

**Consultation Document**

**Reforming Telecommunications Regulation  
in Bermuda**

**Ministry of Telecommunications  
and e-Commerce**

August 15<sup>th</sup> 2006

## Industry Consultation Document

Having considered in detail the responses received to its regulatory reform consultation process in April and May this year, MTEC<sup>1</sup> now presents for comments the resulting proposal for a revised regulatory framework for telecommunications regulation in Bermuda.

This document describes the proposed new telecommunications regulatory framework and invites comments and feed-back on all components of the framework. No part of the proposed framework has yet been finalised by MTEC and all parts therefore remain open for discussion.

To assist interested parties in formulating their comments and proposals in response to this consultation, MTEC has organised a 1-day workshop on August 22<sup>nd</sup> at the Hamilton Princess Hotel. This workshop will afford the opportunity for MTEC to explain its proposal and for licensees to voice their views and concerns with any part of the proposed framework. We hope that the open debate at the workshop will assist licensees in identifying the key issues they wish to submit written comments on. Once all written responses have been received and reviewed, MTEC will draft a proposal for a revised telecommunications regulation framework which will be submitted to Cabinet for approval. If approved, MTEC will then embark on a programme of developing the detailed components of the new framework, this will be done in an open and transparent manner, using public consultations, hearings and workshops as appropriate to ensure all interested parties have a full understanding of the proposals and that their views are heard and considered in the process.

This consultation document is structured into two main parts:

- A description of the proposed regulatory structure that will be introduced to implement and monitor compliance with the new framework, and
- A description of the proposed core technical components of the proposed new regulatory framework.

Although this document may occasionally use terms such as “will”, “can” or other such definitive terms, this should not be read as the relevant sections being already decided upon. Such language has been inserted purely for the purposes of exposition. All components of this consultation document are still open and comments are invited on all aspects.

Given the significant changes proposed in this document, it is envisaged that the Telecommunications Act of Bermuda would need significant changes or a new Telecommunications Act would need to be drafted to fit the new regulatory regime.

Respondents are invited to submit comments and feed-back on all components of the proposals included in this document, but comments should be structured to mirror the structure of this document as this will facilitate the analysis of responses received. Comments should be addressed to Patricia DeShields no later than September 5<sup>th</sup> at 5 p.m. Responses should be submitted in electronic format and any confidential parts of the responses should be clearly marked as such. MTEC will make all non-confidential responses available on its web Portal.

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<sup>1</sup> Please note that the terms MTEC, Minister and Ministry are used interchangeably in this paper.

## Proposed Regulatory Objectives

The Minister of Telecommunications and e-Commerce recently stated his objectives for the regulatory reform of telecommunications regulation in Bermuda:

- To acknowledge telecommunications as a critical element of the national infrastructure and to encourage the development and maintenance of resilient and redundant physical infrastructures;
- To create an environment whereby the telecommunications sector is a meaningful contributor to the diversification of the economy;
- To promote the growth and sustainability of the industry
- To encourage the deployment and adoption of new products and services that sets Bermuda apart from other competing jurisdictions.

In addition to these, the Ministry has updated the 1996 Government Policy Objectives as follows:

- To ensure that the people of Bermuda are provided with reliable and affordable access to quality public telecommunications services;
- To enhance Bermuda's competitiveness in the area of telecommunications so that Bermuda is well positioned to compete against its "real" global competitors in the tourism and international business markets;
- To encourage the development of a public telecommunications sector which is responsive to the requirements of users (both individuals and businesses) and which provides its users with choice, innovation, efficiency, and affordability;
- To encourage the development and rapid migration of innovative technologies to Bermuda;
- To promote the orderly development of Bermuda's public telecommunications sector;
- To encourage sustainable competition and create an invigorated public telecommunications sector which will lay the groundwork for the further development of telecommunications reliant industries;
- To encourage development and maintenance of resilient and fault-tolerant infrastructures; and
- To promote investment in the public telecommunications sector and in telecommunications reliant industries thereby stimulating the economy and employment.

## Proposal for Regulatory Structure

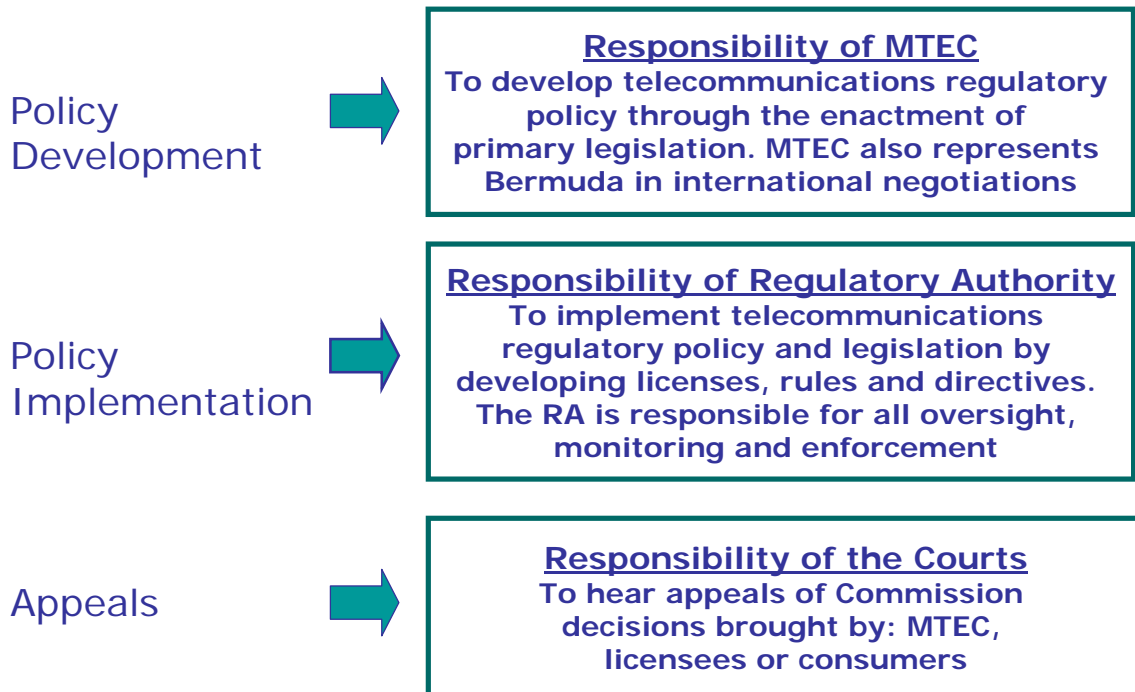
Having considered all the responses received and studied international best practice, including recommendation from leading organisations such as the ITU, the World Bank, OECD and also the structures deployed across the Caribbean, MTEC has concluded that Bermuda's interests will be best served through the creation of an Independent Regulatory Authority.

It is proposed that the new regulatory framework will support the following key principles:

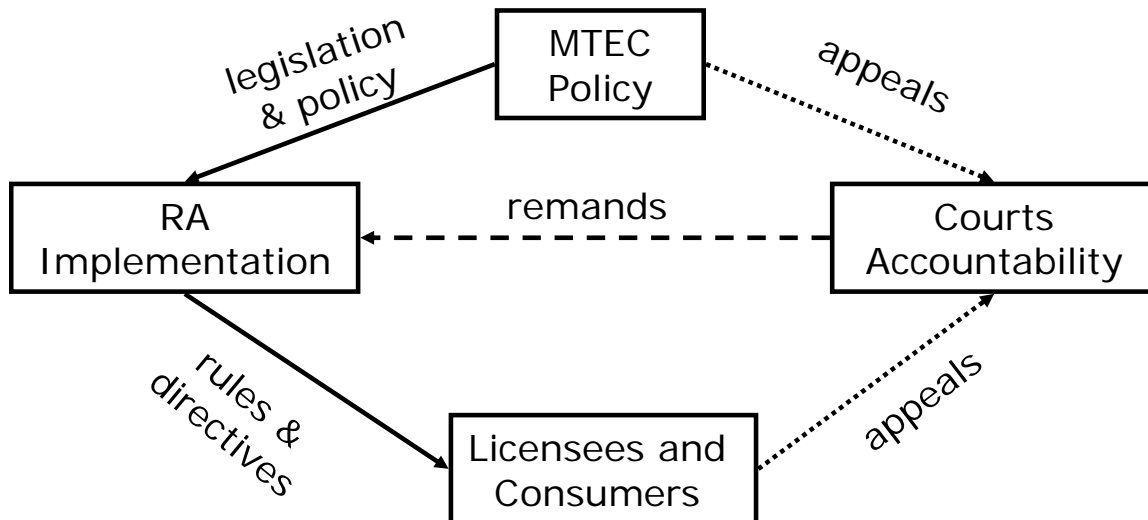
- Transparency,
- Consistency, and
- Accountability

The structure proposed below was widely supported in the responses received to the April 06 consultation and divides the roles of MTEC and the new Independent Regulatory Authority on the principle that MTEC sets policy and generates legislation and the Independent Regulatory Authority is responsible for the implementation of these policies and legislation requirements. It is proposed that the Independent Regulatory Authority's decisions (in implementing the policies and legislative requirements) can be appealed to the Courts, although it may be possible and desirable to introduce the principle of a specialist telecommunications appeals body to which the Independent Regulatory Authority's decisions could be referred in the first instance before referral to the courts. A high-level description of the roles of the MTEC, the Independent Regulatory Authority and the courts is set out below:

## Proposed Regulatory Responsibilities



The regulatory process created through this structure and division of responsibilities is illustrated below:



We describe below in more detail how the proposed new regulatory structure would function and the detailed roles, powers and responsibilities of the three bodies.

### The role and responsibilities of MTEC

The role of the Ministry of Telecommunications will be to establish telecommunications policy through legislation and the publication of policy statements. The Ministry of Telecommunications will also be responsible for acting on Bermuda's behalf during international negotiations and disputes.

The policies established by the Ministry are to be implemented and enforced through the rules and decisions issued by the Independent Regulatory Authority. In the event that the Minister of Telecommunications is not satisfied with the manner in which the Independent Regulatory Authority is carrying out explicitly stated policies, the Minister of Telecommunications can appeal decisions of the Independent Regulatory Authority to the courts or the Minister can propose changes to the telecommunications legislation which guides the Independent Regulatory Authority.

To carry out this role the Minister of Telecommunications will require the support of legal and telecommunications policy advisors, and administrative staff.

The development of policies and the drafting of telecommunications legislation should be as transparent as possible and it is proposed that MTEC would conduct public consultations to ensure its policies are developed based on a comprehensive understanding of the industry. The policy and legislative development would be structured as set out below:

- Development of policy papers
  - Identifying overall Government objectives
  - Consideration of trade agreements and international best practice
  - Internal analysis with MTEC staff and advisors
- Public consultation procedures
  - Publication of draft policy papers
  - Public hearings
- Drafting of primary legislation
- Parliamentary discussion and approval

One significant area in which MTEC needs to develop policy and enact the necessary legislation is in the specification of the roles and responsibilities of the Independent Regulatory Authority. The next section of this paper sets out MTEC's proposed high-level policy for the creation of an Independent Regulatory Authority and specification of its authority, powers and responsibilities.

MTEC would not be involved in the day to day implementation or enforcement of the Telecommunications Act, other legislation, or government policy. These activities would be the responsibility of the Independent Regulatory Authority. Likewise, MTEC would not function as an appeal-body for decisions and rules issued by the Independent Regulatory Authority. Decisions of the Independent Regulatory Authority would be appealed directly to the courts or to an industry-specific appeals body.

## **The role and responsibilities of the Independent Regulatory Authority**

The day to day operations of the Independent Regulatory Authority will focus on achieving its mandate by implementing the policy established by the Minister of Telecommunications. Achieving these goals will require the implementation of clearly defined and transparent processes which rely heavily on industry and public consultation. The general functions of the Independent Regulatory Authority, that is, the methods it uses to implement the policy of the Ministry of Telecommunications fall under the general headings of rulemaking, oversight, monitoring, enforcement and resolution of disputes.

### **Rulemaking**

The rulemaking functions of the Independent Regulatory Authority will include, but not be limited to, the establishment of explicit and transparent procedures addressing:

- petitions for rulemaking, for example, to change existing rules, or adopt new rules and regulations;
- petitions for declaratory ruling, for example, when licensees or consumers require clarification of regulatory rules;
- licensee and consumer complaints;
- licence applications and modifications; and
- issuing and publishing decisions.

### **Oversight, Monitoring, and Enforcement**

These functions define the Independent Regulatory Authority's ability to monitor the performance of industry, ensure compliance with laws, regulations, and licence conditions, and provide the industry intermediate course corrections, as needed.<sup>2</sup> As with other aspects of the Independent Regulatory Authority these functions will be based on a public consultation process that results in clearly defined and transparent processes with respect to:

- dispute resolution and enforcement;
- data collection and discovery;
- determining fault standards for violations of laws, regulations, or licence conditions;
- determining the level of fines, sanctions and/or penalties attributable to violations;
- issuing decisions requiring parties to carry out or cease an activity.

In general, rulemaking proceedings and decisions will be subject to a strict set of administrative rules that will ensure transparency, efficiency, and due process. To increase transparency, *ex parte* communications with the Independent Regulatory Authority will be discouraged, and subject to strict administrative rules regarding disclosure. Similarly, the use of confidential exhibits will be kept to an absolute minimum.

Decisions issued by the Independent Regulatory Authority will have the following minimum general requirements:

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<sup>2</sup> In order to reduce regulatory uncertainty and encourage compliance with laws, regulations, and licence conditions it will be necessary for the Independent Regulatory Authority to issue timely and transparent enforcement decisions with penalties that are both proportionate to the transgression and sufficiently harsh to deter violations.

- clear, concise, and consistent document format which includes unique identifiers such as a proceeding number; a directive number; and the effective date of the directive;
- a procedural history of the investigation;
- a summary of relevant arguments;
- a detailed explanation of the Commission's<sup>3</sup> analysis which shows:
  - a. its decision was based entirely on evidence taken during proceeding; and
  - b. that *ex parte* communications did not influence the decision.
- A timetable for implementing the directive(s); and
- a timetable for filing petitions for reconsideration with the Independent Regulatory Authority.

It is proposed that the Independent Regulatory Authority be given responsibility for matters of governance related to the regulation of the telecommunications industry in Bermuda;<sup>4</sup> its core responsibilities will include, but not be limited to:

- Licensing
- Competition regulation
- Access and Interconnection
- Retail price regulation
- Consumer protection
- Universal service
- Quality of service
- Domestic spectrum management
- Numbering
- Equipment and type approval

### Structure of the Independent Regulatory Authority

There are two general leadership schemes for regulatory authorities, the single regulator or the collegial body. As indicated by its name, the single regulator scheme entails the appointment of a single authority or director general who is empowered to determine the policy, management, and administrative activities of the Independent Regulatory Authority. In this scheme the director general is solely responsible for staffing and budgetary issues, and all of the day to day activities and decision making for the Independent Regulatory Authority. The advantages of the single regulator approach are its administrative simplicity and its ability to uniformly address regulatory issues in a timely manner. However, the single regulator approach is potentially compromised by the facts that it depends greatly on the expertise of the director general and it may make the Independent Regulatory Authority potentially more vulnerable to political and industry capture.

The collegial body approach addresses these issues by utilizing a commission made up of individuals, quite often with different backgrounds and areas of expertise. The primary advantage of this approach is that it allows the Independent Regulatory Authority to exercise a greater depth of expertise. It also provides the Independent Regulatory Authority with a greater level of continuity. Because the collegial body approach spreads the investigative and decision making power amongst a group of individuals it addresses issues from multiple perspectives, and thus, is far less vulnerable to political or industry capture. However, disagreements among Commission member have the potential to retard the decision making process.

It is proposed that the decision making authority and organizational control of the newly constituted Independent Regulatory Authority will rest with a Commission comprised of three

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<sup>3</sup> Please note that the terms 'Commission' and 'Independent Regulatory Authority' are used interchangeably in this document

<sup>4</sup> The proposed Independent Regulatory Authority may also have jurisdiction over broadcasting.

or five part-time members.<sup>5</sup> Commission posts, including that of the Chairperson, will be filled by persons nominated by the Minister of Telecommunications. This proposal calls for Commission members to serve staggered 3 year terms in order to ensure continuity, and be permitted to serve no more than two consecutive terms.

## **Staffing of the Independent Regulatory Authority**

The effectiveness of the Independent Regulatory Authority will depend greatly on the capabilities of its staff. The Commission staff will be responsible for conducting investigations and presenting recommendations to the Commission. To achieve these goals it will be necessary to attract and/or develop personnel with skills primarily in the following fields: law, economics, engineering, and accounting. These positions will be filled by a combination of full and part time staff members.

## **Independence of the Independent Regulatory Authority**

While there is no single blueprint that will guarantee success of the new regulatory framework, it is imperative for the Independent Regulatory Authority to gain a reputation for being fair, impartial, and transparent. This perception must be apparent to industry participants and consumers alike. The fundamental building block to achieving this goal is the establishment of an Independent Regulatory Authority that is a structurally, financially, and functionally independent entity free from outside interference but subject to a rigid system of checks and balances.<sup>6</sup>

Structural independence, that is, the establishment of a Independent Regulatory Authority that is insulated from political or stakeholder influence, significantly reduces the possibility of political or industry capture, and thus, facilitates objective and transparent decision making. Structural independence will be achieved by establishing the Independent Regulatory Authority as an independent body similar to that of the Bermudian Monetary Authority.

It is proposed that the Independent Regulatory Authority will be funded through a combination of fees, fines, and administrative charges. Oversight will be maintained through the publication of an annual report by the Independent Regulatory Authority. This report, which will contain a financial review by an independent auditor and a description of the Independent Regulatory Authority's prior activities and future plans, will be presented to Cabinet and published on the Independent Regulatory Authority's web page.<sup>7</sup>

It is proposed that the Independent Regulatory Authority and its staff be separate and distinct from MTEC. Furthermore, in order to maintain the greatest level of independence the decisions of the Independent Regulatory Authority will be appealable to the courts, who will be empowered to deny an appeal or remand decisions in part or in whole for further review by the Independent Regulatory Authority based on questions of law. In order to discourage tactical appeals all Commission decisions will remain in full force until overturned by the appellate court.<sup>8</sup>

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<sup>5</sup> It is anticipated that Commission members will need to spend 1 to 2 days per week in their capacity as Commissioners. Commissioners will be remunerated in accordance with the time commitment and high levels of responsibility they will assume.

<sup>6</sup> These concepts are not new to Bermuda. Currently, the Bermuda Monetary Authority operates under a similar framework of independence tempered by checks and balances.

<sup>7</sup> An additional set of checks and balances will be in place if the Independent Regulatory Authority is required, as MTEC is now, to first surrender its revenues to the general fund prior to having its budget approved by the Ministry of Finance. However, this additional level of security may reduce the Independent Regulatory Authority's ability to achieve its mandate in an efficient manner if the situation arises where Independent Regulatory Authority programs are deprived of funding.

<sup>8</sup> A tactical appeal, for example, is one in which a party appeals a decision in order to delay the effective date of a rulemaking.

In all, the independence of the Independent Regulatory Authority will be balanced with clearly identified requirements for accountability, including strict procedural requirements, reporting mechanisms, public consultation and judicial review.

## **Proposal for New Licensing Policy and Administration**

### **Policy Development**

In the area of licensing, MTEC will need to develop a clear and unambiguous policy that enables the Independent Regulatory Authority to implement the policy through designing and issuing licences to build and manage telecommunications networks and to offer telecommunications services.

MTEC must specify the powers and responsibilities of the Independent Regulatory Authority with regards to licensing as well as the principles the Independent Regulatory Authority must comply with when designing and awarding licences.

This section of the document sets out MTEC's proposed high-level policies for licensing. More detailed policies and legislation will be developed and will be subject to public consultation prior to implementation.

### **Licensing Authority**

Consistent with international best practice the proposed new licensing regime will separate the licensing process from the political process by granting the Independent Regulatory Authority the power to issue licences to market participants pursuant to the Telecommunications Act. The parameters within which the Independent Regulatory Authority can issue licences will be set by the MTEC, but the administration of the licensing regime will be the sole responsibility of the Independent Regulatory Authority.

### **Licensing Procedure**

A fundamental goal of this reform is to increase the efficiency and transparency of the regulatory processes. To that end the proposed licensing procedure will require that telecommunications licences be issued, amended, or revoked based on criteria established in advance by the Independent Regulatory Authority and published on its web page. The licensing rules established by the Independent Regulatory Authority will be consistent with the policy established by the Minister of Telecommunications and be based on a public consultation process in which consumers, existing and perspective licensees, and other interested parties may offer comment.

### **Licence Regimes**

Consistent with the general liberalization and convergence of telecommunications markets regulatory authorities worldwide are moving away from individualised licences and towards the general or unified licence, and in some cases, towards open entry regimes.

An open entry regime would mean that any person or firm could offer telecommunications services of all categories in Bermuda, this approach is considered unsuitable for Bermuda at this time due to its relatively small market size. The risk of unlimited market entry could discourage investment and/or increase the likelihood that new entrants would focus on only the most lucrative routes or customer segments. As both of these possibilities could threaten to undermine the Government's policy objectives it is recommended that Bermuda will continue to use a formal licensing process to control market entry.

### **Unified Domestic Licences (UDLs)**

It is proposed that a unified domestic licensing regime be developed for Bermuda in which all carriers hold individual, but largely identical licences. Any differences between licences should be clearly justified. General regulatory requirements and the rights and obligations of licensees will be expressed in regulations that apply equally to all service providers. For example, all licensees would be required to meet certain conditions regarding licensing fees,

service quality, consumer protection, and the requirement to provide the Independent Regulatory Authority with accounting and operational data.

Provisions applicable to dominant carriers will be included in the UDL and will be activated upon a decision by the Independent Regulatory Authority that a specific licensee(s) is dominant in a specified relevant market.

UDLs will allow the provision of international retail services to all customer segments, holders of UDLs will be able to purchase international capacity from the international licensees (except Brazil Telecom) on fair, reasonable and non-discriminatory terms.

The advantages of UDLs include:

- creating a more level playing field by eliminating the subjective treatment of licensees;
- being more consistent with the principles of technological neutrality;
- simplifying the regulatory process;
- reducing regulatory and administrative costs for licensees; and
- facilitating the introduction of industry-wide regulatory changes by eliminating the need to amend individual licences.

### **Domestic Market Entry**

The proposed changes to the Bermudian regulatory framework and licensing structure are significant and it is proposed that current licence holders should be allowed a period to adjust to the new regime before applications for new market entrants are considered. At the request of the Minister of Telecommunications, but no later than 3 years from the inception of the new regulatory regime, the Independent Regulatory Authority will issue a public notice and conduct a public consultation for the purposes of determining the degree to which market entry should be encouraged or discouraged in the domestic market segments. The Independent Regulatory Authority will be responsible for sending a detailed recommendation to the Minister of Telecommunications so that an informed decision can be made regarding Bermuda's market entry policies going forward.

### **International Licences**

With the exception of Brazil Telecom, current Class A licence holders (international licensees) will be offered a UDL. However, in order to facilitate investment in additional international connectivity, the existing international licence category will be maintained<sup>9</sup> with certain incentives put in place to encourage, at a minimum, the maintenance of a duopoly in the market for international connectivity.

In order to encourage investment in additional international connectivity the Independent Regulatory Authority will award a Class A licence to a single firm, or consortium, that agrees to provide additional international transmission capacity.

Applicants for the new international licence<sup>10</sup> will be invited to present their business case, capital investment plans, and installation schedule to the Independent Regulatory Authority for its evaluation. As only one licence will be offered, the Independent Regulatory Authority will, in the event that more than one company or consortium applies for the licence, evaluate the applications received based on transparent and pre-specified criteria. The Independent Regulatory Authority's decision will be transparent and based on explicit and objective criteria published on the Independent Regulatory Authority web portal. Upon being awarded an

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<sup>9</sup> Current Class B and Class C licensees will essentially be provided the opportunity to exchange their existing licences for the proposed unified domestic licence. Current Class A licensees will retain their existing licences (including all rights and restrictions) and be provided the opportunity to add the proposed UDL.

<sup>10</sup> All current licensees in Bermuda can apply for this licence, either individually or as a consortium.

international licence, the new licensee will be required to post a bond sufficient to cover the costs of constructing its proposed international link.

In return for its promised investment the new international licensee will be afforded limited short term protections, this time period will be referred to as the Managed Competition Period. The scope of these protections and length of the Managed Competition Period will be determined by MTEC based on explicit and transparent economic considerations, published on its web portal. Prior to the conclusion of the proceeding in which the licence is granted the Independent Regulatory Authority will publish a written recommendation to MTEC regarding the scope and length of the Managed Competition Period.

The Managed Competition Period is intended to allow the firms(s) provisioning the new international link an opportunity to recover some of its costs before it is subject to increased levels of competition. Therefore, during the Managed Competition Period domestic carriers will be limited to negotiating access to international connectivity with the existing international carriers, excluding Brazil Telecom.<sup>11</sup> No additional International licences will be issued during the Managed Competition Period.

Because markets with few suppliers can result in joint dominance the international licensees may be subject to regulated rates for wholesale international capacity. International licensees will be obligated to negotiate with other licensed carriers and supply capacity on reasonable and non-discriminatory terms. Vertically integrated international licensees may be required to pass imputation test to prove that they are charging themselves the same wholesale rates as they charge other carriers.

### **The Transition Mechanism**

In order to transition towards the new unified licensing model which is more technologically neutral and efficient, all current licensees<sup>12</sup> will be given the opportunity to amend their existing licence(s) so that they are authorized to provide any and all domestic retail telecommunications services. The result of these proposed changes will be a transition towards a new licence regime in which every licensed carrier is afforded the opportunity to provide any and all domestic telecommunications services, but only a limited number of carriers will be licensed to provide international connectivity.

### **Fees**

It is proposed that as the current licence structures will be abandoned, the fees payable by licensees should also be streamlined. Two separate fees are proposed:

- A Regulatory Fee – this fee funds the Independent Regulatory Authority
- A Licence Fee – This fee funds the Ministry and other relevant Government activities

As the current fee levels vary substantially between the different licence classes, the new fee structure and fee levels need to be constructed carefully. Detailed consultations on proposed fee structures and levels will be conducted prior to the implementation of the proposed new regulatory framework.

The principles that will be applied to the new fee structure are those of transparency and accountability. In particular, the Regulatory Fee is anticipated to be linked directly to the costs incurred by the Independent Regulatory Authority. To ensure transparency, the Ministry of Telecommunications will publish an annual report detailing costs and revenues of the Independent Regulatory Authority.

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<sup>11</sup> This is consistent with Brazil Telecom's existing licence. This restriction will be eliminated if Brazil Telecom is the party to install the new international link. However, in this scenario Brazil Telecom would likely be subject to regulated wholesale prices.

<sup>12</sup> With the exception of Brazil Telecom who will continue to hold a wholesale-only licence.

## **Foreign Direct Investment (FDI)**

Bermudian Law requires that all firms incorporated in Bermuda should have no less than 60% Bermudian ownership. Certain industries have received block exemptions from this rule in order to encourage investment and innovation. In telecommunications, several current licensees hold individual exemption allowing up to 60 or 100% FDI.

Telecommunications companies have requested and received exemptions on the grounds that they have been unable to raise sufficient capital from local sources. Telecommunications infrastructure projects often require significant amounts of capital. Local sources may be unwilling to provide the capital because of the risk associated with investing in sunk capital. Unlike many other tangible assets, telecommunications facilities are not easily transferable to different use. This raises the risk associated with each project. Furthermore, the local stock market has a low turnover rate relative to foreign capital markets. The reduced liquidity raises the cost of capital.

A unified licensing regime will permit firms to enter markets from which they have previously been blocked. It will be difficult and inefficient to sustain the 60/40 ownership regime under the unified licensing regime. As described above, Bermuda has a history of turning to external sources of capital to finance large telecommunications projects. If such a need arises again in the future, there may again be a need for the level of foreign ownership to exceed 40%.

In the proposed regulatory regime, licensees who currently hold exemptions will be able to enter the markets of firms that are today wholly or at least 60% Bermudian owned. To compete effectively with these exempted carriers the 60/40 compliant licensees may find that they need to access foreign capital to fund necessary investment. If these companies would have to petition for case-by-case exemptions they may be delayed in or even prevented from competing effectively against the already exempted carriers.

It is proposed that the formal 60/40 rule is removed from the telecommunications industry through a block exemption. The prohibition of foreign investment should be replaced with a series of incentives for local Bermudian investment. One such incentive option is that Licence Fees (not the Regulatory Fees as described above) could be increased in accordance with the level of non-Bermudian ownership. Other similar incentive-schemes are under development and consideration and will be consulted upon separately.

## Proposed Competition Regulation

### Policy Development

A core building block for the proposed new regulatory framework is the implementation of the principle of dominance-based regulation. It is the role of MTEC to specify the primary principles and objectives of this aspect of the regulations. This section of the document provides an overview of MTEC's proposed high-level principles for the introduction and implementation of a dominance-based regulatory regime in Bermuda. More detailed provisions for this area will be developed and will be subject to public consultation prior to the development of primary legislation.

### Dominance-Based Regulatory Framework

The proposed new regulatory framework will be based on forward-looking market analyses in which the Independent Regulatory Authority will ascertain whether any one or several licensees are in a dominant position in a relevant market. If dominance is established, the Independent Regulatory Authority can introduce remedies that are proportionate to the likelihood of the licensee(s) abusing the position(s) of dominance, by behaving in an anticompetitive manner. If, despite dominance having been established, an operator has a history of competing fairly in the market, the Independent Regulatory Authority may choose to simply impose increased data submission and non-discrimination remedies. These remedies will enable the Independent Regulatory Authority to monitor the actions and behaviour of the dominant licensee(s) and assist it in reacting swiftly should allegations of anticompetitive behaviour be made against the dominant licensee(s).

Dominance-based regulation means that a dominant licensee's activities will be regulated in the market for which is has been deemed dominant.

### Market and dominance analysis

Market analyses will be structured into two main sections:

- Definition of relevant markets: - product service/geographic
- Analysis of relevant markets to establish whether one or several licensees are dominant in that market.

It is important that the period for which the results of the analysis are intended to be imposed is established up-front. This is because of the need to perform a forward-looking analysis for the period to which the resulting remedies will apply.

#### Definition of relevant markets

The standard way of defining relevant markets for competition analysis is to look at supply and demand-side substitution. Demand-side substitutability is used to measure the extent to which consumers are prepared to substitute other services or products for the service or product in question, whereas supply-side substitutability indicates whether suppliers other than those offering the product or services in question would switch in the immediate to short term their line of production or offer the relevant products or services without incurring significant additional costs. The Independent Regulatory Authority should also consider whether the relevant market covers the whole of Bermuda or potentially a subset of Bermuda. Alternatively, the market could potentially be larger than Bermuda, in which case market players not licensed in Bermuda may need to be included when looking at the level of competition and dominance in the relevant market<sup>13</sup>.

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<sup>13</sup> An example of this could be if companies such as Skype and Vonage were considered to be significant players in the market for international calls.

### Dominance analysis

Once the relevant markets have been defined, the Independent Regulatory Authority should then analyse each of these to ascertain whether any one or several licensees hold a position of significant market power.

Although not sufficient on its own to determine dominance, market share is a key indicator to the potential dominance in the relevant market. A market share in excess of 50%<sup>14</sup> is generally considered to indicate dominance, although additional tests would still need to be undertaken to verify this finding.

In Bermuda, given its relatively small size when compared to many other markets, the dominance analysis should be designed to reflect the relative size and complexity of the market. It is proposed that market share should play a significant role in this analysis along with other key indicators such as absence of potential competition, barriers to expansion, service and product bundling and the size of the undertaking being analysed. A market share in excess of 65%<sup>15</sup> should create the presumption of dominance in Bermuda, with only limited additional tests to verify that finding. A Licensee holding more than 50%\$ but less than 65% market share will be subject to further analysis within a clear framework to be developed by the Independent Regulatory Authority in consultation with the industry. Licensees holding less than 50% market share will be presumed non-dominant unless other significant indicators to the contrary.

### **Remedies**

Once the Independent Regulatory Authority has established that one or more licensee(s) are dominant in a relevant market<sup>16</sup>, it then needs to determine what remedies would be appropriate to prevent anti-competitive behaviour by the dominant licensee(s). In Bermuda, the Independent Regulatory Authority should not assume that all available remedies should automatically be applied to dominant licensees.

The Independent Regulatory Authority should closely monitor the behaviour of the dominant licensee(s) and apply remedies to address specific situations where the Independent Regulatory Authority considers that the dominant licensee(s) behaviour is or is likely to anti-competitive.

As a minimum, dominant licensee(s) should be required to submit data in accordance with the Independent Regulatory Authority's specifications and should be subject to a non-discrimination obligation. Access to regularly submitted market data will assist the Independent Regulatory Authority in performing quick and efficient investigations, should allegations of anti-competitive behaviour be made against a dominant licensee.

Data submission requirements typically imposed on dominant licensees include but are not limited to:

- Preparation and submission of regulatory accounts
- Accounting separation
- Prior approval or notification of pricing for services in the relevant market for which the licensee(s) have been deemed dominant, with accompanying costing data to document that prices are not anticompetitive

Remedies over and above data submission and non-discrimination requirements often include:

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<sup>14</sup> The EU Electronic Communications Framework Market Analysis Guidelines state that a firm holding less than 40% market share is unlikely to be dominant whereas a firm holding more than 50% market share can be presumed to be dominant, although this finding would need to be supported by other analyses.

<sup>15</sup> This was the level of market share used to de-specify C&W when competition in the international market was originally introduced in Bermuda.

<sup>16</sup> Under certain circumstances, two or more licensees may be found to be jointly dominant in a relevant market.

- The preparation and publication of a Reference Interconnection and Access Offer (including cost-based pricing)
- Obligation to offer wholesale/regulated access to other licensees, to the enabling interface before launching a new retail service
- Regulation of retail prices to protect consumer interests in the absence of competitive forces.

The performance of market analyses, dominance analysis and the decisions on which remedies to apply to individual dominant licensees will be conducted in a fully transparent manner, including public consultations and public hearings where appropriate.

### **Data Collection**

To support the competition policy and framework described above, it will be critical that the Independent Regulatory Authority has access to comprehensive and up-to-date information from all licensees.

The market definition, market dominance analysis and specification of relevant and proportionate remedies can only be undertaken if the Independent Regulatory Authority holds the necessary data from industry to inform these analyses and decisions.

Some NRAs collect industry data on a quarterly basis, others use biannual or annual data collection. Again, as with other aspects of the new regulatory framework in Bermuda, the data collection needs to be made proportionate and should aim to reduce the cost of compliance by the licensees to a minimum. Initially, semi-annual data collection should be sufficient to meet the Independent Regulatory Authority's requirements and after 2 or 3 years this could potentially be reduced to annual data collection. Data collected should include but not necessarily be limited to:

- Turnover of the licensee
- Turnover by product/service (retail and wholesale)
- Volumes of each product/service sold (retail and wholesale)
- Unit pricing for each product/service (retail and wholesale)

Other data is also likely to be required.

### **Ex-ante and Ex-post remedies**

The framework described above is based on the principle that the forward-looking market and dominance analyses enable the Independent Regulatory Authority to predict with a certain level of confidence that one or more licensees will be and remain dominant in a specific market for the duration of the specified period.

Remedies imposed on dominant licensees as a result of this analysis are known as ex-ante remedies – that is the remedies are specified and imposed in order to open the market to competitive entry and activity and to prevent anti-competitive behaviour.

Other remedies, known as ex-post remedies, are used in situations where a dominant firm is found guilty of having conducted anti-competitive behaviour. These remedies are imposed after the offence has been committed and are therefore punishment for anticompetitive behaviour.

Typically, in countries where general anti-trust legislation is in place, ex-ante remedies are imposed by the Independent Regulatory Authority and ex-post remedies are imposed either by the Independent Regulatory Authority and the competition authority concurrently or by the competition authority with sector-specific advice from the Independent Regulatory Authority. In countries without general anti-trust legislation, it is important that the Independent Regulatory Authority is vested with powers to impose ex-post remedies as well as ex-ante remedies.

**General anti-trust powers**

The Independent Regulatory Authority should be vested with anti-trust powers specifically applicable to the telecommunications industry. Such powers may include the right to collect data, impose fines and other such appropriate measures.

Although the Independent Regulatory Authority should hold general anti-trust powers, the areas in which these can be applied should be clearly delineated in the law to ensure that the Independent Regulatory Authority acts within the scope and spirit of the overall telecommunications legislation and policy.

## Proposed Regulation of Access and Interconnection

### Policy Development

MTEC will be responsible for the development of access and interconnection policies for Bermuda. Although these can be detailed and technical issues, it is important that the overriding policies are clear, consistent and transparent. In this section we explain MTEC's proposed high-level policies for access and Interconnection for Bermuda.

### Regulating Access and Interconnection

The current access<sup>17</sup> and interconnection<sup>18</sup> framework in Bermuda is relatively simple and has been working well in the licensing silo framework. All licensees have an obligation to offer non-discriminatory interconnection to all other licensees who request such interconnection. This obligation is not linked to dominance or any other measure.

In the new UDI licensing regime, the detailed interconnection and access services and interfaces required by the different licensees are likely to vary depending on how much network and other functionality the licensees already have access to. Thus, some licensees may request access to only specific network elements whereas others may request access to wholesale versions of current retail services.

The new access and interconnection policy for Bermuda will seek to *facilitate sustainable competition through interconnection and access*, thus reducing barriers to market entry and exit, whilst still seeking to ensure that consumers' interests are served. This means that a balance will need to be struck between providing regulated access to facilities and ensuring that the regulated carriers retain investment incentives.

In contrast with the current interconnection provisions in Bermuda, obligations to interconnect will only be applied to licensees deemed dominant in that specific market. This is in line with international best practice and is based on the principle that licensees not in a dominant position would generally benefit from interconnection and would only refuse interconnection if this was considered an undue burden without commensurate benefits to the licensee.

### Access and Interconnection Remedies

Dominant licensees could be subject to a range of regulatory remedies, including:

- Development and publication of a reference interconnection and access offer (RAIO), the typical contents and format of an RAIO are listed below;
- Non-discrimination on interconnection and access terms (commercial, legal, operational and technical);
- Imputation of interconnection and access terms – e.g. the dominant licensee must prove that its' own retail business is subject to the same terms for interconnection and access (underlying all its services) as other licensees;
- Development of cost-based tariffs for interconnection and access - the Independent Regulatory Authority could specify the principles and parameters by which costing and pricing of interconnection and access services and interfaces should be conducted and dominant licensees would thus be obliged to comply with these requirements, if imposed.
- Development and launch of interconnection and access services to support new and innovative retail services, prior to the launch of the corresponding retail service.
- Obligation to negotiate new interconnection and access services and interfaces as requested by other licensees.

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<sup>17</sup> By access, we understand the following: a term describing several different types of access, including to a number of different interfaces, network elements, databases or intelligent functionality. Interconnection is also considered a form of access.

<sup>18</sup> By interconnection, we understand the following: the exchange of telecommunications signals and traffic between two telecommunications carriers, interconnection is a form of access.

- Separation between retail and wholesale sections of the business to prevent information submitted by other licensees for interconnection and access purposes from being used by the dominant licensee's retail business.

The overall policy will be to only apply remedies where necessary and that the Independent Regulatory Authority should demonstrate the need for a specific regulatory remedy before it is introduced. This approach will ensure that all regulatory interventions will result in net benefits to the Bermudian economy.

### **The RAIO**

As explained above, one of the remedies the Independent Regulatory Authority may impose in the area of access and interconnection is the development and publication of a RAIO. The decision whether to impose this remedy will be taken based on the market conditions and the inclusion of the description below is not intended to prejudge whether or not a RAIO will be imposed on dominant licensee(s) in Bermuda.

The RAIO is typically a document structured as a contract which sets out all the relevant terms and conditions applicable to the interconnection and access services provided by the dominant licensee. The RAIO often requires approval by the Independent Regulatory Authority and the scope of the RAIO (e.g. the services and interfaces included and the principles underlying the provision of the RAIO services and interfaces) is typically mandated by the Independent Regulatory Authority.

The RAIO presents a standard contract that the dominant licensee offers to all other licensees who are entitled to regulated access and interconnection. The RAIO is then amended to suit the specific requirements of the licensee seeking interconnection and access. Amendments may include the inclusion of the relevant licensee details, points of contact for different interfaces, removal of the services the licensee does not require, and other such customisation.

### **Pricing of access and interconnection services**

Different services and interfaces in the access and interconnection may be priced using different methodologies.

Some are likely to be priced on a cost plus basis, which means that the dominant licensee charges the actual cost of providing that specific service or interface (sometimes broken down to individual network elements) plus a rate of return determined by the regulator (to reflect the particular conditions relevant to that market and the dominant licensee). Services subject to this pricing principle are typically services that other licensees would find it difficult to replicate either technically or economically. Likewise, services to which cost plus is applied are typically 'basic' services in relatively mature markets.

Other services may be priced on different principles, one of which could be retail minus. Retail minus means that instead of calculating the bottom-up costs of the individual service, the dominant licensee can charge a price to other licensees is based on the price it charges to its retail customers. But it should reduce that retail price by the 'avoidable costs' – i.e. the costs the dominant licensee incurs for retail customers but which it would not incur for the provision of the same services to another licensee (such as retail billing, marketing, and other specific retail costs).

### **Costing of access and interconnection services**

For services where the cost plus pricing principle is applied, the Independent Regulatory Authority will typically specify how the costs of the individual services, interfaces and network elements should be calculated. A number of different options exist for cost calculations, these include:

- Fully-allocated costing (FAC) – this method takes the dominant licensee's financial accounts as its starting point and it then proceeds to allocate the costs to different parts of

the business and individual services within these. The main weakness of this approach is that it automatically includes all the costs incurred by the dominant licensee, regardless of whether these costs reflect inefficiencies in the dominant licensee's operations or redundant technology. Also costs are allocated between services even if they are quasi-fixed and hence not a function of the level of output. The main strength of this approach is that it is relatively quick and requires only limited extra work in order to derive costs for the different access and interconnection services.

FAC can be calculated using either Historic costs (HCA) (i.e. the costs as they appear in the licensee's accounts) or current costs (CCA) (i.e. the cost of the assets if they were procured at the time of calculating the costs rather than in the past). As cost-based interconnection and access services should indicate to an efficient licensee whether it would be best for it to purchase interconnection and access from the dominant operator or to purchase the necessary assets to build the necessary network and other infrastructure itself, the use of CCA is considered to be most suitable. Development of CCA introduces complexity into the FAC process which will increase the cost of undertaking the costing exercise as well as the time required to complete the costing.

- Incremental Costing (LRIC - Long Run Incremental Costing) – This method aims to replicate commercial decision-making in that the costs calculated using this method reflect what incremental cost the dominant licensee would incur if another licensee requested another unit of interconnection or access.

LRIC can be conducted on a top-down or bottom-up basis. That is it can use the licensee's actual costs as the starting point (top-down) and thus incorporating any existing inefficiencies) - although it would be unusual to use Historic costs for LRIC – or it can seek to recreate an efficient version of the licensee's operations (bottom-up). Bottom-up can be done based on two principles, namely scorched node and scorched earth. The former being where the basic network topology is assumed to remain the same but technology and systems are updated to achieve efficiency improvements and the latter being where the network is completely re-designed for optimal efficiency, using fully up-to-date technologies and systems.

The principle that the dominant licensee should only be able to recover efficiently-incurred costs is considered to provide strong incentives to the dominant licensee to introduce efficiency improvements, whereas the ability to recover all costs actually incurred could incentivise the dominant licensee to 'gold-plate' its network and not focus on achieving efficiency improvements.

- Many countries have introduced a migration process from fully allocated to incremental costing whereby over a period of time the costs the incumbent was allowed to recover is reduced from reflecting its fully allocated costs to cost levels reflecting efficiently incurred incremental costs.

Development of costing models is time-consuming and costly. In Bermuda, the Independent Regulatory Authority will be required to consider the costs and benefits of specifying complex costing methodologies over more simple methods, thus ensuring that overall the regulatory intervention will produce net benefits to the Bermudian economy.

## Proposed Retail Price Regulation

### Policy Development

MTEC will be responsible for developing and articulating the telecommunications retail price regulation policy for Bermuda. Below is MTEC's proposed high-level policy for this area. Retail price regulation is a complex area and MTEC will consult on any further development of the telecommunications retail price regulation framework to be introduced in Bermuda.

### Retail Price Notification Approach

The proposed new retail price regulation for Bermuda will be based on the use of market analyses to determine whether a licensee is dominant in a relevant market<sup>19</sup>. Only prices for products and services in the market where the licensee is deemed dominant should be subject to regulatory control.

The new price regulation will mean that whereas today a specified carrier must gain approval for all its proposed new or changed prices, dominant licensees under the new framework will only be subject to regulatory scrutiny for pricing of products and services within the market in which the licensee has been deemed dominant. This will mean that the licensee will be free to price competitively in all other markets (subject to anti-competitive pricing whereby a dominant licensee may seek to leverage its dominance from one market to another through cross subsidisation or other anti-competitive pricing behaviour). This will reduce the burden of price regulation on regulator and regulated alike and should encourage more dynamic and competitive market conditions overall.

Where retail prices are subject to regulation, the form of regulation will change considerably with a shift from the need for prior approval of all prices to simply the requirement to submit proposed new prices, and clearly specified supporting data, to the regulator at a specific period prior to the planned retail launch of the new or changed retail prices. Unless the Independent Regulatory Authority communicates to the dominant licensee within a specified time period from receipt of the proposed new prices, the licensee is free to proceed with the implementation of the new prices. Should the Independent Regulatory Authority subsequently consider that the prices may have an anti-competitive effect in the market, then it is free to launch an investigation and may request that the price or prices be withdrawn or amended.

In the proposed price notification scheme, there is neither implicit nor explicit approval of prices by the Independent Regulatory Authority. Only an enquiry would result in an approval or direction to make a specific change.

### Price Regulation Frameworks

The general notification and regulation framework as described above is suitable for regulation of prices in markets where some competition exists and where, potentially, the dominant licensee has reached its position of dominance through effective competitive marketing.

In the event, however, of a dominant licensee levying retail prices resulting in it earning super-normal profits and if there is little or no prospect of competitive pressure to reduce these prices, it can be necessary to implement a framework that enables the Independent Regulatory Authority to require that the dominant licensee(s) reduce its prices over a specified period of time.

There exist a number of different methods that NRAs can deploy in defining when and by how much a dominant licensee should reduce its retail prices to ensure that consumers are receiving reasonable value for money, given the costs the dominant licensee is facing in the production, supply and delivery of the relevant products and services. The two most used

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<sup>19</sup> Please see paper on Competition Policy for further details.

methods being rate of return regulation<sup>20</sup> and retail price caps<sup>21</sup>. The most suitable approach for Bermuda will be determined based on the specific market conditions taking into account the need for investment and the long-term interests of consumers and carriers alike.

If, when undertaking the market analyses, the Independent Regulatory Authority in Bermuda finds that:

- one or more licensee(s) is dominant in a relevant market,
- that there is little or no prospect of competitive price pressure on the dominant licensee(s) in the planning period, and
- That the dominant licensee(s) is making super-normal profits on the products and services in that relevant market

then the Independent Regulatory Authority may decide that it will impose a retail price regulation framework on the dominant licensee(s).

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<sup>20</sup> Whereby the dominant carrier must set its retail prices such that its rate of return on the applicable services does not exceed a specified level.

<sup>21</sup> Also known as ‘incentive regulation’ whereby the Independent Regulatory Authority determines a percentage by which the dominant carrier’s relevant retail prices must be reduced (after taking account of inflation) – thus incentivising the carrier to reduce its costs by more than the price reduction and maximise returns in the applicable period.

## **Proposed Universal Service Regulation**

### **Policy Development**

Universal Service is a mean of achieving social policy and of social empowerment and as such this an important area for MTEC to develop and publish its policy. Most of the work in this area remains to be completed, but MTEC wishes to include explicit Universal Service obligations in the new regulatory framework. Some general background comments relating to this topic are included below, detailed policy proposals will be developed and consulted upon at a later stage.

### **Universal Service Background Information**

Universal service obligations have traditionally been imposed on the incumbent monopoly wireline carrier(s) as a means to encourage connectivity in remote and high costs areas. These obligations were often funded through cross subsidies within the incumbent carrier's rate structure. However, as competition develops and prices are increasingly driven towards costs, traditional universal service obligations and implicit subsidies have become increasingly difficult to manage.

Universal Service policies traditionally address as a minimum providing affordable connectivity for low-income groups as well as expanding the telecommunications network to un-served areas. More established jurisdictions, like Bermuda, have in recent years defined broader universal service goals that include advanced telecommunications services and access to the Internet.

Any definition of Universal Service must be consistent with the policy established by the Minister of Telecommunications. The definition of Universal Service will likely include a description of the type(s) of services, consumers, and providers eligible or required to participate in the program. The Independent Regulatory Authority will be responsible developing a mechanism to finance the Universal Service policy established by MTEC.

## Proposed Consumer Protection Regulation

### Policy Development

The general promotion of fair trading practices in Bermuda is enacted through the Consumer Protection Act 1999. Industry-specific provisions, embodied in the current Telecommunications Act, require specified carriers to submit prices for approval by the Commission and all licensed telecommunications operators in Bermuda must make their pricing available for public inspection, as well as file copies of their price plans with the Commission.

MTEC will develop explicit consumer protection parameters to be included in the revised Telecommunications Act. These parameters will be developed in a fully transparent manner, including public consultation and public hearings as appropriate. Below is an overview of MTEC's outline policies in this area.

### Consumer protection Framework

If the proposed new regulatory framework discussed in this document is introduced, it is possible that the resulting industry structure, with increased competitive pressures and the potential for market abuse, will require new measures to ensure continued consumer protection.

International best-practice protects the rights of telecommunications users in areas such as:

- Access to details of the terms and conditions on which services are provided;
- Not being subjected to unfair discrimination;
- Provision of accurate and detailed billing information;
- Maintaining consumer privacy and preventing misuse of personal data;
- The provision of services in a safe and secure manner;
- The means to seek redress when problems arise;
- The opportunity to present views and opinions to operators and service providers on matters of public interest.

Many of these factors can be addressed through comprehensive Customer Service Level Agreements with additional support from general legislation in areas such as data protection and fair trading.

MTEC is proposing to introduce an international best practice consumer protection framework in Bermuda.

Some protection may be achievable through a degree of industry self-regulation. A joint initiative between the Independent Regulatory Authority and industry would allow both parties to explore and develop additional means of affording consumers' protection through the adoption, for example, of voluntary codes, Customer Service Level Agreements or an industry ombudsman. Where necessary, further regulatory decisions may be necessary to enforce such protection.

## Quality of Service Regulation

### Policy Development

Monitoring the Quality of Service delivered by licensees should be an important part of the Independent Regulatory Authority's role. MTEC will be responsible for formulating the policy on how this will be achieved in Bermuda. Below is an overview of the high-level principles MTEC is intending to deploy. Further detail will be developed at a later stage and will be subject to public consultation.

### Quality of Service monitoring and transparency

At present there is no provision in the legislation for licensed carriers to submit quality of service (QoS) statistics to MTEC or to the Commission, nor for the Commission to publish any comparative QoS statistics to enable customers to compare performance of the different licensees and to encourage licensees to improve QoS.

Although price levels are often the area where most attention is focused with regards to the benefits of competition in telecommunications, QoS is also a very important parameter at both retail and wholesale levels.

It is important that the Independent Regulatory Authority has access to QoS information for a range of activities so that it can use the information to inform its decisions in relation to resolution of disputes between licensees or potential allegations that a licensee is discriminating between customers such as to convey a competitive advantage for one customer over another customer.

Discrimination in QoS is a frequently-seen area for disputes between interconnecting operators, in particular if the dominant operator is vertically integrated and the other licensees claim that it is favouring its own sister company over other licensees with regards to QoS. QoS parameters often disputed in this respect include time to install new lines or interfaces, Bit Error Rate on voice interconnection circuits, time to repair faults, and other similar parameters that could confer a competitive advantage on one interconnecting licensee over other interconnecting licensees.

QoS parameters also provide a measure of how a market is developing, the impact of competition and the effect of regulatory policies. They can, therefore, be a valuable tool for the Independent Regulatory Authority when reviewing and developing policy and a useful source of comparative information for consumers.

It is proposed that the Independent Regulatory Authority has the power to require all licensees to submit a certain level of QoS data, specified by the Independent Regulatory Authority, in order to police licence compliance as well as respond in a timely fashion to QoS complaints (retail or interconnection) filed against a licensee. Licensees deemed to be dominant in one or more relevant markets may be required to submit additional data as dominant licensees may have specific non-discrimination conditions applied and therefore specific data may be required to monitor compliance with such conditions and to assist in the resolution of any potential disputes arising in this area.

Consistent with all other components of the proposed new regulatory framework, the Independent Regulatory Authority will only require that licensees submit data that it deems necessary for it to discharge its functions. This is to avoid imposing an undue burden on licensees to collect data which may not be necessary. In accordance with good international practice, it is proposed that the Independent Regulatory Authority shall draw up a proposal for data it requires licensees to submit and that the Independent Regulatory Authority shall consult with the licensees on the proposed data submission. Consultation assists the Independent Regulatory Authority in understanding how licensees generate different types of data in their operations and networks and enables the Independent Regulatory Authority to specify its data requirements such that the burden on the licensees is minimised.

It is good practice for the data requirements to be reviewed by the regulator on a regular basis to ensure they remain pertinent and sufficient. Typical requirements include the following:

- supply time for initial network connection
- fault rate per connection
- fault repair time
- call failure rates for national and international
- transmission quality statistics
- response times for operator, directory enquiry and customer services
- availability of coin and card-operated telephones in public telephone boxes
- billing accuracy and timeliness
- customer complaint resolution times

In addition to submission of QoS data, it is proposed that the Independent Regulatory Authority should have the power to specify requirements licensees for the development of Service Level Agreements. The Independent Regulatory Authority may require that such Service Level Agreements should be subject to approval by the Independent Regulatory Authority. Service Level Agreements may be applied in both retail and wholesale markets and in some circumstances it may be appropriate that non-compliance with the Service Level Agreement results in a penalty payment by the licensee. It is proposed that the Independent Regulatory Authority should be authorised to mandate where penalties should be applied and what such penalties should be.

## Regulation of Numbering

### Policy Development

Numbering is a national resource and as such MTEC needs to specify policy objectives for the deployment and management of this resource. Below are MTEC's initial thoughts for Numbering regulation policies, further details will be developed and will be subject to public consultation prior to implementation.

### A forward-looking Numbering Policy

Numbering policies have traditionally been designed to accommodate circuit switched voice telephony services and adapted, as necessary, to accommodate mobile telephony.<sup>22</sup> However, with the advent of IP technology, and more specifically, the growing popularity of VoIP telephony, regulatory authorities must determine the degree to which numbering resources and/or traditional voice carrier obligations should apply to firms using these new technologies. For example, in some jurisdictions VoIP firms have been permitted to offer phone numbers corresponding to the geographic location of the end-user so long as the VoIP provider adhered to the obligations imposed on traditional circuit switched voice telephony providers. In other jurisdictions VoIP specific numbering blocks have been created.<sup>23</sup>

Bermuda is part of the North American Numbering Plan (NANP) and has been assigned the 441 area code. Because this allows for millions of unique phone numbers in a jurisdiction with a population of roughly 60,000 people, telephone number scarcity, a common problem in large jurisdictions, should not be a significant issue in Bermuda if managed efficiently.<sup>24</sup>

It will be the responsibility of the Independent Regulatory Authority to implement the numbering policy established by the Minister of Telecommunications. Arguably, the most significant numbering issue facing Bermuda in the near future relates to the treatment of VoIP telephony. Other issues that are likely to merit consideration in the near future are:

- the degree to which existing number allocations are being utilized in an efficient manner;
- determining how to geo-locate VoIP callers;
- determining how to route emergency calls placed by VoIP callers to the appropriate emergency service;
- ENUM<sup>25</sup> and;
- the management of country code level Domain Names.

Going forward, the Independent Regulatory Authority will, on its own motion, or at the request of the Minister, a licensee or consumers, initiate proceedings to explore the costs and benefits of solutions to the aforementioned issues. To that end the Independent Regulatory Authority will encourage the establishment of a Telecommunications Committee comprised of licensees and interested parties. The Telecommunications Committee will meet on a regular basis to discuss numbering (and other industry issues, such as spectrum management) and to present recommendations to the Independent Regulatory Authority and MTEC.

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<sup>22</sup> In calling party pays regimes, a distinct group of phone numbers is assigned to mobile carriers so that parties is aware that higher per minute calling charges is applied.

<sup>23</sup> For example, Ireland, France, Germany, and Austria.

<sup>24</sup> Previously in Bermuda, numbering was handled by industry participants through workshops in which the Ministry provided light oversight. These 'carrier meetings' were used to develop industry recommendations that would be sent to the Commission for its approval. Currently, numbering issues are handled by MTEC on an ad-hoc basis.

<sup>25</sup> ENUM is an international initiative on electronic numbering in which a traditional telephone number is converted into an IP address. The purpose of this initiative is to introduce a fully neutral approach to numbering that addresses technological convergence.

In order to increase transparency and administrative efficiency the allocation of all numbering resources will be published on the Independent Regulatory Authority web portal.

## Proposed Domestic Spectrum Management

### Policy Development

Like numbering, spectrum is a national resource and as such it is the role of MTEC to establish the policy to be applied to issuing and managing the use of spectrum in Bermuda. With new technologies emerging it will be of critical importance that Bermuda's spectrum policy enables the rapid employment of these policies so as to stay ahead of the majority of countries in the development of new and sophisticated telecommunications services. MTEC's thoughts on the spectrum policy area are set out below, further detail will be developed and will be subject to public consultation.

### Spectrum Policy for Bermuda

In Bermuda, radio spectrum has been allocated in accordance with the ITU frequency allocation table. However, because of its small size, spectrum scarcity has not yet become a significant constraint in Bermuda.

As with many small jurisdictions, Bermuda has awarded blocks of free spectrum to carriers without an auction, lottery, or comparative evaluation process. No fees have been levied on carriers requesting spectrum allocations, however, MTEC requires subscribers to maintain a personal radio licence at a rate of \$5 per month per using.

The general effect of convergence on the telecommunications industry is causing policy-makers and regulators to consider two fundamental changes with respect to spectrum management. First, regulators are beginning to award spectrum licences that do not limit the type of technology used to provide service(s) or the type(s) of services the licensee can offer. Thus, rather than specifying a technology-service combination in a spectrum licences regulators are adopting a technologically neutral approach in which licensees and market forces determine both the number and type of technology-service combinations.

Second, regulators are beginning to allow both spectrum trading. Authorized spectrum trading allows current and future licensees to sell or trade spectrum rights to a third party. Limitations on spectrum trading may either require that the third party adhere to the restrictions placed on the original licensee or allow unrestricted use of the spectrum so long as the third party adheres to existing rules regarding interference.

Consistent with international trends, Bermuda will continue to assign spectrum in accordance with the ITU frequency allocation table. Continuing along this path will reduce the likelihood of interference and allow providers to access infrastructure designed for the spectrum bands established for the global market. In order to increase transparency and administrative efficiency a continually updated list of existing (and proposed) spectrum allocations will be published on the Independent Regulatory Authority web portal.

Going forward, the Independent Regulatory Authority will, on its own motion or at the request of the Minister, a licensee, or consumers, initiate proceedings to explore the costs and benefits of:

- establishing an auction for future spectrum allocations;
- adjusting or eliminating the existing monthly \$5 personal radio license;
- proposals to reduce or eliminate interference;
- spectrum trading; and
- facilitating the roll out of Wireless Local Area Networks (WLAN and WiFi) and WiMAX technology.

Such proceedings will provide the Independent Regulatory Authority the opportunity to carry out the policy goals established by MTEC in a transparent manner through public consultation.

## **Equipment and Type Approval Regulation**

Bermuda has traditionally relied on international organisations, especially the standards bodies established within the ITU framework, for the specification and approval of equipment that can be deployed in telecommunications networks in Bermuda. Currently, Telecommunications apparatus imported into Bermuda is required to be issued with type-approval certification by MTEC.

The Telecommunications Act specifies particular requirements for radio apparatus with regard to radiation levels, spectrum frequency and testing/maintenance of equipment.

Whereas the current system is efficient and transparent to the market it will be continued under the newly proposed regulatory framework under the jurisdiction of the Independent Regulatory Authority. Consistent with other aspects of this proposal all requirements and procedures for obtaining type approval will be documented and published on the Independent Regulatory Authority's web portal.