in Malaysia.

To conduct this study, an industry Taskforce was formed ("the Taskforce"), comprising of Telekom Malaysia, Maxis, DiGi, Celcom, Time, Redtone, Nasioncom, Jaring, TM Net, TV3, NTV7 and Malaysian Association of Commercial Radio Operators (MACRO). This forum was created to enable the MCMC to explain to the licensees the process the MCMC was embarking on and the data that would be needed as inputs to the cost models. A number of meetings were held to promote and maintain interactive exchange of information between the MCMC and the members of the Taskforce.

The MCMC provided detailed data requests to the licensees and, throughout the process, encouraged them to provide feedback to ensure that national and operator-specific circumstances were fully taken into account.

In addition, the MCMC also provided opportunity for members of the Taskforce to view and provide feedback of the models. Comments received were carefully considered and the models has been amended to reflect these comments, where appropriate.

In this Public Inquiry Paper ("PI paper"), the MCMC details the principles for the application of cost-based access prices, the methodology employed for determining cost-based access prices, the results obtained and implementation issues, thus providing the industry with an opportunity to submit comments as well as opening up the process to a wider audience.

1.1 Role of this Public Inquiry

Section 58(2) (b) of the Communications and Multimedia Act 1998 ("CMA") provides that the Commission may hold a public inquiry if it is satisfied that the matter is of significant interest to either the public or to current or prospective licensees under the CMA.

The objective of this public inquiry is to inform as well as to invite views of the public on the licensees under the CMA on the findings of the abovementioned study.

Recognizing the long-term consequences of access pricing (among which financial implications for firms, impacts on consumers and on incentives to technological innovation), the MCMC is of the view that it is appropriate in the circumstances to hold a

public inquiry under section 58(2) (b) in order to obtain maximum industry and public impact. The MCMC's approach is also designed to promote certainty and transparency in the exercise of its powers.

Under section 61(1) (d) of the CMA, the Public Inquiry period must be a minimum of forty five (45) days, within which public submissions will be invited. In the present Public Inquiry, licensees and the public will be given approximately two (2) months to formulate and submit their views on the matter.

MCMC will take into consideration all submissions received within the Public Inquiry period. The MCMC is required under section 65 of the CMA to publish a report, setting out its findings as a result of any inquiry it conducts and such report must be published within thirty (30) days of the conclusion of the inquiry. The MCMC will summarise the submissions received and publish the same in the report.

The MCMC looks forward to this Public Inquiry process being informed by the full participation of the public and industry.

1.2 Rationale for review

Rapid developments in the communications and multimedia sectors have taken place since the inception of the Commission Determination on Access List, Determination No. 1 of 2001 ("ALD 2001").

Following a review exercise of ALD 2001, the MCMC issued the Commission Determination on Access List, Determination No. 1 of 2005 ("ALD") in June 2005. The ALD included some additional facilities and services and revised the descriptions of some of the facilities and services previously contained in the ALD 2001.

Those rapid developments coupled with the changes to the facilities and services in the ALD generated the need for costing study to be embarked upon on the pricing of the facilities/services in the ALD.

1.3 Public Inquiry description and process

In performing this Public Inquiry, the MCMC will:

(a) Summarize the rationale for using forward-looking Total Service Long-Run Cost (TSLRIC) as the cost standard in access pricing;

(b) Provide an overview of the approach the MCMC has taken in implementing the TSLRIC methodology;

(c) Present the results of the costing models developed with the support of NERA, detailing the impact on costs of different modelling options; and

(d) Discuss the key issues and principles in implementing cost-based access pricing based on the results of TSLRIC models.

1.4 Structure of Public Inquiry Paper

The remainder of this PI paper is structured as follows:

Section 2 provides a summary of access regulation

Section 3 discusses the principles in setting access prices

Section 4 presents TSLRIC for facilities/services over fixed networks

Section 5 presents TSLRIC for facilities/services over IP networks

Section 6 presents TSLRIC for facilities/services over mobile networks

Section 7 presents TSLRIC for access facilities/services over broadcasting networks

Section 8 presents TSLRIC access pricing for other access list facilities/services

Section 9 presents additional issues.

1.5 Issues for Comment

Throughout this PI paper, the MCMC has identified some specific questions and issues relevant to its analysis. The MCMC welcomes comments on these questions and any other related issues that stakeholders wish to raise.

2. ACCESS REGULATION

2.1 Current Access Pricing Determination

Pursuant to the Ministerial Direction to Determine a Mandatory Standard on Access Pricing, Direction No. 1 of 2003, the Commission determined the Commission Determination on the Mandatory Standard on Access Pricing, Determination No. 1 of 2003, ("the MSAP") on 28 June 2003. Currently, the MSAP sets maximum prices for some of the services listed in the ALD 2001 for the years 2003 to 2005. The services are as follows:

(1) Fixed Network Origination Service;

(2) Fixed Network Termination Service;

(3) Mobile Network Origination Service; and

(4) Mobile Network Termination Service.

The MCMC mandated price ceilings for these services after a costing study that was carried out from year 2001 to 2002.

2.2 Recent Developments

This section summarizes in chronological order the major changes which took place in the access regime recently.

Such measures have been introduced in accordance with MCMC's general approach to access regulation, which can be summed up as follows: targeting regulation to upstream markets to achieve the Long-Term Interests of the End Users ("LTIE") — primarily promotion of competition in downstream markets, any-to-any connectivity and economically efficient use of and investment in infrastructure — while limiting intervention to what is strictly necessary to achieve such a goal.

On 22 December 2004 the MCMC issued the Commission Determination on Dominant Position in a Communications Market, Determination No. 2 of 2004 ("DPD"). By applying the hypothetical monopolist test,[1] the MCMC first defined the boundaries of

[1] This test is an iterative procedure which starts from the narrowest possible market (i.e. the narrowest possible set of products/services), and asks if a hypothetical monopolist over that market could increase its profits by implementing a small but significant non-transitory price increase above the competitive level. If the hypothetical monopolist were prevented from imposing a price increase by a readily available alternative (or "substitute"), this product/service is included into the relevant market. The test is then applied again to the wider market including the substitute thus identified. The test is repeated until a set of products/services is

communications markets; it then proceeded to identify operators in such markets who hold a dominant position conducting a thorough analysis of each market, taking into account, among other things, market structure, the nature of competition and barriers to entry. Determination No. 2 of 2004 is going to remain in force for two years.

On 12 June 2005, the MCMC issued the ALD. The MCMC included in the list facilities/services which cannot be reasonably duplicated by a competitor and whose use is essential in order to serve end-users — also termed "bottleneck" facilities/services.

In addition to facilities/services having "bottleneck" characteristics, the MCMC included in the list facilities/services for which it concluded that — even in the absence of bottleneck characteristics it is in the LTIE to include the facilities/services in the ALD.

In this latter case, inclusion in the list has followed the application of a number of analytical techniques to assess whether doing so was in the LTIE, in particular:

(1) a cost/benefit test, to assess whether/to what extent the expected benefits associated to the regulatory proposal outweigh the corresponding costs;

(2) a "with or without test", to assess the social welfare associated with confirming existing regulation with a view to comparing it to the results of the "cost/benefit" test; and

(3) an assessment of technical feasibility to ensure that network architecture and technological maturity are such that the service/facility can be implemented.

The facilities/services included in the new ALD are:

(1) Fixed Network Origination Service;

(2) Equal Access (PSTN) Service;

(3) Fixed Network Termination Service;

(4) Mobile Network Origination Service;

(5) Mobile Network Termination Service;

(6) Interconnect Link Service;

(7) Private Circuit Completion Service;

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reached where such a price increase would indeed be profitable. The smallest set of substitutes thus established is then defined as the relevant market.

(8) Domestic Network Transmission Service;

(9) Internet Access Call Origination Service;

(10) 3G-2G Domestic Inter-Operator Roaming Service;

(11) Inter-Operator Mobile Number Portability Support Services;

(12) Infrastructure Sharing;

(13) Domestic Connectivity to International Services;

(14) Network Co-Location Service;

(15) Network Signalling Service;

(16) Full Access Service;

(17) Line Sharing Service;

(18) Bitstream Services;

(19) Sub-loop Service;

(20) Digital Subscriber Line Resale Service;

(21) Internet Interconnection Service;

(22) Broadcasting Transmission Service; and

(23) Digital Terrestrial Broadcasting Multiplexing Service.

The ALD included some additional facilities and services and revised the descriptions of some of the facilities and services previously contained in the ALD 2001.

The inclusion of new and amended facilities/services in the ALD led the MCMC to issue, on 12 June 2005, the MSA. The MSA includes changes to accommodate, amongst others, the changes to the ALD and modifications to take into account recent developments in the Malaysian communications and multimedia industry.

3. PRINCIPLES IN SETTING ACCESS PRICES

In March 2001, the MCMC issued the Statement on Access Pricing Principles which stated that cost-based access prices should be applied to all well-established interconnection services where that interconnection requires the use of bottleneck facilities. Conversely, if the facilities required for interconnection are not a bottleneck then the interconnection should not be subject to cost-based pricing for any service.

In July 2003, the MCMC issued the MSAP, followed by the issuance of the Guideline on Implementation of the Commission Determination on Mandatory Standard on Access Pricing (guideline on MSAP) in September 2003. The guideline on MSAP states that the Statement on Access Pricing Principles is no longer applicable.

The MCMC intends to use the present Public Inquiry to seek views on:

(1) the need to develop a document such as the Statement on Access Pricing Principles for the determination of access prices; and

(2) the content of such document.

Question 1: The MCMC seeks comments on the need to develop a document such as the Statement on Access Pricing Principles for the determination of access prices and the content of such document.

3.1 Criteria for regulatory intervention of access prices

The inclusion of facilities and services in the ALD does not mean necessarily that detailed access pricing regulation is in the LTIE for every facility/service. In fact, the access regime under the CMA envisages that the terms and conditions of access will, in the first instance, be a matter for commercial negotiations between the Access Provider and the Access Seeker. The MCMC reiterates that, as broad principle, it endorses light-handed regulation. Regulatory intervention in access prices was limited to four services in the ALD 2001 for the period 2003 to 2005.

In light of the development in the access regime outlined in section 2 above, the MCMC is considering whether there is a need for regulatory intervention on access pricing from year 2006 onwards. In deciding whether to impose cost-based access regulation, the MCMC proposes to apply the following cumulative criteria.

First, it is important to establish whether there are high and permanent barriers to entry in the market for the provision of the given access facility/service. This is naturally the case for bottleneck facilities; however high entry barriers can be present even when bottleneck characteristics are not, as it is the case for some services using radio spectrum or other scarce resources as premium site locations.

Second, even in the presence of high entry barriers, market interaction among existing rivals might ensure that the market will over time tend toward effective competition. This requires a detailed analysis of technical characteristics and foreseeable technological advances, behavioural aspects and established market arrangements to ensure that there are no enduring market failures preventing the market to rapidly move toward socially desirable equilibrium. The communications and multimedia industry features some special characteristics — in particular high sunk costs, the need for interconnection among competing networks and the standard retail pricing arrangements (including bundled offer and the Calling Party Pays principle) — which are likely to call for some regulatory intervention.

Question 2: The MCMC seeks comments on the proposed criteria for regulatory intervention on access pricing and whether there are any other criteria that should be considered.

3.2 LRIC versus FDC

The two major alternative approaches used in network industries to set access charges for regulated wholesale facilities/services are the "top-down" Fully Distributed Cost ("FDC") approach and the "bottom-up" LRIC approach.

The FDC approach uses management and accounting records about actual costs incurred by the existing network operators. Starting from the sum of all costs as reported in the statutory accounts (including overheads and common costs), FDC attributes accounting costs to progressively more narrowly defined services according to mechanical allocation rules capturing the underlying cost causation link (costs are caused by service provision).

The main benefit of FDC is that it allows the Access Provider to recover its investments and operating costs, thus breaking even. However, when the implementation of FDC approach was based on Historical Cost Accounting (HCA) — as it has been the case when it was first introduced in many countries — Access Providers have more often than not

been able not just to break-even, but to earn sizeable margin on access facilities/services.

In many cases this has happened because "top-down" cost estimates were based on the historical gross book values (and hence net book values) of long lived assets which, because of inflation, bore little relationship to the true values of the assets concerned.

This problem can be eliminated by valuing capital equipment on a Current Cost Accounting (CCA) basis. In other words, the gross book value of equipment is substituted with the gross replacement cost, i.e. what it would cost to purchase and install the equipment today.

A "top-down" CCA FDC approach, although an improvement over HCA, retains some shortcomings, namely:

- the very high level of detail of the data on which the costing exercise is premised makes it very difficult to identify and measure in a non-arbitrary way the causation process in the business, which can lead to misleading attribution of costs;
- while a fundamental tenet of economics is that the best use of scarce resources occurs when the price of a service reflects the additional cost needed to produce it, to the extent that FDC allocates to the service provided common costs that are not "incremental" to the service provision, it leads to prices which are inconsistent with optimal resource allocation;
- being based on costs incurred by an existing network, the resulting costs embody the production choices (about the installation and operation of network elements) which are not necessarily the most efficient ones;
- the method is prone to be manipulated since it relies on cost and network data for which there exists an information gap between the regulator and the regulated operator in favour of the latter.

Such shortcomings may be lessened by adopting a "bottom-up" LRIC approach.

"Bottom-up" cost modelling, involves the construction of an engineering model of a communications network, as a new entrant would do — using the best technology available and taking into account industry developments in the foreseeable future.

The cost associated with the provision of a large increment of output produced using the newly-designed network is then computed. When the large increment of output is set equal to the entire amount of output demanded, the corresponding per-unit (i.e. average) cost is often referred to as the TSLRIC.

The TSLRIC approach overcomes the problems associated with FDC, as long as it embodies realistic assumptions about the level of efficiency attainable by the

hypothetical network operator, and it takes into account the constraints of existing network topology (i.e. location of switches), local penetration levels (number of access lines per hundred inhabitants) and local usage patterns (volume of calls). Taking into account local industry characteristics plays a critical role in the development of an accurate LRIC model. For instance, relying solely on benchmark information from developed countries with markedly higher penetration levels as compared to those achievable in a less developed country might lead to unreasonably low cost estimates for a network located in this latter (which would discourage expenditure in network maintenance and expansion).

The MCMC, acknowledging the importance of reflecting local factors in the LRIC model so that cost estimates can be fully consistent with public policy goals, has taken all the necessary steps to ensure participation by local operators. Publicly available information from other regulatory bodies such as FCC has been considered to conduct sensitivity analysis for comparative purposes. On the other hand, the MCMC believes that there exist no specific local circumstances which would make the LRIC approach unsuitable per se for Malaysia.

The main shortcoming of the LRIC approach is that, to the extent that it does not allow Access Providers to earn sizeable margin from provision of wholesale access services, not only it may discourage investment in infrastructure and facilities-based entry, it could also create incentives for Access Providers to distort downstream competition in order to recoup their access costs by discriminating in favour of their retail divisions and against downstream competitors that are not fully facilities-based.

3.3 Use of LRIC in the Malaysian context

The MCMC is fully aware of the fact that the LRIC methodology is an approach commonly employed in developed countries which only recently regulators have started to use in developing countries.

Recognizing that there are crucial differences in network facilities/services provision between developed and developing countries, the MCMC took every step necessary to ensure that LRIC model building reflected local characteristics.

In particular, as evidenced in the previous sections, the MCMC has, whenever possible, based model construction on information gathered from local stakeholders, appropriately checked to ensure that no distortion in cost LRIC estimates (either exceedingly low or exceedingly high charges) could result from unrealistic model assumptions. International benchmarks have been considered for comparative purposes and have not been indiscriminately used to fill any modelling gap.

Moreover, LRIC modelling has fully taken into account the circumstance that level of penetration of fixed network is somewhat lower as compared to developed countries, thus leading to sizable cost differences which can be explained and allowed on economic efficiency grounds.

LRIC modelling has also acknowledged the circumstances that in the developing countries network provision requires more new network deployment as compared to developed countries, where the focus is more towards network maintenance. Development of Malaysian-specific cost of capital and proper use of Taskforce information regarding foreseeable network expansion costs and usage/penetration levels ensure that LRIC cost estimates do not unfairly burden/favour either side (Access Seekers or Access Providers) of the wholesale access market.

To sum up, the MCMC concludes that there are no reasons not to employ LRIC methodology in developing countries, given the fact that every step was effectively taken to ensure that LRIC values are consistent with the most appropriate economic efficiency and economic incentives in the Malaysian context.

Question 3: The MCMC seeks comments on its views regarding the suitability of LRIC methodology in the Malaysian context.

3.4 Criteria for adopting costing methodology

The MCMC recognizes that access pricing plays a critical role in the development of the industry, and more often than not, a case-by-case forward-looking analysis of all factors and issues relating to specific access service/facilities is required. This might reduce the usefulness of general guidelines for access pricing determination.

On the other hand, the discussion of the pros and cons of FDC and LRIC methodologies has highlighted the circumstances in which the strengths of a given methodology can be relied upon to outweigh its weaknesses, thus indicating towards which end of the range access pricing should gravitate. In particular:

(1) for well-established facilities/services with bottleneck characteristics, where competitive entry can be ruled out because of their natural monopoly characteristics LRIC might appear to be the methodology more in line with the LTIE as compared to FDC; and

(2) for innovative facilities/services without bottleneck characteristics, implementation of TSLRIC access pricing might not only have some drawbacks as regards the encouragement of investment and the maintenance of a level playing-field in downstream markets[2] but it can also be quite difficult to implement given the degree of uncertainty about network technology requirements and demand level for new services. In fact, uncertainties about future developments, both on the demand and the supply side, inevitably increase the variance of LRIC estimates, making their adoption more problematic as this may send distorted price signals to the market. Innovative services often need new investment, which call for reasonably high margins over costs to fairly remunerate the investors' risk-taking. In such circumstances, adjustment to LRIC pricing approach or recourse to other approaches may be justified to encourage investment and promote LTIE. The MCMC observes that extreme care should be taken in estimating LRIC for innovative services.

To sum up, the MCMC proposes to take the view that, in general, the benefits of using forward-looking costing approach outweighs the corresponding costs, even though the MCMC acknowledges that LRIC modelling is sometimes quite complex.

In addition, the MCMC recognizes that for facilities/services gravitating closer to innovative services described above, the LRIC pricing approach may need to be adjusted to ensure consistency with the LTIE. In these cases, the MCMC may adopt gliding paths that eventually converge towards LRIC. In fact, to the extent that such schemes encourage the Access Providers to supply the facilities/services in question, they can adjust towards LRIC pricing within a timeframe, while encouraging further infrastructure investment. In time, access pricing can be made to more closely approximate LRIC in a way that suitably accommodates market developments and does not jeopardize the financial viability of Access Seekers and Access Providers.

[2] As opposed to the case where access price covers only incremental costs, when the Access Provider can earn money from provision of access, it has much less incentive to favour its downstream division to the detriment of others Access Seekers to capture a larger share of the potentially competitive downstream markets.

Question 4: The MCMC seeks comments on the following:

(a) criteria for adopting LRIC pricing for well established and bottleneck facilities/ services; and

(b) whether there are other criteria that the MCMC should consider when applying LRIC.

3.5 Practical implementation of LRIC costing model

This section presents an overview of the general approach the MCMC has taken when modelling LRIC for all the facilities/service in the ALD. An overview of the options considered when building the LRIC model which are relevant only to subsets of services (e.g., impact of spectrum usage for mobile services, volume changes for fixed network voice services) are discussed later in the PI paper , in the sections dealing specifically with each subset of facilities/services.

First, the MCMC has defined the increment to be considered in determining the LRIC as the total facilities/services under consideration. By dividing the LRIC, thus determined by the amount of service provided (e.g., numbers of minute, number of lines, etc), the MCMC has determined what can be referred to as TSLRIC.

This approach, which is consistent with the approaches widely used in other jurisdictions such as Europe, North America and Asia, ensures that unit charges reflect the average resources absorbed to produce them (rather than only the resources needed to produce part of them, as it would be the case if the increment were determined as a fraction of the total output supplied), thus ensuring a level playing field in the downstream market.

Question 5: The MCMC seeks comments on the total facilities/ services being the increment to be considered in determining LRIC.

Second, the MCMC has adopted "scorched node" or a "modified scorched node" approach instead of "scorched earth" approach. In the "scorched-earth" approach, the designer of efficient network can pick number and location of nodes with a view to minimizing the associated TSLRIC.

On the other hand, a "scorched-node" approach to building an efficient network takes the number and location of nodes of existing networks as a given, and then uses best available technologies to equip and connect them. In a "modified scorched node" approach, the model starts from the existing network configuration and modifies it by changing the number and/or nature of some nodes in order to achieve a more efficiently configured and sized network from a forward-looking point of view.

The MCMC considers it appropriate that TSLRIC charges should closely reflect the topology of existing networks when they do not feature any obvious design inefficiencies. A "scorched earth" approach may ultimately lead to unreasonable burden to the existing operators in that it requires them to achieve unattainable (at least in the short-medium term) cost-efficiencies associated with major re-location of network components.

As far as fixed networks and broadcasting networks are concerned, a "scorched node" approach appears to be the most practical and reasonable method to build a TSLRIC model. In fact, developing or even modifying existing ubiquitous and un-duplicable networks in order to optimize them is a major task, with no unique and unambiguous solution. Moreover, even if such a solution existed, it is not necessarily reasonable to assume that network structure can be significantly reorganized in the near future.

On the other hand, as far as mobile networks are concerned, the MCMC observes that the use of a "scorched node" approach for mobile is not as straightforward as for other network access facilities/services. Currently, there are three licensees providing public cellular service, each developing their own networks independently. Consequently, as opposed to fixed network, there is no existing mobile network that could be considered representative. This raises a question of the appropriate network size to be modelled.

Naturally, each licensee providing public cellular service has a different network size which depends, to a great extent, on its own business decisions. As far as mobile networks are concerned, a "modified scorched node" approach which takes into account the expected market share of each licensee.

Question 6: The MCMC seeks comments on its preliminary view that TSLRIC calculation should be based on a "scorched node" approach for fixed and broadcasting access facilities/ services on a "modified scorched node" approach as far as mobile access facilities/ services are concerned.

Third, in developing the TSLRIC model, the MCMC has retained the network component based approach. This approach has been adopted in recognition of the fact that the costs imposed on the network by different forms of usage are strictly related to the components utilised by each service. A network component based approach takes advantage of this characteristic of the communications production technology to ensure that Access Seekers are charged for the cost incurred by the Access Provider for the services consumed. The linkage between component costs and service costs is provided by so-called "routing factors", which specify the average number of units of each network component used by a particular type of service. Routing factors can often be computed by logical deduction;[3] otherwise routing factors can be estimated from traffic samples.

Another advantage of a network component based approach is its practicality since component costs are relatively easy to identify in a "bottom-up" model.

Question 7: The MCMC seeks comments on its preliminary view that TSLRIC calculation should be based on a *network component based* approach.

Fourth, the MCMC also takes into consideration the treatment of fixed, (shared or common) and indirect costs. For a new service TSLRIC measures the increase in costs causally associated with the supply of the new service at the full volume of its likely demand. For an existing service, TSLRIC measures the decrease in costs associated with discontinuing supply of the service in its entirety. Under TSLRIC approach, fixed costs (i.e. costs that do not vary with output) that are specific to the service being considered are included in the definition of costs. There are, however, three other types of cost that are also relevant to access prices:

(1) shared fixed costs: fixed costs associated with the supply of a group of services comprising more than one, but less than all, of a firm's services;

(2) common fixed costs: fixed costs that are shared by all services produced by the firm;

(3) indirect costs: costs such as human resources, accounting services, executive functions and non-network buildings which can in principle be split into a part that is common to all facilities/services and a part that is incremental to different facilities/services offered by the Access Provider.

[3] For instance, in the case of a call to a mobile phone, the routing factor for the use of the link from the BSC and the BTS will invariably be 1.00.

In principle, applying "pure" TSLRIC approach would imply that fixed shared and common costs (these latter include all indirect costs) should not be included to estimate access pricing for facilities/services. However, to ensure adequate cost recovery the MCMC has applied a uniform mark up based on international benchmarks to "pure" TSLRIC rates. It is deemed to be the most practical and direct approach to achieve overall cost recovery.

The MCMC's TSLRIC model uses actual operators' data to estimate indirect costs (details are given in the following sections). However, available information is not sufficient to distinguish between indirect costs that can be attributed and those that are genuinely common. As a consequence, the whole amount of estimated indirect costs is assumed to common to all facilities/services.

This approach involves determining first which common costs should be recovered via wholesale access prices and then calculating their value. In particular, common cost bearing no direct or indirect relationship with the provision of access services (such as common retail costs) are excluded. The ratio between allowed (network) common costs and total network costs yields the common mark-up to be applied uniformly across LRIC of all facilities/services (in particular, the common cost mark-up value employed for fixed networks is between 4 and 5%).

Alternative approaches for the allocation of common costs, such as investigating demand elasticities and using Ramsey pricing, are relatively complex (and require detailed information on demand) and have not been considered.

Question 8: The MCMC seeks comments on its preliminary view regarding the treatment of shared fixed costs, common fixed costs and indirect costs.

Fifth, the MCMC recognizes that costs of facilities/services may differ from one geographic area to the other. However, having considered the development of the communications and multimedia industry in Malaysia and taking into account not only the difficulties in estimating location-specific costs but also the pros and cons of correspondingly differentiated access pricing, MCMC has geographically averaged the TSLRIC rates (where applicable).

Question 9: The MCMC seeks comments on its preliminary view that TSLRIC rates should be geographically averaged.

Sixth, the MCMC considers that depreciation costs in the TSLRIC should reflect as closely as possible the economic rather than accounting depreciation. Economic depreciation can be defined as the period-by-period change in the market value of an asset, where the latter is equal to the present value of the revenues (net of all other costs) the asset can be expected to generate over the rest of its useful life. As compared to accounting depreciation, which merely distributes the historical cost of the asset over its useful life, economic depreciation ensures efficient allocation of resources since it entails not only a distribution but also a valuation process.

However, the MCMC recognises that, although theoretically appealing, practical implementation of economic depreciation might be challenging. Pragmatic solution may be based on modifications or adoption of accounting depreciation schemes. The depreciation approach adopted for the Costing Study in 2001 was based on the tilted straight-line method, which modifies the straight-line accounting approach to take into account changes in asset prices and to ensure asset cost recovery.

The MCMC's preliminary view is that the tilted straight-line method continues to represent the best approximation of economic depreciation for the Malaysian communications and multimedia industry while still being a pragmatic methodology. However, the MCMC deems it useful to consider other profiles in TSLRIC modelling; with a view to comparing the associated results to those obtained using the tilted straight-line method. The MCMC proposes to consider the following depreciation profiles for sensitivity analysis:

(1) straight line with no price change;

(2) annuity without price change;

(3) annuity with price changes; and

(4) sum of digits.

Question 10: The MCMC seeks comments on its preliminary view to use tilted straight line depreciation method.

4. TSLRIC FOR FACILITIES/ SERVICES OVER FIXED NETWORKS

4.1 Model Description and Run Options

This section provides a general overview of the modelling alternatives the MCMC has considering in computing TSLRIC of access service/facilities provided over fixed networks in Malaysia, that is:

(1) Fixed Network Origination/Termination Service;
(2) Equal Access (PSTN) Service;
(3) Interconnect Link Service;
(4) Private Circuit Completion Service;
(5) Domestic Network Transmission;
(6) Internet Access Call Origination Service;
(7) Domestic Connectivity to International Services;
(8) Network Co-Location Service;
(9) Full Access Service;
(10) Line Sharing Service;
(11) Bitstream Services;
(12) Sub-loop Service; and
(13) Digital Subscriber Line Resale Service.

In the model, network capital assets are remunerated by applying a rate of return calculated using the Weighted Average Cost of Capital (WACC) methodology. The WACC methodology is premised on the fact that firms use both debt and equity to finance the purchase The cost of equity is calculated using the Capital Asset Pricing Model (CAPM) which is the most widely used model for the calculation of the cost of equity in regulated industries both by regulators and practitioners.

Applying the WACC methodology (following the same guidelines that led to the current MSAP) to the Malaysian fixed network services yielded a nominal pre-tax WACC of 11.15%.

This figure has been derived assuming a 24% gearing ratio (the ratio D/ (D+E) where D denotes debt, E denote equity) and a corporate tax rate of 28%.

The risk-free interest rate has been set equal to 3.66%. The best estimate for asset (unlevered) beta is 0.69, which corresponds to a 0.91 value for the equity (levered) beta used to compute the WACC. Equity risk premium has been estimated to be equal to 6.7%.

The nominal cost of debt in the fixed network services has been determined to be equal to 5.02%.

Question 11: The MCMC seek comments on the WACC for fixed network and whether the parameters used to compute it are reasonable in the Malaysian context.

The TSLRIC model for facilities/services provided over fixed networks contains three options that correspond to different sets of input assumptions. The descriptions of the three options are then followed by individual presentations and discussions of the results for each of the facilities/services listed above. Each sub-section will contain:

(1) a detailed description of the service;

(2) a discussion of the LRIC results; and

(3) the MCMC's preliminary views.

4.2 The need for Options

The MCMC has collected information about individual network components currently used by Malaysian operators and the corresponding current prices for newly deployed, modern assets. Malaysian operators were asked to provide their best estimates of operating expenses associated with each network asset.

In principle, market prices a new entrant would need to pay to acquire the modern equivalent variety of any given individual network component should be easy to evaluate. In practice, this is often not the case, given the presence of bundled offers, volumes discounts and other forms of non-transparent pricing. Under these circumstances, it can be quite difficult to determine to what extent the prices charged by the Access Providers realistically represent the prevailing charges. Whenever large discrepancies were recorded between reported purchase prices and publicly available price lists, entries in the LRIC model were adjusted accordingly.

Estimation of the efficiently-incurred operating expenses (opex) associated with use of any individual given assets is naturally quite difficult. This is due to the fact that such expenses are quite sensitive to random occurrences. Furthermore, operating expenses are incurred with respect to pools of assets and therefore difficult to causally link to a single network component. It is thus not surprising that operating expenses reported by Malaysian operators may differ quite markedly. For instance, the upper bound for switching elements in 2005 Malaysian operating expenses was 160% higher than the lower bound (and such lower bound was itself more than double the value used in the 2001 LRIC exercise).

Therefore, international benchmarks on operating expenses were used to approximate the element-by-element operating expenses of an efficient operator used in the LRIC model. This was done by taking into account that Malaysian companies cannot be reasonably expected to attain the same level of low operating expenses achieved by networks operating in more advanced economies (where operating expenses services are more readily available at competitive prices). In particular, the LRIC model was also run setting operating expenses figures to the mid-point lying between pure Taskforce data values and FCC operating expenses values.

As far as the mobile LRIC model is concerned, given the unavailability of FCC benchmark data, the MCMC approximated the operating expenses of an efficient mobile operator using the figure electronic equipment vendors usually charge for maintenance and management, that is 10% of capital expenditure.

In conclusion, given the concerns described above, the MCMC considered it useful to consider three different model run options.

4.2.1 Option 1 – Pure Taskforce

Option 1 produces LRIC results which are determined by operating cost factors declared by the Taskforce, and therefore reflecting the Malaysian context.

4.2.2 Option 2 - Mid-point between Taskforce -FCC

Option 2 results in LRIC charges determined with mid-point FCC-Malaysian operating cost factors.

The rationale behind the implementation of LRIC models requires that operating costs are those incurred by an efficient operator using best available technology. To allow for the possibility that Taskforce operating and indirect cost information does not represent efficient operating costs even in the Malaysian context, the MCMC has presented results using a mid-point.

Under Option 2, the model run is the same as Option 1 except for the following:

- direct operating cost factors are estimated using the mid-point percentage value between Taskforce and FCC international benchmarks; and
- indirect cost factors are estimated using the mid-point percentage value, between Taskforce and FCC international benchmarks.

4.2.3 Option 3 – Comparison with the 2001 Cost Model

This model run is the same as Option 2 except that direct and indirect operating cost factors are set equal to the values used to derive TSLRIC levels in the 2001 LRIC models developed by the MCMC.

The MCMC, recognising that LRIC modelling should take into account the specific circumstances surrounding the provision of network facilities/services in Malaysia, expresses its preliminary view that, in principle, the most appropriate data to use in the bottom up cost models should be the Taskforce data reflecting efficient capital and operating costs in the Malaysian context. These fulfil the requirements for setting the LRIC rates for facilities/services in Malaysia. However, for comparative purposes the results of other model run have been presented.

Question 12: The MCMC seeks comments on its preliminary view to adopt Option 1 as the basis for access prices.

4.3 Fixed Network Origination/ Termination Services

A Fixed Network Origination Service is an Interconnection Service provided by means of a Fixed Network for the carriage of Call Communications from customer equipment to a Point of Interconnection (POI). The service comprises transmission and switching (whether packet or circuit) for Fixed Network-to-Fixed Network, Fixed Network-to-Mobile Network and Fixed Network-to-international outgoing calls insofar as they relate to freephone 1800 number services, toll free 1300 number services, and other similar services which require Any-to-Any Connectivity.

Fixed Network Termination Service is an Interconnection Service provided by means of a Fixed Network for the carriage of Call Communications from a POI to customer equipment. The service comprises transmission and switching (whether packet or circuit) for Fixed Network-to-Fixed Network, Mobile Network-to-Fixed Network and incoming international-to-Fixed Network calls and messages.

Both services include the following functionalities:

(1) switching (whether packet or circuit); and
(2) the signalling required to support the Interconnection Service.

4.3.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.1 Fixed Origination/ Termination LRIC model runs for 2006
(Sen per minute)

	Option 1 Pure Taskforce	Option 2 Mid point Taskforce -FCC	Option 3 2001 model assumptions
Local	2.9562	2.4879	2.4120
Single-Tandem	6.6342	5.4937	3.4111
Double Tandem	10.4441	8.5914	6.1128
Double Tandem with Submarine cable	24.8937	21.1907	17.8921

Source: NERA

Table 4.2 Fixed Origination/ Termination Prices from 2006 to 2008
(Sen per minute)

	2006	Percentage of change compared to 2006	
		2007	2008
Local	2.9562	-10.82%	-14.54%
Single-Tandem	6.6342	-6.65%	-8.16%
Double Tandem	10.4441	-5.38%	-6.11%
Double Tandem with Submarine cable	24.8937	-0.40%	+1.17%

Source: NERA

Table 4.3 SMS Termination LRIC model runs for 2006

(Sen per SMS)

Option 1 Pure Taskforce	Option 2 Mid way Taskforce -FCC	Option 3 2001 model assumptions
58.5043	49.3925	n/a

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.3.2 The MCMC's preliminary views

The MCMC deems that fixed origination and termination services are well-established bottleneck services. These services are provided over facilities which cannot be economically duplicated, and represent crucial inputs to a variety of retail services final users have enjoyed for a long time. Given existing technology and widely used pricing schemes (the so called Caller-Party-Pays principle), for these services there currently are only weak substitutes, if at all.

As a consequence, the MCMC considers that any divergence in prices of fixed originating and terminating services from the underlying long-run production costs would not be in the interests of end-users. Any such discrepancy would add to the production costs of suppliers of downstream services which compete with the vertically-integrated operators owners of bottleneck facilities and would thereby reduce the effective competition in downstream markets for well-established services.

In conclusion, the MCMC's preliminary views are that LRIC approach is the most appropriate for fixed origination/termination services. In addition, the MCMC is also of the view that the Taskforce data represents the efficient operators' costs in Malaysia hence; Option 1 is the most appropriate basis for access pricing.

Application of Criteria

Fixed Network Origination/Termination		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 13: The MCMC seeks comments on its preliminary view as to whether LRIC approach should be adopted and option 1 is the most appropriate model run for setting access prices for fixed origination/termination services.

4.3.3 Sensitivity analysis

Using the Option identified in the previous section as a base, it is clearly of interest to understand how sensitive the model results are to various input assumptions and a range of sensitivities has been carried out, the results of which are reported in this Section.

The following sensitivities have been considered:

- Change of cost of capital by ± 1 percentage point;
- Use of different depreciation profiles; and
- Varying the expected level of traffic.

The effect of altering the cost of capital by ± 1 percentage point is shown in Table 4.4.

Table 4.4 Fixed Origination/ Termination -Cost of Capital Sensitivity for 2006

	Base Run (Option 1 Pure Taskforce)	Increase CoC by 1%	Decrease CoC by 1%
Local	2.9562	+2.64%	-2.64%
Single-Tandem	6.6342	+3.42%	-3.42%
Double Tandem	10.4441	+3.64%	-3.64%
Double Tandem with Submarine cable	24.8937	+4.48%	-4.48%
SMS termination	58.5043	+2.54%	-2.54%

Source: NERA

The effect of adopting a depreciation method different from tilted straight-line is shown in Table 4.5. The results are quite sensitive to changes in the depreciation profile. Profiles with accelerated depreciation lead to results up to around 30% higher than the base run.

Table 4.5 Fixed Origination/ Termination - Depreciation Sensitivity for 2006

	Base Run	Straight line - no price change	Annuity - no price change	Annuity with price change	Sum of Digits
Local	2.9562	-10.20%	-18.67%	-12.49%	9.59%
Single-Tandem	6.6342	-3.47%	-14.00%	-12.34%	17.18%
Double Tandem	10.4441	-1.17%	-12.26%	-12.15%	19.57%
Double Tandem with Submarine cable	24.8937	+5.72%	-7.82%	-12.39%	28.59%
SMS termination	58.5043	-11.29%	-19.51%	-12.62%	8.58%

Source: NERA

The base run uses estimated volumes for 2006. Table 4.6 presents the results under two alternative scenarios:

(1) Increase traffic volumes by 10% compared to the base run; and

(2) Reduce traffic volumes by 10% compared to the base run.

Table 4.6 Fixed Origination/ Termination - Volume Change Sensitivity for 2006

	Base Run	Increase volumes by 10%	Reduce volumes by 10%
Local	2.9562	-8.70%	+10.61%
Single-Tandem	6.6342	-8.47%	+10.35%
Double Tandem	10.4441	-8.46%	+10.34%
Double Tandem with Submarine cable	24.8937	-8.84%	+10.80%
SMS termination	58.5043	-9.10%	+11.13%

Source: NERA

4.4 Equal Access (PSTN) Service

The Equal Access (PSTN) Service is an Interconnection Service provided by means of a PSTN for the carriage of Call Communications from customer equipment to a POI which allows an end user to select and use the services of the Access Seeker. The service is only required to be provided on a call-by-call basis, and comprises transmission and switching for PSTN-to-PSTN network calls (including Centrex services) and PSTN-to-international outgoing calls only.

The service includes the following functionalities:

(1) circuit switching; and

(2) the signalling required to support the Interconnection Service.

4.4.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.7 Equal Access (PSTN) LRIC model runs for 2006
(Sen per minute)

	Option 1 Pure Taskforce	Option 2 Mid way Taskforce - FCC	Option 3 2001 model assumptions
Single-Tandem	6.6313	5.4913	3.7761
Double Tandem	10.4603	8.6048	6.8441
Double Tandem with Submarine cable	26.5529	22.5933	19.5686

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.4.2 The MCMC's preliminary views

While the MCMC acknowledges that there is a limited take-up of Equal Access (PSTN) service in Malaysia and the advent of other access options such as VoIP, the MCMC does not believe that such evidence is enough to conclude irrefutably that the Equal Access (PSTN) service does not have bottleneck characteristics.

Moreover, the importance of retaining end-user choice further reinforces the inclusion of Equal Access among the regulated services as being in the LTIE.

This service uses the same network elements and in the same proportions as fixed origination services. The MCMC concludes that the same approach adopted for Fixed Origination services (that is, LRIC pricing based on Option 1, see 4.3) should be adopted for the Equal Access (PSTN) service.

Application of Criteria

Equal Access (PSTN) Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 14: The MCMC seeks comments on its preliminary view as to whether the LRIC approach should be adopted and option 1 is the most appropriate model run for setting access prices for Equal Access (PSTN) service.

4.5 Interconnect Link Service

An Interconnect Link Service is a Facility and/or Service which enables the physical connection between the network of an Access Provider and the network of an Access Seeker for the purpose of providing an Interconnection Service.

4.5.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.8 Interconnection Link LRIC model runs for 2006

(Annual cost, RM per 1 fibre cable/km)

Option 1 Pure Taskforce	Option 2 Mid way Taskforce -FCC	Option 3 2001 model assumptions
652	532	714

Source: NERA

(Annual cost, RM per 1 copper cable/km)

Taskforce	Mid way Taskforce -FCC	2001 model assumptions
485	406	n/a

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.5.2 The MCMC's preliminary views

In general, the MCMC observes that although interconnection may require access to a bottleneck facility, the former should not be confused with the latter. Access regulation is in fact principally justified by the need to ensure any-to-any connectivity on fair terms to enable society to fully reap the gains from competition and network externalities, that is on grounds other than substantial market power due to control of bottleneck facilities.

After reviewing market conditions surrounding the provision of interconnection services between established and newly built fixed networks in Malaysia, the MCMC observed that the practice of bundling co-location services and interconnection link services (this latter being the physical network connection itself) may give rise to abuses and cross-subsidisation. The MCMC thus concluded that having separate regulated terms for both co-location on one hand and physical links between the interconnecting networks on the other was in the LTIE since this would facilitate the provision of the latter service on reasonable terms and conditions.

Application of Criteria

Interconnect Link Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	N
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 15: The MCMC seeks comments on its preliminary views as to whether access prices should be an intermediate position between LRIC and FDC for the Interconnection Link service.

4.6 Private Circuit Completion Service

A Private Circuit Completion Service (PCCS) is an Interconnection Service for the carriage of communications by way of a private circuit between a POI and an end user, available only at one end of a private circuit. The end user includes a wholesale or retail customer and includes an Operator and the final recipient of the service.

The service includes the following functionalities:

(1) switching (whether packet or circuit); and
(2) the signalling required to support the Interconnection Service.

4.6.1 Initial model results

TSLRIC model results for each option are as follows (figures reported refer to 2006):

Table 4.9 PCCS LRIC model runs

(RM)

	Option 1 Pure Taskforce	Option 2 Mid way Taskforce - FCC	Option 3 2001 model assumptions
64 kbps			
One-off Installation charge	184	168	151
Annual port cost (per end)	2,862	2,388	1,305
Annual tail segment cost (per Km)	652	532	453
Annual trunk segment cost (per Km)	143	118	64
2 Mbits			
One-off Installation charge	184	168	151
Annual port cost (per end)	1,911	1,542	783
Annual tail segment cost (per Km)	652	532	557
Annual trunk segment cost (per Km)	4,281	3,551	1,934
34 Mbits			
One-off Installation charge	184	168	151
Annual port cost (per end)	14,266	11,509	11,661
Annual tail segment cost (per Km)	652	532	557
Annual trunk segment cost (per Km)	68,495	56,823	30,944
155 Mbits			
One-off Installation charge	184	168	151
Annual port cost (per end)	43,432	35,037	40,907
Annual tail segment cost (per Km)	652	532	557
Annual trunk segment cost (per Km)	269,697	223,740	121,840

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%;
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices;

4.6.2 The MCMC's preliminary views

The provision of analogue PCCS requires access to the local copper network which is a bottleneck facility. As a consequence, the MCMC's preliminary view is that pricing for analogue PCCS services should be based on LRIC estimates.

With regard to higher-bandwidth digital services, the MCMC considers that, although the incumbent operator retains enough bottleneck power in last mile infrastructure to justify intervention, regulation should be carefully designed not to crowd-out emerging facilities-based competition in the market for PCCS. In order to achieve such goal, the MCMC has also decided to refrain from regulatory intervention to facilitate pure resale competition in PCCS.

The MCMC's preliminary view is to base access prices for digital PCCS services to gravitate towards FDC.

Application of Criteria

PCCS Analogue and Digital			
Issue	Criteria	Preliminary View	
		Analogue	Digital
Need for regulatory intervention for access pricing	High barriers	Y	Y
	Trend towards competition	N	N
Preliminary Position		Y	Y
Choice of cost base	Established	Y	Y
	Bottleneck	Y	N
Preliminary Position		L	LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 16: The MCMC seeks comments on its preliminary views that access prices should be based on LRIC for analogue PCCS and gravitate towards FDC for digital PCCS.

4.7 Domestic Network Transmission Service

A Domestic Network Transmission Service (DNTS) is a Facility and/or Service for the carriage of communications between transmission points (not being Customer transmission points) via network interfaces at such transmission rates as may be agreed between the Access Provider and the Access Seeker on a permanent basis.

The Domestic Network Transmission Service transmission points are:

(1) any technically feasible network transmission points;

(2) submarine cable and satellite links between a transmission point in Sabah and Sarawak, and a transmission point in Peninsular Malaysia.

The DNTS network interfaces include elements such as copper wire, microwave, laser, fibre optic, satellite or other wireless technologies.

An Access Seeker for the DNTS includes (but is not limited to) a network facilities provider or network services provider which is only authorised to provide limited (e.g. in the last mile) network facilities or network services, but wishes to acquire the DNTS in order to connect its limited network facilities or network services.

The service includes the following functionalities:

(1) switching (whether packet or circuit);
(2) signalling required to support the technology or to provide a service;
(3) termination at either end by a port, router, network termination unit, switch or earth station;
(4) a digital protocol.

The DNTS is a leased line service which differs from the PCCS, another leased line services, because it is an inter-exchange leased circuit service (that is, a trunk service) as opposed to a tail circuit service.

4.7.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.10 DNTS LRIC model runs for 2006
(Annual RM per km of circuit)

	Option 1 Pure Taskforce	Option 2 Mid way Taskforce - FCC	Option 3 2001 model assumptions
64 kbps	178	148	64
2 Mbits	5,227	4,341	1,934
34 Mbits	83,631	69,459	30,944
155 Mbits	329,298	273,494	121,840

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.7.2 The MCMC's preliminary views

The MCMC's analysis of market conditions in the provision of DNTS has shown that the incumbent fixed line operator still retains significant market power. This has led MCMC to amend regulation of DNTS by:

(1) removing the technological/geographical limitations that required service provision only between certain specified switching centres (namely: between tandem switches, between mobile group switches, between a tandem and a mobile group switch, and between switches located in peninsular Malaysia and switches in Sabah and Sarawak). Currently, provision of DNTS is required between any pair of technically feasible network transmission points;

(2) removing the "competition safeguard" which stipulated that service provision was not mandatory when there were three or more infrastructure-based providers on a particular route.

Given the above, and with a view to encouraging efficient network investment, the MCMC's preliminary view is that the appropriate level for access pricing of DNTS is at an intermediate level between LRIC and FDC.

Application of Criteria

DNTS		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	N
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 17: The MCMC seeks comments on its preliminary views that access pricing should fall between LRIC and FDC for the Domestic Network Transmission Service.

4.8 Internet Access Call Origination Service

An Internet Access Call Origination Service is an Interconnection Service provided by means of a PSTN for the carriage of Call Communications over the voice bandwidth from customer equipment to a Point of Presence (POP) being:

(1) a POI;
(2) at an agreed point of input to the Access Seeker's modem bank or router; or
(3) at an agreed point of output from the Access Provider's modem bank or router.

The service includes the following functionalities:

(1) circuit switching;
(2) the signalling required to support the network service; and
(3) dial-up to short codes and special services numbers.

4.8.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.11 Internet Access Call Origination Service LRIC model runs for 2006 (Sen per minute)

Option 1	Option 2	Option 3
Pure Taskforce	Mid way Taskforce -FCC	2001 model assumptions
7.2985	6.0010	4.4463

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.8.2 The MCMC's preliminary views

The MCMC notes that the lack of commercial transactions regarding this service cannot be entirely and conclusively explained by a lack of interest from ISPs. The MCMC also observes that for certain geographic areas and citizens with specific socio-economic and demographic characteristics (including low users) dial-up access cannot be considered as a close substitute for broadband services. Taking into account the fact that the wholesale service is provided over facilities having bottleneck characteristics, the MCMC's preliminary view is that access pricing should be based on LRIC. The MCMC in fact considers that such approach can solve the problems in commercial negotiations which have hindered ISPs in the purchase of the service so far while preserving a level-playing field between the two competing access technologies — broadband and dial-up— where both are available.

Application of Criteria

Internet Access Call Origination Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 18: The MCMC seeks comments on its preliminary views about LRIC being the most appropriate approach for the pricing of the Internet Access Call Origination Service.

4.9 Domestic Connectivity to International Services

Domestic Connectivity to International Services (DCIS) is a Facility and/or Service which comprises, each individually:

(1) a backhaul transmission service between a network transmission point and a submarine cable landing centre or an earth station;

(2) connection services between equipment co-located at the submarine cable landing centre and the submarine cable system.

In essence this service represents the need to provide a transmission connection between a national market operator's network and an international cable landing station.

The MCMC requested the Taskforce to submit their data of the cost of network elements required to offer this service. However, no such data was received. Nevertheless, as the backhaul transmission service has similar network components as the DNTS, we are of the preliminary view that the cost of this service will be similar to the estimated cost of DNTS links for 64kbs, E1, E3 and STM1 capacities on a per kilometre basis. The cost of DNTS links already contains an uplift for site costs and this uplift could be regarded as a suitable proxy for cost of cable landing stations.

For connection services between equipment co-located and the submarine cable landing centre and the submarine cable system, the prices are outline in Table 4.12.

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.9.1 The MCMC's preliminary views

In the absence of the requested data, the MCMC has concluded that there will be no separate pricing for this particular service. For each of the components of the DCIS service, namely, backhaul transmission service and connection services, the access pricing for DNTS and network co-location services will apply.

Question 19: The MCMC seeks comments on its preliminary views as to the proposed approach to cost DCIS.

4.10 Network Co-Location Service

The Network Co-Location Service is a Facility and/or Service which comprises:

(1) physical co-location, which refers to the provision of space at an Access Provider's premises to enable the Access Seeker to install and maintain its own equipment necessary for the provision of the Access Seeker's services through the Facilities and/or Services of any Operator. Physical co-location includes physical space, power, environmental services (such as heat, light, ventilation and air-conditioning), security, site maintenance and access for the personnel of the Access Seeker;

(2) virtual co-location, which refers to the provision of facilities or services at an Access Provider's premises to enable the acquisition by the Access Seeker of Facilities and Services on the ALD, where equipment is owned and maintained by the Access Provider; or

(3) in-span interconnection, which is the provision of a POI at an agreed point on a physical cable linking an Access Provider's network facilities to an Access Seeker's network facilities.

Network premises at which co-location is to be provided include switching sites, submarine cable landing centres, earth stations, exchange buildings, other Customer Access Modules (including roadside cabinets) and such other network facilities locations associated with the provision of a Facility or Service on the ALD, and includes co-location provided at any location where main distribution frame is housed.

4.10.1 Initial model results

TSLRIC model results for each option are reported in Table 4.12 below (figures reported refer to 2006). Note that figure for physical and virtual co-location are annual charges computed based on the average co-location space used by the co-located equipment.

Table 4.12 Network Co-Location
(Annual charges in RM)

	Option 1 Pure Taskforce	Option 2 Mid way Taskforce - FCC	Option 3 2001 model assumptions
Switch Site Cost per Square Metre			
Physical	6,725	6,104	n/a
Virtual	7,910	7,221	n/a
Cage and Other Equipment			
2 metre jumper cable	9	8	n/a
Cage	2,287	2,088	n/a
Automated OLO personnel access facility	480	394	n/a
Building specific access: e.g. 250 metres	9,028	7,614	n/a
In-span interconnection (per Km)	652	532	645

Source: NERA

Legend: n/a not available

The access prices for the network co-location services stated in the above Table are geographically averaged. The MCMC is mindful that site cost may differ significantly from one location to another.

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and

- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.10.2 The MCMC's preliminary views

As argued above, the MCMC considers that the availability of co-location service unbundled from transmission services is critical for the development of effectively competitive communication markets. The MCMC envisages that separate provision of co-location can prevent detrimental cross-subsidies from co-location services, where alternatives are less readily available, to physical connection services, where infrastructure-based competition can emerge more quickly. As a consequence, the MCMC's preliminary view is to adopt geographically averaged LRIC as a cost base for access pricing to ensure that no artificial barriers to network innovation/competition can be raised through the control of network premises and strategic use of appreciation of real-estate capital assets.

Application of Criteria

Network Co-Location Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 20: The MCMC seeks comments on its conclusion about geographically averaged LRIC being the most appropriate cost base for the pricing of Network Co-Location Service.

4.11 Full Access Service

The Full Access Service is a Facility and/or Service for the use of Unconditioned Communications Wire between the Network Boundary at an end user's premises and a point on a network that is a potential POI located at or associated with a Customer Access Module and located on the end user side of the Customer Access Module.

The service includes the use of optical fibre cable and associated transmission services between an Intermediate Point and the POI, associated tie cable services, shared splitting services, interfaces to operational support systems and network information.

4.11.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.13 Full Access Pricing for 2006- Option 1

(RM)

		Initial Charges	Total Monthly
1Up-front implementation cost	U	19,728,188	0.00
2Line rental (on-going service rental)	R	0.00	46.82
3iInstallation			
- ISDN	U	697.00	0.00
- PSTN	U	609.00	0.00
- ADSL	U	613.00	0.00
3iiTransfer			
- ISDN	U	717.00	0.00
- PSTN	U	621.00	0.00
- ADSL	U	613.00	0.00
3iiiDisconnection			
- ISDN	U	312.00	0.00
- PSTN	U	304.00	0.00
- ADSL	U	328.00	0.00
4Bandwidth Rental			
Nx64kbs	R	No data, use DNTS	0.00
Nx2mbps	R	No data, use DNTS	0.00
5Monthly Space Rental			
- Distant	R	0.00	0.00
- Virtual	R	0.00	0.00
- Physical	R	0.00	4.36
6Installation/Adaptation of Space			
- Distant	U	0.00	0.00
- Virtual	U	0.00	0.00
- Physical	U	14,000.00	0.00
7Tie-Cables			
- Internal	U	2.41	0.00
- External	U	9.98	0.00
8Backhaul Transmission	R	0.00	0.00

Source: NERA

Legend : U- upfront cost
R- recurring cost

Table 4.14 Full Access Pricing for 2006- Option 2

(RM)

			Initial Charges	Total Monthly
1	Up-front implementation cost	U	16,448,886	0.00
2	Line rental (on-going service rental)	R	0.00	38.65
3i	Installation			
	- ISDN	U	697.00	0.00
	- PSTN	U	609.00	0.00
	- ADSL	U	613.00	0.00
3ii	Transfer			
	- ISDN	U	717.00	0.00
	- PSTN	U	621.00	0.00
	- ADSL	U	613.00	0.00
3iii	Disconnection			
	- ISDN	U	312.00	0.00
	- PSTN	U	304.00	0.00
	- ADSL	U	328.00	0.00
4	Bandwidth Rental			
	Nx64kbs	R	No data, use DNTS	0.00
	Nx2mbps	R	No data, use DNTS	0.00
5	Monthly Space Rental			
	- Distant	R	0.00	0.00
	- Virtual	R	0.00	0.00
	- Physical	R	0.00	3.49
6	Installation/Adaptation of Space			
	- Distant	U	0.00	0.00
	- Virtual	U	0.00	0.00
	- Physical	U	14,000.00	0.00
7	Tie-Cables			
	- Internal	U	1.81	0.00
	- External	U	7.64	0.00
8	Backhaul Transmission	R	0.00	0.00

Source: NERA

Legend: U- upfront cost
R- recurring cost

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.11.2 The MCMC's preliminary views

There is no doubt that the access network is still a bottleneck facility, and will remain so in the foreseeable future. Access to Network Elements (ANE) and services provided through the copper access network are critical components of competitive service offerings. The MCMC acknowledges that there are new access facilities that are being deployed. However, their technical and bandwidth characteristics make it unlikely that the presence of a regulated ANE offering at LRIC-oriented charges would discourage investment in new facilities. As a consequence, MCMC's preliminary view is to adopt LRIC as a basis for access pricing.

Application of Criteria

Full Access Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 21: The MCMC seeks comments on its preliminary views about LRIC being the most appropriate base of access pricing for the Full Access service.

4.12 Line Sharing Service

The Line Sharing Service is a Facility and/or Service for the use of the non-voice band frequency spectrum of Unconditioned Communications Wire (over which wire an underlying voiceband PSTN service is operating) between the Network Boundary at an end user's premises and a point on a network that is a potential POI located at, or associated with, a Customer Access Module and located on the end user side of the Customer Access Module.

The service includes the use of optical fibre cable and associated transmission services between an Intermediate Point and the POI, associated tie cable services, shared splitting services, interfaces to operational support systems and network information.

4.12.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.15 Line Sharing Pricing for 2006- Option 1
(RM)

		Initial Charges	Total Monthly
1Up-front implementation cost	U	19,728,188	0.00
2Line rental (on-going service rental)	R	0.00	0.01
3iInstallation			
- ISDN	U	697.00	0.00
- PSTN	U	609.00	0.00
- ADSL	U	613.00	0.00
3iiTransfer			
- ISDN	U	717.00	0.00
- PSTN	U	621.00	0.00
- ADSL	U	613.00	0.00
3iiiDisconnection			
- ISDN	U	312.00	0.00
- PSTN	U	304.00	0.00
- ADSL	U	328.00	0.00
4Bandwidth Rental			
Nx64kbs	R	No data, use DNTS	0.00
Nx2mbps	R	No data, use DNTS	0.00
5Monthly Space Rental			
- Distant	R	0.00	0.00
- Virtual	R	0.00	0.00
- Physical	R	0.00	4.36
6Installation/Adaptation of Space			
- Distant	U	0.00	0.00
- Virtual	U	0.00	0.00
- Physical	U	14,000.00	0.00
7Tie-Cables			
- Internal	U	2.41	0.00
- External	U	9.98	0.00
8Backhaul Transmission	R	0.00	0.00

Source: NERA
Legend: U- upfront cost
R- recurring cost

Table 4.16 Line Sharing Pricing for 2006- Option 2

(RM)

			Initial Charges	Total Monthly
1	Up-front implementation cost	U	16,448,886	0.00
2	Line rental (on-going service rental)	R	0.00	0.01
3i	Installation			
	- ISDN	U	697.00	0.00
	- PSTN	U	609.00	0.00
	- ADSL	U	613.00	0.00
3ii	Transfer			
	- ISDN	U	717.00	0.00
	- PSTN	U	621.00	0.00
	- ADSL	U	613.00	0.00
3iii	Disconnection			
	- ISDN	U	312.00	0.00
	- PSTN	U	304.00	0.00
	- ADSL	U	328.00	0.00
4	Bandwidth Rental			
	Nx64kbs	R	No data, use DNTS	0.00
	Nx2mbps	R	No data, use DNTS	0.00
5	Monthly Space Rental			
	- Distant	R	0.00	0.00
	- Virtual	R	0.00	0.00
	- Physical	R	0.00	3.49
6	Installation/Adaptation of Space			
	- Distant	U	0.00	0.00
	- Virtual	U	0.00	0.00
	- Physical	U	14,000.00	0.00
7	Tie-Cables			
	- Internal	U	1.81	0.00
	- External	U	7.64	0.00
8	Backhaul Transmission	R	0.00	0.00

Source: NERA

Legend: U- upfront cost
R- recurring cost

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and

- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.12.2 The MCMC's preliminary views

The MCMC observes that the service is provided over a bottleneck facility. Mechanical application of the principles for determining cost-oriented access pricing would thus call for LRIC-based charges. The MCMC is however aware of two circumstances. First, a great portion of total service incremental costs for line sharing are in effect common with provision of full access to the copper loop, making any allocation between the two purely based on supply-side consideration potentially arbitrary. Second, LRIC-based charged could result in some socially undesirable by-pass by entrants who may free-ride on the existing service provider, leaving it to sustain costs that it cannot any longer recoup in a competitive market even if equally efficient as the rivals. In conclusion, the MCMC believes that access pricing should not be based solely on LRIC estimates, and LRIC results should be complemented by careful consideration of retail market conditions, with special attention of regulatory constraints imposed on Access Providers.

Application of Criteria

Line Sharing Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 22: The MCMC seeks comments on its preliminary views that access pricing for the Line Sharing Service should not be based on LRIC.

4.13 Bitstream Service

The Bitstream service can be obtained with or without Network Service. The Bitstream with network service is a facility/service for the provision of Layer 2 connectivity for the carriage of certain communications (being data in digital form and conforming to Internet Protocols) between customer equipment at an end user's premises and a POI at the Access Seeker's premises, where:

(1) the Customer's equipment is directly connected to an Access Provider's network; and

(2) the Access Seeker, but not the Access Provider, assigns the Customer with an IP address.

The Bitstream without network service is a facility/service for the provision of Layer 2 connectivity for the carriage of certain communications (being data in digital form and conforming to Internet Protocols) between customer equipment at an end user's premises and a POI at the Access Provider's premises, where:

(1) the Customer's equipment is directly connected to an Access Provider's network; and

(2) the Access Seeker, but not the Access Provider, assigns the Customer with an IP address.

Both forms of Bitstream service include shared splitting services, interfaces to operational support systems and network information.

The Tables 4.17 and 4.18 indicate access prices for Bitstream service without network service. Bitstream with network service requires the use of a transmission link connecting Access Seeker's site to the Access Provider's site. This means there is an additional cost of the transmission link. The MCMC proposes to add RM56-67 per annum (RM4.67–5.58 per month) per kilometre to cover the cost of an apportioned DNTS link between the end-user's equipment and the POI at the Access Seekers site. This figure was derived from assuming users have 512kbps Bitstream service.

4.13.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.17 Bitstream Pricing for 2006- Option 1

(RM)

		Initial Charges	Total Monthly
1Up-front implementation cost	U	19,728,188	0.00
2Line rental (on-going service rental)	R	0.00	18.74
3iInstallation			
- ISDN	U	697.00	0.00
- PSTN	U	609.00	0.00
- ADSL	U	613.00	0.00
3iiTransfer			
- ISDN	U	0.00	0.00
- PSTN	U	0.00	0.00
- ADSL	U	0.00	0.00
3iiiDisconnection			
- ISDN	U	0.00	0.00
- PSTN	U	0.00	0.00
- ADSL	U	0.00	0.00
4Bandwidth Rental			
Nx64kbs	R	No data, use DNTS	0.00
Nx2mbps	R	No data, use DNTS	0.00
5Monthly Space Rental			
- Distant	R	0.00	0.00
- Virtual	R	0.00	0.00
- Physical	R	0.00	0.00
6Installation/Adaptation of Space			
- Distant	U	0.00	0.00
- Virtual	U	0.00	0.00
- Physical	U	14,000.00	0.00
7Tie-Cables			
- Internal	U	0.00	0.00
- External	U	0.00	0.00
8Backhaul Transmission	R	0.00	0.00

Source: NERA

Legend: U- upfront cost
R- recurring cost

Table 4.18 Bitstream Pricing for 2006- Option 2

(RM)

			Initial Charges	Total Monthly
1	Up-front implementation cost	U	16,448,886	0.00
2	Line rental (on-going service rental)	R	0.00	15.61
3i	Installation			
	- ISDN	U	697.00	0.00
	- PSTN	U	609.00	0.00
	- ADSL	U	613.00	0.00
3ii	Transfer			
	- ISDN	U	0.00	0.00
	- PSTN	U	0.00	0.00
	- ADSL	U	0.00	0.00
3iii	Disconnection			
	- ISDN	U	0.00	0.00
	- PSTN	U	0.00	0.00
	- ADSL	U	0.00	0.00
4	Bandwidth Rental			
	Nx64kbs	R	No data, use DNTS	0.00
	Nx2mbps	R	No data, use DNTS	0.00
5	Monthly Space Rental			
	- Distant	R	0.00	0.00
	- Virtual	R	0.00	0.00
	- Physical	R	0.00	0.00
6	Installation/Adaptation of Space			
	- Distant	U	0.00	0.00
	- Virtual	U	0.00	0.00
	- Physical	U	14,000.00	0.00
7	Tie-Cables			
	- Internal	U	0.00	0.00
	- External	U	0.00	0.00
8	Backhaul Transmission	R	0.00	0.00

Source: NERA

Legend: U- upfront cost
R- recurring cost

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and

- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.13.2 The MCMC's preliminary views

Given the reliance on bottleneck facilities, strict application of the criteria will imply that LRIC is appropriate for bitstream services. However, considering that it is not a well established service and is critically important for development of a robust, effectively competitive broadband market, the MCMC proposes to adopt a glide path approach towards LRIC.

Application of Criteria

Bitstream Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	N
	Bottleneck	Y
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 23: The MCMC seeks comments on its preliminary views about glide path being the most appropriate access pricing for the Bitstream Service.

4.14 Sub-loop Service

The Sub-loop Service is a service for the use of Unconditioned Communications Wire between the Network Boundary at an end user's premises and a point on a network that is a potential POI located at or associated with a Customer Access Module and located on the end user side of the Customer Access Module. For Sub-loop Service, the Customer Access Module is housed in a roadside cabinet.

The service includes the use of optical fibre cable and associated transmission services between an Intermediate Point and the POI, associated tie cable services, shared splitting services, interfaces to operational support systems and network information.

4.14.1 Initial model results

TSLRIC model results for each option are as follows:

Table 4.19 Sub Loop Service Pricing for 2006- Option 1

(RM)

		Initial Charges	Total Monthly
1Up-front implementation cost	U	19,728,188	0.00
Line rental (on-going service 2rental)	R	0.00	46.82
3iInstallation			
- ISDN	U	697.00	0.00
- PSTN	U	609.00	0.00
- ADSL	U	613.00	0.00
3iiTransfer			
- ISDN	U	717.00	0.00
- PSTN	U	621.00	0.00
- ADSL	U	613.00	0.00
3iiiDisconnection			
- ISDN	U	312.00	0.00
- PSTN	U	304.00	0.00
- ADSL	U	328.00	0.00
4Bandwidth Rental			
Nx64kbs	R	No data, use DNTS	0.00
Nx2mbps	R	No data, use DNTS	0.00
5Monthly Space Rental			
- Distant	R	0.00	0.00
- Virtual	R	0.00	0.00
- Physical	R	0.00	4.36
6Installation/Adaptation of Space			
- Distant	U	0.00	0.00
- Virtual	U	0.00	0.00
- Physical	U	14,000.00	0.00
7Tie-Cables			
- Internal	U	2.41	0.00
- External	U	9.98	0.00
8Backhaul Transmission	R	0.00	0.00

Source: NERA

Legend: U- upfront cost
R- recurring cost

Table 4.20 Sub Loop Service Pricing for 2006- Option 2

(RM)

			Initial Charges	Total Monthly
1	Up-front implementation cost	U	16,448,886	0.00
2	Line rental (on-going service rental)	R	0.00	38.65
3i	Installation			
	- ISDN	U	697.00	0.00
	- PSTN	U	609.00	0.00
	- ADSL	U	613.00	0.00
3ii	Transfer			
	- ISDN	U	717.00	0.00
	- PSTN	U	621.00	0.00
	- ADSL	U	613.00	0.00
3iii	Disconnection			
	- ISDN	U	312.00	0.00
	- PSTN	U	304.00	0.00
	- ADSL	U	328.00	0.00
4	Bandwidth Rental			
	Nx64kbs	R	No data, use DNTS	0.00
	Nx2mbps	R	No data, use DNTS	0.00
5	Monthly Space Rental			
	- Distant	R	0.00	0.00
	- Virtual	R	0.00	0.00
	- Physical	R	0.00	3.49
6	Installation/Adaptation of Space			
	- Distant	U	0.00	0.00
	- Virtual	U	0.00	0.00
	- Physical	U	14,000.00	0.00
7	Tie-Cables			
	- Internal	U	1.81	0.00
	- External	U	7.64	0.00
8	Backhaul Transmission	R	0.00	0.00

Source: NERA

Legend: U- upfront cost
R- recurring cost

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 11.15%; and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

4.14.2 The MCMC's preliminary views

As far as this service is concerned, the MCMC's preliminary position about LRIC being the most appropriate cost base to set access pricing follows directly from the conclusions reached for full access to copper lines.

Application of Criteria

Sub Loop Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 24: The MCMC seeks comments on its preliminary views about LRIC being the most appropriate for access pricing of the Sub-loop service.

4.15 Digital Subscriber Line Resale Service

The Digital Subscriber Line Resale (DSLR) Service is a service for the provision of connectivity for the carriage of certain communications (being data in digital form and conforming to Internet Protocols) to customer equipment insofar as it relates to IP addresses directly and indirectly connected to the Access Provider's network. The Digital Subscriber Line Resale Service uses Digital Subscriber Line technology for carriage over

the Communications Wire between the Network Boundary at an end user's premises and the Customer Access Module of the Access Provider's network.

The service is limited to the wholesale provision of the digital subscriber line service ordinarily provided by the Access Provider to end users.

4.15.1 The MCMC's preliminary views

This cost will be based on the network cost of the elements required to provide Bitstream service, plus uplifts applied to recover the carrier service costs. The uplift will take into account the additional amount of indirect network operating expenses to cover the cost of wholesale carrier service activities required for re-packaging network service as a wholesale resale service. The MCMC considers an uplift of 1.5% to 3% to the monthly line rental for Bitstream services is reasonable to cover the cost wholesale carrier service.

Application of Criteria

DSLR Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	N
	Bottleneck	Y
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 25: The MCMC seeks comments on its preliminary views as to the proposed approach to compute access pricing for DSLR service, i.e. by applying an uplift to the monthly line rental of Bitstream services. In addition, the MCMC would also like to seek views as to whether the proposed uplift of 1.5% to 3% is reasonable.

5. TSLRIC FOR FACILITIES/ SERVICES OVER IP NETWORKS

5.1 Model Description and Run Options

This section provide a general overview of the modelling alternatives for TSLRIC of facilities/services over IP networks included in the ALD, that is

(1) IP Network Origination/Termination Service; and

(2) Internet Interconnection Service (IIS).

While the IIS was included in the ALD as a separate entry (service no. 21), access obligations regarding VoIP Origination/Termination are a part of the obligations that are meant to ensure technological neutrality of regulation regarding access to fixed network originating and terminating services.

Inclusion of VoIP Origination/Termination services in the ALD is motivated by the MCMC's concern that, if technology-specific definitions in the ALD were retained, this could allow Access Providers to deny service provision to VoIP operators, thus limiting competition on such innovative services.

Inclusion of VoIP Origination/Termination service in the ALD means that VoIP Access Seekers are entitled to interconnect their IP networks to the originating and terminating networks at the Edge Router level, and use the Access Providers' network to supply end-to-end voice call services to end users. The Access Provider's originating/terminating services might involve a combination of PSTN and IP network elements, or be completely provided over IP networks (as it is more likely to happen for business users).

In LRIC modelling of IP services, the MCMC has employed the same WACC as the one used for fixed network, and it has considered the same model run Options. Given the similarities between the types of networks involved, the MCMC believes that such assumptions are a practical and reasonable solution to the issues raised by IP network modelling.

Question 26: The MCMC seeks views on the use of WACC for fixed network in the model run option of IP network LRIC modelling?

5.2 VOIP Fixed Network Origination/Termination Service

5.2.1 Initial model results

TSLRIC model results for each option are as follows:

Table 5.1 VOIP Origination/Termination LRIC model runs
(Sen per minute)

	2006	2007	2008
VOIP origination	0.29	0.26	0.23
VOIP termination '0154'	0.22	0.20	0.18

Source: NERA

5.2.2 The MCMC's preliminary views

The emergence of VoIP services raises a series of new and complex regulatory issues, which are not limited to those regarding termination rates, or the level of such rates given the differences in costs between IP and PSTN networks. Nevertheless, in this section the MCMC would like to seek stakeholders' views regarding the specific question of access pricing.

In its initial stages, the IP data networking technology that underpins the Internet could not be relied upon to deliver high-quality real-time voice services. Voice had to be converted from its analogue format into a digital version, cut up into separate packets, sent over the data network, to be finally re-assembled and re-converted at its destination. The delays generated by the different stages of this process led to unsatisfactory quality for the end-users, which resembled walkie-talkie communications rather than the high-quality enjoyed when using the "plain old telephone system" (POTS).

Recent technological progress and deployment of broadband data networks make it now possible to achieve such low delays in packet delivery that end-users can no longer distinguish the quality of the voice call between "circuit-switched" and "packet-switched" networks. In the future, it is likely that IP networks will be deployed to substitute and/or to complement PSTN networks. Currently many operators providing POTS services to end-users have begun using IP networks for long-distance transport of voice calls.

IP networks operate on non-fixed route connections which make call set-up, the physical location of originating and terminating parties and the duration of a call, less important as factors driving access costs. In IP networks, costs are rather driven by the capability of IP to handle voice, data and video using compression, encoding and packet switching.

Acknowledging such a trend towards the co-existence of IP and PSTN networks in the delivery of voice telephony, the MCMC has considered the issue of termination arrangements using these two different technologies. The nature of the networks concerned affects the termination rates substantially. The MCMC has yet to reach a view as to whether there should be one rate for fixed termination regardless of the underlying network used or whether termination rates should differ depending on the underlying network used.

Application of Criteria

VoIP Origination/ Termination Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	N
	Trend towards competition	Y
Preliminary Position		Y
Choice of cost base	Established	N
	Bottleneck	N
Preliminary Position		NP

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path) NP- No preliminary view

Question 27: The MCMC seeks comments on whether there should be one price for fixed voice termination or different prices for termination on IP and on PSTN. If there should be only one price what should the basis for access pricing be?

5.2.3 Sensitivity Analysis

Using the Option identified in the previous section as a base, it is clearly of interest to understand how sensitive the model results are to various input assumptions and a range of sensitivities has been carried out, the results of which are reported in this Section.

The following sensitivities have been considered:

- Change of cost of capital by ± 1 percentage point; and
- Use of different depreciation profiles.

Table 5.2 VOIP Origination/ Termination- Cost of Capital Sensitivity for 2006 (Sen per minute)

	Base Run	Increase CoC by 1%	Decrease CoC by 1%
VOIP origination	0.29	0.29	0.29
VOIP termination '0154'	0.22	0.22	0.22

Source: NERA

Table 5.3 VOIP Origination/ Termination- Depreciation Sensitivity for 2006 (Sen per minute)

	Tilted straight line	Straight line	Annuity
VOIP origination	0.29	0.27	0.26
VOIP termination '0154'	0.22	0.21	0.20

Source: NERA

5.3 Internet Interconnection Service

The Internet Interconnection Service is a Facility and/or Service for the carriage of data in digital form between one or more POI at a BGR of an Access Provider's network and the IP addresses directly connected to the Access Provider's network.

The Access Seeker, seeking access from the Access Provider's BGR to the Access Provider's users, uses resources which the Access Provider's users pay for and fully fund. IP transit is different because the Access Seeker is causing costs to arise which the Access Provider does not recover from elsewhere.

Permitting the Access Provider to levy fees on Access Seekers may enable them to over-recover while benefiting from access to popular websites. Further, the levying of such a charge would mean the Access Seekers would have to recover those charges as well from their users, whereas the Access Provider's own users would not be charged the extra. Hence there may be a potential for differential pricing that might prevent ISPs from competing equally.

Question 28: The MCMC seeks comments as to whether IIS should be fully funded by user subscriptions. If not, how should the costs of IIS be apportioned between users and other ISPs?

5.3.1 Initial model results

Table 5.4 Internet Interconnection Service

(Sen per MB)

	2006	2007	2008
Internet interconnection service	0.00 (all capacity funded by retail subscriber)	0.00 (all capacity funded by retail subscriber)	0.00 (all capacity funded by retail subscriber)
IP transit (BGR-BGR)	2.97	2.52	2.26

Source: NERA

5.3.2 The MCMC's preliminary views

Recognizing the differences in the architecture and components of IP networks as compared to PSTN networks, the MCMC has developed a separate LRIC model for IP services to estimate the corresponding costs. However, given the innovative nature of the service, the MCMC is of the view that it is not appropriate to base access prices on LRIC.

However, given the low barrier to market entry and competitive nature of the market, the MCMC's preliminary view is to refrain from regulatory intervention at least for the time being.

Application of Criteria

Internet Interconnection Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	N
	Trend towards competition	Y
Preliminary Position		N
Choice of cost base	Established	N
	Bottleneck	N
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

TSLRIC model results for each option are as follows:

Table 5.5 Internet Interconnection -Cost of Capital Sensitivity for 2006

(Sen per minute)

	Base Run	Increase CoC by 1%	Decrease CoC by 1%
IP transit (BGR-BGR)	2.97	2.97	2.97

Source: NERA

Table 5.6 Internet Interconnection – Depreciation Sensitivity for 2006

(Sen per minute)

	Tilted straight line	Straight line	Annuity
IP transit (BGR-BGR)	2.97	2.96	2.95

Source: NERA

Application of Criteria

DSLR Service		
Issue	Criteria	Preliminary View
Need for cost-based access pricing	High barriers	Y
	No trend toward competition	Y
	Insufficiency of other policy tools	Y
Choice of cost base	Established	N
	Bottleneck	Y
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 29: The MCMC seeks comments on its preliminary views about the way forward on access pricing for IP services.

6. TSLRIC FOR FACILITIES/ SERVICES OVER MOBILE NETWORKS

6.1 Model Description and Run Options

This section provides a general overview of the modelling alternatives the MCMC has considered in computing TSLRIC of access service/facilities provided over mobile networks in Malaysia, that is:

(1) Mobile Network Origination Service;
(2) Mobile Network Termination Service;
(3) 3G-2G Domestic Inter-Operator Roaming Service; and
(4) Inter-Operator Mobile Number Portability Support Services.

6.1.1 Network Configuration

Mobile network origination and termination services in the ALD do not make distinction between 2G or 3G. Instead, the ALD adopted a technology neutral approach. In carrying out this study, the MCMC is mindful that the cost structure for 2G and 3G networks are different. Therefore the MCMC considered whether it would be appropriate to have a separate origination/termination prices for 2G and 3G. However, uncertainties about future developments for 3G services both on the demand and supply side inevitably increase the variance of LRIC estimates and appears to make its adoption inappropriate as this may send distorted price signal to the market.

The MCMC observes that currently, there is no mobile operator running a 3G-only mobile network. All existing mobile operators manage 2G-only or hybrid networks, where the decision regarding the migration from one technology to the other should be driven by demand take-up for innovative broadband mobile services.

Since there are no 3G-only mobile operators, the MCMC believes it is not necessary at this moment to develop a 3G-only LRIC model to estimate the fair charges for mobile origination/termination (voice and text messaging) on such a network. Instead, given existing and foreseeable market conditions, the MCMC deems it appropriate to estimate access prices for mobile origination/termination on the basis of a 2G-only LRIC model. This would prevent cross subsidisation from established mobile services (voice and text messaging) to innovative broadband mobile services and encourage migration from GSM to UMTS for those established services that can be carried on a 2G network only when this passage results in cost savings.

Question 30: The MCMC seeks comments on its preliminary view that LRIC cost estimates for mobile origination/termination should be based on 2G-only network configuration.

6.1.2 Spectrum allocation and economies of scale

The MCMC observes that the LRIC of an efficient 2G network operator depends on the quantity of spectrum it uses, the band employed, and its scale of operations.

In relation to spectrum, the LRIC of a mobile operator using an 1800 MHz network might differ from the LRIC of a 900 MHz network because the characteristics of the 1800 MHz spectrum imply a smaller maximum cell radius and make it more difficult to achieve indoor coverage as compared to a 900 MHz network. Additionally, differing quantities of spectrum will enable network operators to carry traffic with different efficiencies. Recognizing that differences in spectrum allocation may result in significantly different LRIC for equally-efficient operators, OFCOM (the UK communications regulator) has recently imposed different price ceilings for 1800MHz-only or a 900/1800 MHz operator.[4]

Even when using spectrum with the same radio characteristics, the LRIC of two equally efficient operators might differ considerably because of the different economies of scale enjoyed by each. This is because operation of a mobile network requires sizeable fixed (that is, non-traffic sensitive) costs, which in turn imply steeply declining average incremental costs, at least at low output levels. When traffic levels on different existing networks are not very similar and they cannot be expected to become so in the near future, imposing the same price ceiling on all mobile networks may not be in the LTIE. On one hand, a uniform price ceiling on, for instance, mobile wholesale termination might prevent smaller networks from fully recovering efficiently-incurred costs, thus imposing an unfair burden on them and put them at a further competitive disadvantage as compared to larger networks. On the other hand, a uniform price ceiling might lead to supra-competitive profits which rival mobile operators might be unwilling or incapable of competing away.

Based on the above, the MCMC's preliminary view is to consider different mobile origination/termination rates for operators with different economies of scale or traffic level in order to reflect the current position. Nonetheless, the MCMC is mindful that market conditions may change significantly to affect the traffic volume of the operators.

[4] OFCOM, Wholesale Mobile Voice Call Termination Statement, 1 June 2004.

Question 31: The MCMC seeks comments on if and how access pricing for mobile origination/ termination should take into account cost differences due to differences in spectrum allocation and economies of scale.

6.1.3 Cost of Capital

In the model, network capital assets are remunerated by applying a rate of return calculated using the Weighted Average Cost of Capital (WACC) methodology. The WACC methodology is premised on the fact that firms use both debt and equity to finance the purchase. The cost of equity is calculated using the Capital Asset Pricing Model (CAPM) which is the most widely used model for the calculation of the cost of equity in regulated industries both by regulators and practitioners.

Applying the WACC methodology to the Malaysian mobile communications industry yielded a nominal pre-tax WACC of 12.25%.

This figure has been derived assuming a 10% gearing ratio (the ratio D/ (D+E) where D denotes debt, E denote equity) and a corporate tax rate of 28%.

The risk-free interest rate has been set equal to 3.66%. The best estimate for asset (unlevered) beta is 0.78, which corresponds to a 0.87 value for the equity (levered) beta used to compute the WACC. Equity risk premium has been estimated to be equal to 6.7%.

The nominal cost of debt in the fixed communications industry has been determined to be equal to 5.67%.

In applying a modified scorched node approach to LRIC modelling to each service/facility, the MCMC has considered several runs, each time assuming that the hypothetical mobile operator serves a different share of the total industry volume. The assumption regarding the share of total volume served reflect shares enjoyed by existing mobile networks.

Question 32: The MCMC seek comments on the WACC for mobile and whether the parameters used to compute it are reasonable in the Malaysian context.

6.1.4 Cellular coverage for Time one and Time two

The Government has introduced Time one and Time two coverage targets to improve coverage and quality of service for cellular services. Time one was completed in October 2004 while Time two is expected to be completed in two phases by December 2005 and December 2006. Under Time one there are 262 additional sites identified while additional 1,650 new towers and 4,448 base stations transmitters will be required for nation wide coverage. The total estimated costs for Time one and Time two is about RM200 million and RM2.6 billion respectively. For the purpose of this study, the Taskforce data submission has included both Time one and Time two costs. The MCMC presents access pricing results including and excluding the Time two costs.

6.2 Mobile Network Origination Service

A Mobile Network Origination Service is an Interconnection Service for the carriage of Call Communications from an 'A' party to POI. The Mobile Network Origination Service supports Mobile Network-to-Mobile Network, Mobile Network-to-Fixed Network and Mobile Network-to-international outgoing calls in so far as they relate to freephone 1800 number services, toll free 1300 number services, and other similar services which require Any-to-Any Connectivity.

The service includes the following functionalities:

(1) switching (whether packet or circuit); and
(2) the signalling required to support the Interconnection Service.

6.2.1 Initial model results

TSLRIC model results for each option are as follows:

Table 6.1 Mobile Call Origination for 2006 (Excluding Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	10.46	16.14	9.06
Long distance	13.09	19.07	11.62
Long distance with submarine	31.35	37.76	29.68

Source: NERA

Table 6.2 Mobile Call Origination for 2006 (Including Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	13.35	20.98	11.47
Long distance	16.02	23.94	14.06
Long distance with submarine	34.52	42.80	32.38

Source: NERA

Table 6.3 Mobile Call Origination for 2007 (Excluding Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	9.73	14.91	8.38
Long distance	12.28	17.74	10.86
Long distance with submarine	30.69	36.65	29.09

Source: NERA

Table 6.4 Mobile Call Origination for 2007 (Including Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	12.40	19.38	10.61
Long distance	14.98	22.24	13.12
Long distance with submarine	33.67	41.34	31.64

Source: NERA

Table 6.5 Mobile Call Origination for 2008 (Excluding Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	8.96	13.73	7.77
Long distance	11.41	16.45	10.14
Long distance with submarine	30.02	35.58	28.52

Source: NERA

Table 6.6 Mobile Call Origination for 2008 (Including Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	11.42	17.84	9.82
Long distance	13.91	20.59	12.23
Long distance with submarine	32.81	39.95	30.92

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 12.24%;
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices; and
- the percentage of total service provision supplied by the hypothetical mobile operator.

6.2.2 The MCMC's preliminary views

While recognizing the recent trend toward higher concentration in the mobile industry, the MCMC notes that several alternative providers are still present in the market for the provision of wholesale mobile origination services. The imminent implementation of Mobile Number Portability (MNP) is likely to ensure effective competition in this market without the need for pervasive regulation by the MCMC.

The MCMC envisages removing the mobile origination service from the ALD upon implementation of MNP. In the meantime, the MCMC's preliminary view is that access pricing should gravitate toward FDC charges to preserve Access Providers' incentives to

maintain and upgrade their networks. The FDC of an efficient provider could be approximated by opportunely marking-up LRIC charges to account for non-network costs not causally linked either directly or indirectly to service provision.

Application of Criteria

Mobile Network Origination Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	Y
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	N
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 33: The MCMC seeks comments on its preliminary conclusion about FDC being the most appropriate cost basis for Mobile Network Origination service.

6.2.3 Sensitivity analysis

A range of sensitivities has been carried out, the results of which are reported in this Section. The sensitivities are based on the assumption of an operator with 33% market share inclusive of Time 2 capital expenses.

The following sensitivities have been considered:

- Change of cost of capital by ± 1 percentage point; and
- Use of different depreciation profiles.

Table 6.7 Mobile Call Origination- Sensitivity for Cost of Capital
(Sen per minute)

	12.24%	Decrease by 1%	Increase by 1%
Local	13.35	13.12	13.58
Long distance	16.02	15.71	16.33
Long distance with submarine	34.52	34.20	34.83

Source: NERA

Table 6.8 Mobile Call Origination- Sensitivity for Depreciation
(Sen per minute)

	Tilted Straight Line	Annuity	Straight Line
Local	13.35	11.60	12.46
Long distance	16.02	13.66	14.81
Long distance with submarine	34.52	32.53	33.66

Source: NERA

6.3 Mobile Network Termination Service

A Mobile Network Termination Service is an Interconnection Service for the carriage of Call Communications from a POI to a 'B' party. The Mobile Network Termination Service supports Mobile Network-to-Mobile Network, Fixed Network-to-Mobile Network, incoming international-to-Mobile Network calls and messages.

The service includes the following functionalities:

(1) switching (whether packet or circuit); and
(2) the signalling required to support the Interconnection Service.

6.3.1 MMS termination

LRIC estimates for MMS termination are not available on either a per message basis or a per Kb basis. This is because insufficiently reliable data is available to MCMC to estimate the MMS traffic during the period. As a consequence, in the absence of a robust message cost estimate and considering that the service is new and growing, MCMC considers that commercial agreements between Licensees for termination remain appropriate.

6.3.2 Initial model results

TSLRIC model results for each option are as follows:

Table 6.9 Mobile Call Termination for 2006 (Excluding Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	11.19	17.09	9.74
Long distance	13.35	19.51	11.83
Long distance with submarine	31.61	38.19	29.89

Source: NERA

Table 6.10 Mobile Call Termination for 2006 (Including Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	14.09	21.94	12.15
Long distance	16.28	24.38	14.28
Long distance with submarine	34.78	43.24	32.60

Source: NERA

Table 6.11 Mobile SMS, MMS and Data Termination for 2006 (Excluding Time 2)
(Sen per message)

	33%	20%	40%
SMS	0.33	0.45	0.27
MMS	not available	not available	not available
Data termination	not available	not available	not available

Source: NERA

Table 6.12 Mobile SMS, MMS and Data Termination for 2006 (Including Time 2)
(Sen per message)

	33%	20%	40%
SMS	0.40	0.58	0.33
MMS	not available	not available	not available
Data termination	not available	not available	not available

Source: NERA

Table 6.13 Mobile Call Termination for 2007 (Excluding Time 2)

(Sen per minute)

Market Share	33%	20%	40%
Local	10.42	15.81	9.03
Long distance	12.51	18.15	11.05
Long distance with submarine	30.93	37.05	29.28

Source: NERA

Table 6.14 Mobile Call Termination for 2007 (Including Time 2)

(Sen per minute)

Market Share	33%	20%	40%
Local	13.10	20.28	11.26
Long distance	15.22	22.65	13.32
Long distance with submarine	33.91	41.75	31.84

Source: NERA

Table 6.15 Mobile SMS, MMS and Data Termination for 2007 (Excluding Time 2)

(Sen per message)

	33%	20%	40%
SMS	0.31	0.43	0.25
MMS	not available	not available	not available
Data termination	not available	not available	not available

Source: NERA

Table 6.16 Mobile SMS, MMS and Data Termination for 2007 (Including Time 2)

(Sen per message)

	33%	20%	40%
SMS	0.38	0.54	0.31
MMS	not available	not available	not available
Data termination	not available	not available	not available

Source: NERA

Table 6.17 Mobile Call Termination for 2008 (Excluding Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	9.62	14.57	8.38
Long distance	11.63	16.82	10.32
Long distance with submarine	30.23	35.95	28.70

Source: NERA

Table 6.18 Mobile Call Termination for 2008 (Including Time 2)
(Sen per minute)

Market Share	33%	20%	40%
Local	12.09	18.70	10.43
Long distance	14.13	20.97	12.41
Long distance with submarine	33.03	40.32	31.11

Source: NERA

Table 6.19 Mobile SMS, MMS and Data Termination for 2008 (Excluding Time 2)
(Sen per message)

	33%	20%	40%
SMS	0.29	0.40	0.24
MMS	not available	not available	not available
Data termination	not available	not available	not available

Source: NERA

Table 6.20 Mobile SMS, MMS and Data Termination for 2008 (Including Time 2)
(Sen per minute/message)

	33%	20%	40%
SMS	0.35	0.51	0.29
MMS	not available	not available	not available
Data termination	not available	not available	not available

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 12.24%;
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices; and
- the percentage of total service provision supplied by the hypothetical mobile operator.

6.3.3 The MCMC's preliminary views

Technological and standard market arrangements imply that, at least in the foreseeable future, termination services on each individual mobile network are going to maintain bottleneck characteristics. The MCMC believes that LRIC-based access pricing is fully consistent with LTIE, as it sends the correct signals to end users and, given LRIC-based access pricing for fixed termination charges, it does not unjustifiably tilt the industry level-playing field in favour of the mobile market.

Application of Criteria

Mobile Network Termination Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 34: The MCMC seeks comments on its preliminary views about LRIC being the most appropriate cost basis for the Mobile Network Termination service.

6.3.4 Sensitivity analysis

A range of sensitivities has been carried out, the results of which are reported in this Section. The sensitivities are based on the assumption of an operator with 33% market share inclusive of Time 2 capital expenses.

The following sensitivities have been considered:

- Change of cost of capital by ± 1 percentage point;
- Use of different depreciation profiles; and
- Varying the hypothetical operator's share of total market provision.

Table 6.21 Mobile Call Termination- Sensitivity for Cost of Capital
(Sen per minute)

	12.24%	Decrease by 1%	Increase by 1%
Local	14.09	13.84	14.34
Long distance	16.28	15.96	16.60
Long distance with submarine	34.78	34.45	35.10

Source: NERA

Table 6.22 Mobile Call Termination- Sensitivity for Depreciation
(Sen per minute)

	Tilted Straight Line	Annuity	Straight Line
Local	14.09	12.16	13.11
Long distance	16.28	13.85	15.04
Long distance with submarine	34.78	32.73	33.89

Source: NERA

Table 6.23 Mobile SMS, MMS and Data Termination-Sensitivity for Cost of Capital
(Sen per message)

	12.24%	Decrease by 1%	Increase by 1%
SMS	0.40	0.40	0.41
MMS	not available	not available	not available
Data termination	not available	not available	not available

Source: NERA

Table 6.24 Mobile SMS, MMS and Data Termination-Sensitivity for Depreciation
(Sen per message)

	Tilted Straight Line	Annuity	Straight Line
SMS	0.40	0.36	0.38
MMS	not available	not available	not available
Data termination	not available	not available	not available

Source: NERA

6.4 3G-2G Domestic Inter-Operator Roaming Service

The 3G-2G Inter-Operator Roaming Service is a Service that enables a Customer of a 3G Operator or a 3G Mobile Virtual Network Operator to initiate, receive or otherwise utilise applications on the 2G Mobile Network of the 2G Operator, where:

(1) the Access Provider is the relevant 2G Operator; and

(2) the Access Seeker is the relevant 3G Operator or a 3G Mobile Virtual Network Operator.

The functionalities of the 3G-2G Inter-Operator Roaming Service include the ability of the 3G Customer to initiate and receive voice calls, but are otherwise limited to the applications that the Access Provider provides to its own Customers on its 2G Mobile Network which supports Any-to-Any Connectivity.

6.4.1 Initial model results

TSLRIC model results for each option are as follows:

Table 6.25 3G-2G Domestic Inter-Operator Roaming Origination Service
(Sen per minute)

	33%	20%	40%
Local	13.95	21.98	11.97
Long distance	16.62	24.93	14.56
Long distance with submarine	35.11	43.79	32.88

Source: NERA

Table 6.26 3G-2G Domestic Inter-Operator Roaming Termination Service
(Sen per minute/message)

	33%	20%	40%
Local	14.69	22.94	12.65
Long distance	16.88	25.37	14.77
Long distance with submarine	35.37	44.24	33.10
Weighted average			
SMS	0.40	0.58	0.33
MMS	not available	not available	not available

Source: NERA

It is important to note that there are a number of other key structural assumptions that remain unchanged in all Options considered, including:

- the pre-tax nominal cost of capital, which is set equal to 12.24%;and
- the calculation of annual capital charges using tilted straight line function adjusted for changes in prices.

6.4.2 The MCMC's preliminary views

The MCMC believes that regulating 3G-2G roaming is likely to stimulate investment by 3G operators and reducing the barrier to entry otherwise associated with complete or

nearly-complete network rollout. However, the MCMC does not intend to impose regulatory obligations on 3G providers which would unduly induce them to forego socially desirable network expansion and maintenance.

The MCMC's preliminary conclusion is that access pricing should gravitate toward FDC charges to ensure that there will be sufficient incentives for the 3G operator to rollout network, while providing incentives to existing 2G Access Providers' to maintain and upgrade their networks. The FDC of an efficient provider could be approximated by marking-up LRIC charges to account for non-network costs not causally linked either directly or indirectly to service provision.

Application of Criteria

3G-2G Domestic Inter-Operator Roaming Termination Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	N
	Bottleneck	Y
Preliminary Position		LF

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 35: The MCMC seeks comments on its preliminary views about FDC being the most appropriate cost basis for access pricing of 3G-2G Domestic Inter-Operator Roaming service.

6.5 Inter-Operator Mobile Number Portability Support Services

The Inter-Operator Mobile Number Portability (MNP) Support Services comprise the Facilities and/or Services which support mobile number portability for public cellular services, where:

(1) the Access Provider is the provider of the Inter-Operator Mobile Number Portability Support Services, and is the losing provider of the end user service; and

(2) the Access Seeker is the acquirer of the Inter-Operator Mobile Number Portability Support Services, and is the gaining provider of the end user service.

The Facilities and/or Services that support Mobile Number Portability above include:

(1) the Inter-Operator processes to support the implementation of a port;

(2) technological solutions to support the ongoing porting obligation; and

(3) routing and signalling with respect to ported calls.

6.5.1 MNP regulation: the way forward

The Ministerial Direction on Number Portability Direction no. 2 of 2004 directs the MCMC to implement MNP as soon as possible in Malaysia. The MCMC has already involved industry stakeholders in a separate exercise, undertaken to design the most appropriate MNP rules for the Malaysian context. The MCMC is mindful that the LRIC for number portability support services do not depend significantly on the radio transmission technology used, namely GSM (or 2G) or UMTS (or 3G). The MCMC is continuing its work on detailed cost studies and technical planning of the inter-operator processes for the possible alternative solutions to implement MNP. The results of these efforts are going to be the object of a separate public inquiry.

The termination rates being proposed in this PI paper do not include any allowance for the 'per call attempt' costs, if any, of mobile network portability. The MCMC may review the termination rates when costs of MNP implementation are known. If necessary, the MCMC may undertake a further study of termination rates at a later stage to take MNP costs into account.

7. TSLRIC FOR FACILITIES/ SERVICES FOR BROADCASTING NETWORKS

This section presents the MCMC's current views regarding access pricing of:

(1) Broadcasting Transmission Service; and
(2) Digital Terrestrial Broadcasting Multiplexing Service.

and the MCMC's proposed way forward, inviting stakeholders' comments on matters pertaining to access pricing in the broadcasting industry.

7.1 Broadcasting Transmission Service

The Broadcasting Transmission Service (BTS) is a Facility and/or Service for the carriage of communications which comprises a content application service between any technically feasible network transmission points via network interfaces at such transmission rates as may be agreed between the Access Provider and the Access Seeker on a permanent basis.

7.1.1 Initial model results

TSLRIC model results for each option are as follows:

Table 7.1 Broadcasting Transmission for 2006
(RM)

	Taskforce	Mid way Taskforce -FCC	2001 model assumptions
Cost of E3 link per km per annum (use DNTS cost)	83,631	69,459	n/a
Cost of 1 CODECs	23,145	18,937	n/a
Cost of 2 CODECs	46,290	37,875	n/a

Source: NERA

Legend: n/a – not available

7.1.2 The MCMC's preliminary views

The MCMC observes that the analysis which led to the inclusion of the BTS service in the ALD evidenced that the major hurdle in securing access to the service for new entrants had to do with the fact that the BTS service often came bundled with other bottleneck services (for instance, access to tower infrastructure). Currently under the ALD, the Access Seekers can separately obtain BTS and access to tower infrastructure.

Given that BTS is currently associated with a bottleneck facility, the MCMC is of the view that there is justification to regulate the access price of this service based on LRIC.

Application of Criteria

Broadcasting Transmission Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 36: The MCMC seeks comments on its preliminary conclusions about refraining from regulatory intervention for Broadcasting Transmission Services.

7.2 Digital Terrestrial Broadcasting Multiplexing Service

The Digital Terrestrial Broadcasting Multiplexing (DTBM) Service is a Facility and/or Service for the combining of multiple content applications service Transport Streams into a single Transport Stream with or without the addition of conditional access information.

7.2.1 The way forward

The MCMC observes that the digital broadcasting industry is still in its infancy in Malaysia, and this is the case also in the majority of other countries around the world. Technological standards are still being developed, and in many countries the testing phases have not been concluded yet. As a consequence, there is still a lot of uncertainty surrounding issues such as end-users' take up and efficient network configuration.

Hence, the MCMC is of the view that it is premature at this juncture to analyse cost for this service.

Question 37: The MCMC seeks comments on its preliminary conclusions not to undertake costing for Digital Terrestrial Broadcasting Multiplexing Services.

8. TSLRIC FOR OTHER ACCESS LIST FACILITIES/ SERVICES

8.1 Infrastructure Sharing

Infrastructure Sharing is a Facility and/or Service which comprises the provision of physical access, which refers to the provision of space at specified network facilities to enable an Access Seeker to install and maintain its own equipment. Specified network facilities include towers and associated tower sites. Physical access includes power, environmental services (such as heat, light, ventilation and air-conditioning), security, site maintenance and access for the personnel of the Access Seeker.

Table 8.1 Infrastructure Sharing
(Annual RM per linear meter of tower space)

	Option 1 Pure Taskforce	Option 2 Mid way Taskforce -FCC	Option 3 2001 model assumptions
Tower 3L (Average height of up to 100 metres for Peninsular)	3,249	2,676	n/a
Tower 3L (Average up to 100m for East Malaysia)	3,670	3,022	n/a
Tower 4L (Average height of up to 100 metres for Peninsular)	2,784	2,312	n/a
Tower 4L (Average up to 100m for East Malaysia)	3,187	2,646	n/a

Source: NERA

The MCMC is mindful that site cost may differ significantly from one location to another. However, the access prices for the infrastructure sharing services stated in the above Table are geographically averaged.

8.1.1 The MCMC's preliminary views

Given that in many cases tower infrastructure represents a bottleneck facility due to the scarcity of equivalently favourable locations where to erect alternative infrastructure, the MCMC concluded that it was necessary to include infrastructure sharing in the ALD.

At the same time, the MCMC acknowledges the importance of ensuring that charges should include a fair rate of return on existing investment to avoid the undesired effect of delaying desirable new investment.

Access issues including pricing are likely to arise only in a limited number of prime locations, where free commercial negotiations may need some intervention by the MCMC on a case-by-case basis. Overall, the MCMC is confident that market forces can be relied upon on the majority of cases to produce socially desirable results. As a consequence, the MCMC's preliminary view is to refrain from setting access prices for the time being.

Application of Criteria

Infrastructure Sharing Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 38: The MCMC seeks comments on its preliminary conclusions about refraining from regulatory intervention for Infrastructure Sharing.

8.2 Network Signalling Service

The Network Signalling Service is a Facility and/or Service for the interconnection of the Signalling System Number Seven (SS7) network of an Access Provider to the SS7 network of an Access Seeker at the signal transfer points. The information exchanged on signal transfer points of the interconnected SS7 networks include but is not limited to:

(1) Integrated Services Digital Network User Part (ISUP) information;

(2) Transaction Capability Application Part (TCAP) information; and

(3) TCAP/SCCP (Signalling Connection Control Part) services information.

Table 8.2 Network Signalling Service for 2006- Option 1
(RM)

Network Signalling Service	Ports		Cost per C7 Card
Cost of a Signalling Card	1	Ingress or Egress only	3,693
(used a DTS 2mbs port as unit cost proxy)	2	Ingress and Egress	7,385

Source: NERA

Table 8.3 Network Signalling Service for 2006- Option 2
(RM)

Network Signalling Service	Ports		Cost per C7 Card
Cost of a Signalling Card	1	Ingress or Egress only	3,068
(used a DTS 2mbs port as unit cost proxy)	2	Ingress and Egress	6,136

Source: NERA

8.3 The MCMC's preliminary views

Given that the use of network signalling service is associated with the introduction of value-added services (which can be termed as innovative services) provided by the Access Seekers, the MCMC is of the preliminary view that access pricing should gravitate towards non-LRIC. The non-LRIC pricing of efficient Access Provider could be estimated by marking-up the LRIC price.

Application of Criteria

Network Signalling Service		
Issue	Criteria	Preliminary View
Need for regulatory intervention for access pricing	High barriers	Y
	Trend towards competition	N
Preliminary Position		Y
Choice of cost base	Established	Y
	Bottleneck	Y
Preliminary Position		L

Legend: Y- Yes; N- No; ?- on a case by case analysis needed; L– LRIC; F- FDC; LF- intermediate between LRIC and FDC (glide path)

Question 39: The MCMC seeks comments on its preliminary conclusions about refraining from regulatory intervention for Network Signalling Service.

9. ADDITIONAL ISSUES

This section outlines some issues that were escalated to the MCMC during the course of this study by the Taskforce members in relation to the implementation of access pricing. Therefore, the MCMC would like to seek comments from the public on the issues and the proposed way forward.

9.1 Issues for Consideration

9.1.1 Fixed-To-Mobile Substitution

The MCMC has received representation that there is a recent trend towards fixed-to-mobile substitution in both retail access lines and call traffic. Indeed the MCMC observes from data submitted for this study that there is an increase in mobile traffic volume compared with the data received for costing study in 2001. Increased use of mobile network naturally leads to lower access costs to the extent that savings achieved by spreading non-traffic sensitive costs over larger volume of traffic are not outweighed by congestion costs. Conversely, reduced volumes carried over fixed communications network tend to drive up per-minute interconnection charge.

The MCMC believes that cost-oriented charges for access services are strongly needed for markets to ultimately send the correct price signals to end users which will ensure that any retail substitution, if any occurs only insofar as it is consistent with the LTIE.

The MCMC has duly taken into account the current and foreseeable traffic volume trends in estimating LRIC for origination/termination on fixed and mobile networks. With other things equal, the changes in the traffic volume should reduce the difference between access LRIC on mobile network and fixed network. However, the results of the study, indicates that the difference is not negligible due to distinction in network configuration and the corresponding underlying costs. Therefore the MCMC deems that separate LRIC models for fixed and mobile network are still justified.

In future, there may be a need for a symmetrical access prices between mobile and fixed networks, but only if the underlying costs are indeed not significantly different. This is not the case now, and the MCMC anticipates that will not be the case in the medium term.

Moreover, the MCMC notes that imposing symmetrical access prices would not only violate the principle of cost-based, but it may also skew the level playing field in favour of integrated (mobile and fixed) operators. Such operators may take advantage of such

provision to engage in anticompetitive behaviour to unfairly disadvantage non-integrated operator and ultimately monopolize the markets to the end-users' detriment.

Question 40: The MCMC seeks comments on its views regarding the need for differentiated access pricing between fixed and mobile networks where underlying costs still call for asymmetrical cost-oriented charges.

9.1.2 Efficient costs in the Malaysian context

In this costing study MCMC has followed an 'evidence-based' approach. Costs reflective of the Malaysian context have been analysed.

The Communications and Multimedia Act 1998 includes as national policy objectives 'regulation to ensure the long term interests of end-users' and 'promote the efficient allocation of resources'. MCMC has considered the long term interests of end users both in its determination of ALD, and in its policy in respect of access service pricing.

Fully competitive markets normally result in the most efficient allocation of resources but, in the case of termination services, these markets are not fully competitive. Consequently, in seeking to ensure efficient allocation of resources, MCMC prefers to adopt a price setting method that best emulates a fully competitive market, and the LRIC method is the best estimator of competitive market price.
Some operators have expressed concern that MCMC's LRIC methodology does not correctly estimate the efficient cost of doing business in Malaysia.

The MCMC believes that licensees in Malaysia are capable of operating as efficient commercial entities. Hence, the MCMC has estimated costs on the basis that licensees are unfettered and are able to operate as commercial entities. On that basis, the MCMC believes that LRIC is an appropriate methodology for cost estimation. MCMC is mindful of the need to correctly estimate efficient costs, and in pursuit of its evidence-based approach to cost analysis and regulation, seeks data from operators to substantiate examples of unavoidable cost such as restriction on the freedom to make commercial decisions on procurement, staffing level, and site utilisation.

Question 41: The MCMC seeks comments and reasons whether unavoidable cost should be taken into consideration in estimating cost.

Question 42: The MCMC seeks data of unavoidable costs, in the Malaysian context, if any.

9.1.3 Access Deficit

Access deficit is the difference between the total revenue (connection fees and line rental) and the cost of providing the exchange line. An access deficit will arise if these revenues fall short of meeting the cost of providing access.

In 2002, the MCMC carried a Public Inquiry to revoke the Local Access Funding and to implement access deficit. However, due to insufficient data the MCMC concluded that the affected operators should submit evidence to support their claim of access deficit. To date the MCMC, has yet to receive any data pertaining to this matter.

Recently, concerns have been expressed that operators providing PSTN services are incurring access deficit. It has been proposed that the MCMC should take access deficit into consideration in the form of levy or subsidy to the affected operators. In other jurisdictions, operators who incurred access deficit have mostly been compensated via per minute charge levied to the interconnection charges.

Question 43: The MCMC seeks comments on the link between access pricing and access deficit, and how to manage such relationship with a view to achieving the LTIE.

9.2 Practical Implementation of Access Pricing

9.2.1 Need for Time-of-Day Price Differentiation

Current access price regulation in Malaysia only imposes ceilings on 24-hour weighted average prices charged by Access Providers. The negotiating parties are free to apply peak and off-peak prices provided that the 24 hour weighted average are not exceeded.

The MCMC's preliminary view is to continue using the 24-hour weighted average prices approach. However, the MCMC intends to use the present Public Inquiry to understand if there are any issues that are faced by licensees directly related to the implementation of the 24-hour weighted average prices.

Question 44: The MCMC seeks comments on its preliminary views regarding time-of-day price differentiation for regulated access charges.

9.2.2 Access price ceiling versus fixed price charge

The aim of regulating access pricing is to prevent Access Providers from charging unreasonable prices for their network facilities/services. Once a competitive cost-oriented charge has been computed (through LRIC, FDC or other costing approach), the question still remains: should the Access Provider be required to charge exactly the regulated access price to each Access Seeker, or should both parties be given the flexibility to agree on any price that does not exceed a price ceiling?

Adopting the latter approach allows Access Provider and Access Seekers to tailor access agreements to their specific needs, for instance including volume discounts or price reductions for less demanding non-price terms in the access agreements. To the extent that such freedom in negotiation allows parties to realize gains from trade otherwise not achievable, price ceilings appear preferable to fixed-price access regulation. However, Access Providers might use the freedom associated with price ceilings to discriminate one Access Seeker in favour of another. On the other hand, while fixed-price access regulation makes it easier for the regulator to prevent anticompetitive price discrimination, it is overly restrictive as it reduces the flexibility the parties would otherwise have in the negotiation.

Recognizing the trade-off involved in the choice between fixed-price access regulation and imposition of access price ceilings, the MCMC intends to gather the industry views on which alternative seems more appropriate and why.

Question 45: The MCMC seeks comments on which form of access price regulation, if any *price ceilings* or *fixed-price charge*, is the most appropriate for each of the access facilities/ services and the reasons behind such views.