



Telecommunications Regulatory Reform Policy

**Ministry of Energy, Telecommunications
and E-Commerce**

By

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1 Executive Summary

1.1 Introduction

1.1.1 The Reform

The Minister of the Energy, Telecommunications & E-Commerce (METEC) has received the Cabinet approval, on June 24, 2008, of the policy proposal set out below and authorise that drafting instructions are issued for its implementation. It is proposed that two new acts be drafted as follows:

- A Utility Regulation Act, which establishes a new utility regulation authority for Bermuda (the RA); and
- A Communications Act to replace sections of the Telecommunications Act 1986 as amended (The Telecommunications Act).

A review of the remainder of the provisions of the Telecommunications Act, including broadcasting, shall be undertaken subsequently and a separate broadcasting act will be drafted to replace the remainder of the Telecommunications Act.

METEC has recently concluded an extensive consultation process which started in August 2005. The process included four consultation papers, two plenary meetings/Round Tables, numerous one-on-one meetings with current licence holders and research involving business and residential telecommunications users and a Town Hall Meeting open to the general public. The reform proposal that has emerged from this process seeks to create a regulatory framework that meets Bermuda's current and future needs and The Government's Telecommunications Regulatory Objectives and which is consistent with international best practices.

1.1.2 The need for reform

Convergence of technologies and service platforms is driving innovation and efficiency in telecommunications across the world. Bermuda's fragmented telecommunications industry is presently unable to fully participate in these developments due to the current licensing structure which prevents carriers from offering service bundles outside their authorized class. Carriers are largely restricted to one of three classes of service, international, ISP, or domestic telephone provider¹. This makes little economic sense today as digital technology allows for large efficiencies when multiple services are provided over one network. The existing licensing restriction could cause Bermuda to fall behind other countries on innovation as investment required for innovation could be prohibitive if a wider range of services cannot be offered by individual carriers.

1.1.3 Proposed reform

The proposed reform has two major components:

- Splitting the policy-making from the implementation and enforcement of the policies – this will be achieved through the creation of an independent regulatory authority (RA) to take responsibility for the implementation of the Ministry's policies and for overseeing the telecommunications industry, and
- Reform of the licensing structure, removing the current structure of separate licence categories, based on services provided, to introduce a single standard communications licence available to all qualifying licensees.

¹ 'A' licences for International providers, 'B' licences for domestic telephone providers with infrastructure (fixed and wireless), and 'C' licenses for ISP providers.

Creation of a Regulatory Authority (RA)

It is proposed that the RA should partially replace METEC and fully replace the current Telecommunications Commission. Appeals of decisions by the RA would go directly to the courts.

The RA will be formed of two groups:

- The Commission, and
- The technical staff

It is proposed that a four-person Commission² be appointed and that the Commission be supported by professional staff, including personnel with engineering, economics, legal and accountancy skills. The RA technical staff would consist of seven to nine people in total. The RA would be funded completely by industry.

METEC would retain responsibility for development of policy, legislation as well as representation of Bermuda in relevant international policy fora.

Reform of licensing structure

The proposed new standard licence (the Communications Licence (CL)) would be a standard text. The activities and market standing of individual operators would determine which parts of the licence text apply to each of them.

The licensing reform would mean that all operators would be able to offer all services, including ISP services and domestic and international telecommunications services. This raises a number of potential transition issues:

- Smaller operators may feel threatened that larger operators can enter their market and possibly act anti-competitively towards the smaller operators;
- The removal of different licensing categories will cause direct competition between operators with different levels of obligations relative to the 60/40 rule (e.g. some have exemptions). This may require a new approach to the management of the 60/40 rule in the industry; and
- The current licence fee structure, which differs between licence categories, would need to be streamlined.

These points are explained more fully below:

Protecting smaller operators against anti competitive behaviour

The proposed regulatory framework is based on a defined market analysis process in which operators found dominant³ in a defined market would be subject to one or more regulatory controls. The regulatory controls would be defined by the RA⁴ and would be aimed at preventing anticompetitive behaviour as well as at protecting consumer interests.

In particular, to prevent anticompetitive behaviour in the transition period, the new standard licence would not be offered to dominant operators until the RA has defined necessary regulatory measures to prevent anticompetitive behaviour and the dominant companies have complied with these measures.

Foreign direct investment (FDI)

² The Commission would consist of three voting Commissioners and the Head of Staff for the RA who will be a full Commission member but who would not have a vote

³ See the glossary for a definition of dominance and other economic and telecommunications terms.

⁴ The scope of regulatory controls would be set out in the Communications Act – the RA would not have discretion to define controls outside this scope.

Presently telecommunications licensees comply with the 60/40 rule to varying levels as several have complete or partial exemptions, issued by the Ministry of Finance. The levels of exemptions provided are roughly grouped in line with the current licence groupings with 100% exemptions for the 'A' licensees, partial to 100% exemptions to 'B' licensees, and no exemptions to 'C' licensees at present. This means that from a competition perspective, the playing field is relatively level within each of the existing licence groups.

Reform will change the competitive landscape in Bermuda telecommunications markets by removing licence categories. The foreign ownership restrictions applicable to businesses in Bermuda may constrain individual companies' ability to respond to this. As a result the Government may see an increase in the number of requests to increase FDI.

Standardizing licence fees

It is proposed to introduce two separate fees:

1. A Licence fee, based on a standard formula applied to all licensees derived from a percentage of each licensee's revenues. The formula would produce different percentage levels for individual licensees depending on the level of Bermudian ownership and the percentage of local employees. The fee would decline as the percentage of Bermudian ownership or employment increased.
2. A Regulatory Fee. This will be a percentage of revenues earned by each licensee. The exact percentage would be set to cover the RA's budget on an annual basis. The RA would be accountable for its budget and a ceiling would be set to prevent excessive expenditure.

1.1.4 Consumer protection measures

The proposed reform would include duties for the RA to protect consumer interests in a range of areas including, among others: retail price regulation, universal service provision, quality of service level provisions, and consumer communications and data protection.

2 Introducing the Proposed Telecommunications Regulatory Reform

Bermuda's economy, as with all modern economies, is increasingly dependent on up-to-date, resilient and affordable telecommunications facilities and services.

Although the current regulations and legislation have served Bermuda well and have encouraged investment and competition across the different sectors of the industry, they are now (and have been for some time) struggling to accommodate the pace of convergence between different industry sectors and technology platforms. This has been born out by many requests from current licensees to enter the markets covered by different licence types⁵, litigation regarding what constitutes the allowable set of services that a licence holder can provide, as well as by requests for exemptions from compliance with the 60/40 Bermudian ownership rule in order to finance capital investments to support networks and innovative services.

This document describes the reform proposed by the Ministry of the Environment, Telecommunications and E-Commerce (METEC). The reform proposal is the product of extensive analysis, references to international best practice as well as nearly three years of consultation with the industry and the public⁶.

It should be noted that proposals in this document are intended to be applicable to the telecommunications industry only.

Please note that a glossary of some of the specialist telecommunications and regulatory/economic terms is contained in Appendix C to this document.

2.1 The Case for Change

Technology is evolving rapidly as one single piece of equipment can now deliver a range of different services, whereas previously each service tended to require separate equipment and investment. Current regulations limit the number of services that can be provided by each licensee. This, in turn, limits the ability of existing licence holders to enter new markets.

Bermuda is a progressive and advanced society where technology innovations are adopted quickly and willingly. Additionally many of Bermuda's domestic and international businesses rely heavily on resilient and up-to-the-moment facilities and services in telecommunications.

Given the convergence in technology platforms and different services, companies investing in these new technologies would wish to make the full use of the investments. They may be reluctant to make these investments if the regulatory and licensing framework dictated that they could use only a limited portion of the functionality available.

Bermuda is in a leading position with regards to its telecommunications facilities and the proposed reform is intended to further strengthen that position by creating an evolutionary framework, based on international best practice but adjusted to reflect Bermuda's specific needs and characteristics. The proposed reform is imperative if Bermuda is to maintain its enviable position because the regulatory structure must be modified to reflect the evolving technology and marketing practices of telecommunications firms.

⁵ Please refer to Appendix A – Current Licence Structure

⁶ Please see Appendix B – Overview of Consultations and Planned Reform Process

2.2 Scope of the Proposed Changes

The changes discussed in this document pertain to the telecommunications regulatory environment only. Therefore although METEC recommends that new legislation be drafted and adopted to support the proposed reform, the proposals do not extend to the full scope of the current Telecommunications Act, which also covers matters pertaining to broadcasting, satellite communications, and other activities not covered by this reform proposal⁷.

It is therefore proposed that two new acts be drafted and adopted as follows:

- A Utility Regulation Act, which establishes a new utility regulation authority for Bermuda (the RA); and
- A Communications Act to replace sections of the Telecommunications Act 1986 as amended (The Telecommunications Act).

Separate acts are recommended because of the objective to establish a regulatory framework that can be applied to different industries. It is common practice around the world to have a regulatory authority with oversight powers over a number of industries. The general framework of a regulatory agency applies equally to all regulated industries. For example, the enabling legislation for the authority establishes the size of the commission, and its general powers and objectives, such as the establishment of just and reasonable rates. This is achieved through the introduction of a Utility Regulation Act.

The second act is needed in order to establish the specific regulatory powers that the RA has over the telecommunications industry, as well as industry specific policy objectives. An example of an industry specific rule for telecommunications would be the universal policy objectives that apply to the telecommunications industry. An industry specific rule is placed in a separate act in order to make it clear which rules apply to all industries subject to the RA's oversight, versus laws that are specific to an industry.

A review of the remainder of the provisions of the Telecommunications Act, including broadcasting and other specialist telecommunications activities, would be undertaken subsequently and separate legislation⁸ will be drafted to replace the remainder of the Telecommunications Act.

The parts of the current Telecommunications Act that are relevant for telecommunications should ultimately be superseded by the new Communications Act⁹ whilst the remainder of the current Telecommunications Act remain in place until such time that a review of broadcasting and other communications regulation has been completed and any resulting new legislation or amendments to other legislations that have been drafted and adopted.

2.3 Main Components of the Proposed Reform

This reform proposal deals with a wide range of issues which would need to be covered by the regulatory regime. Some of these issues (whilst important components of the regulatory framework such as numbering policies, spectrum allocations, consumer protection and universal service provisions) would not see significant changes over and above increased transparency and an increased emphasis of compliance with international best practice where applicable and appropriate. Those issues are therefore

⁷ The Drafting Instructions that would be issued as a result of Cabinet Approval of this reform proposal will include details of the parts of the Telecommunications Act that would eventually be superseded by the new Communications Act and which parts would remain unaffected by this reform proposal.

⁸ Or additions/amendments to existing acts.

⁹ Once all licensees have opted to adopt a CL or existing licences have expired.

not discussed in detail in this section but further details can be found in section 3 of this paper.

Outlined below are the areas in which the proposed reform would cause the biggest changes.

2.3.1 Separation of Policy-Making and Implementation

The proposed reform involves the creation of a new Regulatory Authority (RA) which would be responsible for the implementation and enforcement of policies developed by METEC. This is discussed further in section 3.3.2.1.

2.3.2 Licensing

The proposed reform would move Bermuda's licensing structure from one in which individual companies are licensed to operate specific infrastructure and offer specific services to one in which all licensed companies could operate all infrastructure and offer all services in accordance with their individual business plans and strategies.

The result of this reform would mean that while today, licensees compete only with other companies in the same licence group; after the reform they could compete with all licensees and this is likely to result in an increase in competition across the board. For example, where some companies are currently licensed to offer only local services, under the new regime they could offer local and international voice and data services.

Potential impact

Bermuda has a larger number of licensed telecommunications providers than most other markets of its size. This is partly a result of the current licence framework where cross-service competition is not accommodated. If the service-specific licensing is removed, then this could result in a reduction of the total number of licensees, but most likely in an increase in the number of providers offering any one type of service. Thus consumers would likely see an increase in choice. Price competition should increase with potential resulting price reductions, and the increased scope of individual licensees could increase scope for innovation both in services and in tariff plans offered to residential and business customers.

2.3.3 Foreign Ownership

Along with other businesses in Bermuda, telecommunications companies must comply with the 60/40 Bermudian ownership rule. There are however several exceptions within the telecommunications industry where the Minister of Finance, after consultation with the Minister responsible for telecommunications, has granted exemptions to individual companies arguing that they need access to international financing in order to build and grow their businesses.

The 60/40 exemptions given to telecommunications companies are to a certain extent aligned to the different licence categories, with the international (Class A) licensees holding 100% exemptions, some national (Class B) licensees holding partial or 100% exemptions, and no ISP (Class C) licensees holding exemptions. This distribution also to a certain extent reflects the level of capital investment required in each licence category.

Reform will change the competitive landscape in Bermuda telecommunications markets by removing licence categories. The foreign ownership restrictions applicable to businesses in Bermuda may constrain individual companies' ability to respond to this. As a result the Government may see an increase in the number of requests to increase FDI.

Potential impact

METEC has designed the proposed reform to create a flexible regulatory framework that encourages competition across service categories and that can deliver benefits to Bermudian residents and businesses. An important element of the proposed reform is to retain the incentive for licensees to retain as high Bermudian ownership as possible and also to employ as many Bermudians as possible.

METEC believes that incentives should be provided to the licensees to have Bermudian ownership to the extent feasible and to employ as many Bermudian staff (at all levels) as possible. To this end, a new licence fee structure is proposed as part of the reform in which licensees with high foreign ownership and/or many foreign employees would pay a higher percentage of their revenues in fees.

METEC has undertaken a considerable amount of analysis of the potential impact of a policy supporting 60/40 exemption in the industry, as well as the potential impact of proceeding with the reform without this component.

2.3.4 Retail Price Regulation

It is proposed that retail price regulation for telecommunications should be changed, so that the RA has the power to determine the degree of necessary price regulation. For example, the RA may determine that dominant licensees are only required to notify the RA of their proposed prices and the RA does not approve prices specifically. The RA could investigate prices by dominant licensees at any time and could require that a proposed price or prices not be implemented until it has completed its analyses.

Price regulation can also be used to influence the distribution of economic benefits. Price regulation can be used to ensure that vital services remain affordable to customers in lower socio-economic groups.

Potential impact

This proposal is likely to decrease the regulatory burden on licensees and enable all licensees to compete in the market without undue regulatory interference.

The proposed regulatory structure should also mean that the RA would only investigate prices where it has cause to believe that anticompetitive effects may result or consumers will be harmed. This reduces overall regulatory costs and allows the competitive dynamics to cause price reductions for the benefit of consumer.

2.3.5 Universal Service Regulation

Universal Service is a means of achieving social policy and social empowerment and as such this is an important area for METEC to develop and publish its policy. Thus, it is important to include explicit universal service policy objectives in the new Communications Act and regulatory framework.

The proposed regulatory framework calls for METEC to develop the Universal Service policy and for the RA to implement this policy in a fair, transparent and equitable manner.

Potential impact

Although Bermuda is unlikely to be in a situation of having parts of the country under-served by telecommunications networks and services, it is possible that a universal service policy can assist in advancing take-up and availability of services which can contribute towards social empowerment.

The scope of the universal policy would be critical as would the funding mechanisms developed for the universal service provision. These would be developed once the main new legislation is passed.

2.3.6 Regulation Principles

The reform proposes that regulation be applied more stringently to licensees that have been found dominant by the RA. The principle of minimal regulatory intervention would be applied across all areas and, where possible, self-regulation would be encouraged.

To implement dominance-based regulation it is necessary for the RA to gain a detailed understanding of the market and its players. It would therefore be necessary for the RA to collect data from the licensees and, based on this, it could make its dominance analyses and subsequent decision on regulatory intervention.

All analysis and decisions by the RA would be based on the principles of transparency and proportionality. The RA would be obliged to conduct public consultations and take due notice of all responses received and it would be required to issue fully documented and justified decisions, setting out its analysis and reasons.

It would not be practicable to introduce the other proposed changes without also moving to a dynamic dominance-based regulatory regime where a licensee is regulated only in the market(s) where it is found to be dominant. The current system in which a licensee is 'specified' for all its services would prevent a firm that is dominant in only one market from competing freely in all the remaining markets, thus distorting competition and imposing inappropriately high regulation on specified licensees.

The form of regulation must be modified to reflect that firms operate in multiple markets where they have different levels of market power. The current legislation does not provide this level of flexibility. Currently, a firm is either specified, and therefore all of its rates are closely regulated by the Telecommunications and Broadcasting Commissions, or they are not specified. The latter type of firm is subject to comparatively light regulatory oversight. The current regulatory regime is not sufficiently flexible to deal with a situation where a firm has significant market power in one market, but not in another.

Potential impact

It is likely that, initially, the proposed reform would cause an increased regulatory workload on licensees as they would be required to supply the data requested by the RA and would wish to respond to consultations issued by the RA. Once the initial set-up phase is completed however (approximately 12-18 months) it would be expected that the transparency and predictability of the proposed regulatory framework would improve business planning and investment conditions for telecommunications in Bermuda.

An important change from the current regulatory framework is that the RA would be obliged to undertake regular market reviews in which it would identify any dominant licensee(s). A licensee could move from dominant to non-dominant in a particular market and as a result be subject to significantly less regulatory scrutiny and obligations.

2.4 Overview of Costs and Benefits

Regulatory reform is expected to provide significant benefits to the economy of Bermuda. The proposed policy would allow licensees to enter markets which they are currently prohibited from serving due to the licensing regime. Stated differently, licensees that are currently operating in protected markets would be faced with new rivals or potential rivals who are blocked from entering these markets by today's licensing regime.

For example, mobile carriers would be able to quickly introduce new technologies without having to be concerned about the degree to which their new services may or may not be permitted under the licence¹⁰.

In the landline market it is expected that there would be increased competition with the incumbent in the residential market as a result of the regulatory reform. The international market would experience greater price rivalry due to the elimination of the barriers-to-entry.

The benefits from rivalry would extend well beyond the likely decrease in retail prices. Customers would be more likely to have a choice of services from alternative physical network providers. Businesses in Hamilton have already experienced the benefits from being able to obtain service from several networks. The regulatory reform, in combination with the current international tender process for the right to land a new cable in Bermuda, has established one or more alternative paths between Bermuda and North America. This resiliency is highly-valued by the international and domestic business community as well as public safety officials. Businesses who are seeking international locations would place a higher valuation on locating in Bermuda because of its evolving robust network.

In summary, regulatory reform should lead to lower prices, more rapid introduction of new products, and greater resiliency.

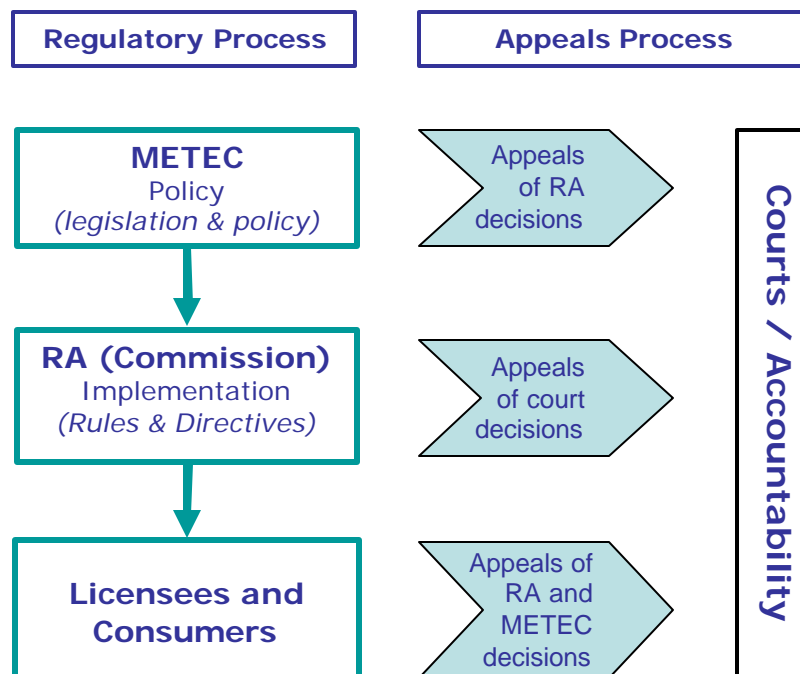
¹⁰ E.g. The mobile carrier who secures the rights to market the iPhone in Bermuda would be able to market all of the services that are available through the device without having to be concerned if some of the products might be deemed an impermissible service

3 Discussion of Detailed Policy Proposals

3.1 Structural Changes Proposed

Today METEC, supported by the Telecommunications and Broadcasting Commissions, is responsible for setting policy as well as implementing, enforcing and managing the policies. The proposed reform would create a separate and independent RA. The resulting structure would be one in which METEC retains responsibility for the development of policies and international representation of Bermuda in telecommunications whilst the RA would assume responsibility for the implementation and management of the regulatory regime in Bermuda. Another significant structural change in this proposal is that appeals of the Commission's decisions would go straight to the court, rather than to the Minister. Likewise, challenges to Ministerial decisions would go via the courts.

Below is an illustration of the proposed regulatory structure and processes.



3.2 Regulatory Objectives

In this document METEC proposes to implement significant changes to many aspects of the regulation of communications in Bermuda. However, these changes largely reflect an updated approach to achieving Government's existing regulatory objectives, as opposed to a completely new set of objectives, as it remains the steadfast aim of the Government's policy to foster the development of the public telecommunications sector to the benefit of the people and economy of Bermuda. Thus, METEC proposes the following regulatory objectives:

- To ensure that the people of Bermuda are provided with reliable and affordable access to quality public communications services;

- To enhance Bermuda's competitiveness in the area of communications 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 communications 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 communications sector;
- To encourage sustainable competition and create an invigorated public communications sector which would lay the groundwork for the further development of communications reliant industries;
- To encourage the development and maintenance of resilient and fault-tolerant infrastructures;
- To promote investment in the public communications sector and in communications reliant industries thereby stimulating the economy and employment; and
- To promote Bermudian ownership and Bermudian employment at all levels of the communications industry.

3.3 Regulatory Structure

3.3.1 Introduction

Due to the regulatory structure established by the Telecommunications Act of 1986, the regulatory function in Bermuda is performed jointly by four separate bodies: the Minister, who has wide discretionary decision making powers; the Department of Telecommunications, which supports the Minister in regulating the market; and the Telecommunications and Broadcasting Commissions, which consist of groups of part-time¹¹ lay people who are largely employed in an investigative and advisory role on behalf of the Minister.

Presently, there is limited collection of telecommunications market data and few transparent principles and processes for decision-making. A lack of transparency and efficient administrative procedure serves to decrease the consistency and efficiency of the regulatory process. Inconsistent and opaque regulatory processes increase regulatory risk and impede investment incentives for licensees.

3.3.2 Policy Objective

It is proposed that a new regulatory structure is introduced, which embodies the following key principles: transparency, consistency, accountability, and efficiency.

The primary manner in which these goals would be achieved is through redefinition of the role of METEC and the courts, and the establishment of an independent RA to handle the day to day activities and tasks necessary to monitor and regulate the Bermuda communications industry.

The proposed new regulatory structure would be established through primary legislation (a new Utility Regulation Act and a Communications Act) that would define the legal framework and hierarchy within which the communications industry would be

¹¹ The Telecommunications and Broadcasting Commissions traditionally schedule bi-weekly or monthly meetings to address regulatory issues. However, scheduling conflicts amongst the part-time members often prevent a quorum so the resolution of issues is sometimes delayed.

regulated.¹² The legislation would provide for the establishment of the RA, along with its jurisdiction, responsibilities, funding, and powers of enforcement. The primary legislation would also define the role and responsibilities of METEC and the courts.

Although the legislation for telecommunications would address fundamental social and regulatory concerns such as universal service, interconnection, spectrum management, and numbering, it would do so at a high level so as to provide the RA significant latitude to make specific determinations on these (and other) issues through issuing orders, directions, and procedural rules. According to the International Telecommunication Union (ITU):

This legal hierarchy provides certainty and predictability to consumers and other stakeholders because it specifies the rights and obligations (i.e., the rules of the game) that apply to the sector. Such hierarchy provides assurances to stakeholders that secondary legislation (e.g., rules, decrees and instructions) cannot be used by the government to nullify certain rights and obligations set forth in primary legislation. This stable environment, in turn, encourages investment and increases consumer confidence in the sector.¹³

3.3.2.1 Division of Responsibilities

METEC proposes that Government create an independent regulator and divide METEC's current communications responsibilities between two separate bodies: –

1. METEC – responsible for policy development and international regulatory affairs, and
2. An RA – responsible for implementation of policy and domestic regulatory affairs

It is proposed to redefine the role of the Minister responsible for Telecommunications so that his primary responsibility, in the area of telecommunications, would be to develop the legislation and policies for the RA, and the principles by which the RA would abide. METEC would retain responsibility for representing Bermuda in international contexts, including negotiations for satellite orbit slots, international spectrum assignment, and other similar international policy matters. The day to day regulation of the communications industry would be transferred from METEC to the RA while the courts would bear the responsibility for hearing appeals.

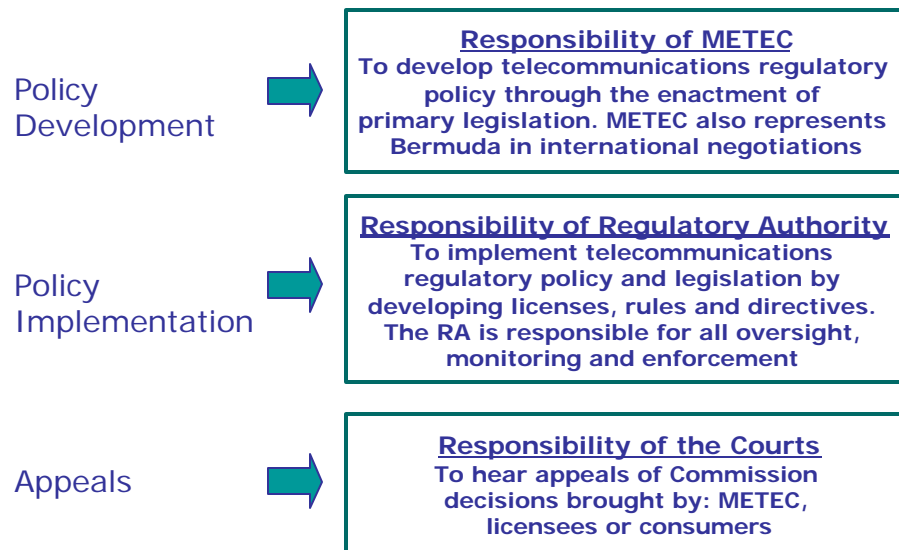
The proposed division of responsibilities is in line with international best practice¹⁴ and the process flow created through this regulatory structure is illustrated in the diagram that follows.

¹² Please note that the sections in the current telecommunications Act dealing with broadcasting matter would remain in place until a review of broadcasting has been completed. This is explained in section 2.2 above.

¹³ <http://www.ictregulationtoolkit.org/en/Section.1650.html> Module 6; Section 3.1.3.

¹⁴ <http://www.oecd.org/dataoecd/56/11/35954786.pdf>

Proposed Regulatory Responsibilities



Each party's responsibility in this proposed regulatory structure is discussed in greater detail below.

3.3.2.2 Role and Responsibilities of METEC

It is proposed to redefine the role of METEC so that its primary responsibility would be to establish telecommunications policy through new and amended legislation, and the publication of policy statements. METEC would also be responsible for acting on Bermuda's behalf during international negotiations and disputes such as those regarding spectrum allocations and satellite orbit slots¹⁵.

The policies established by the Ministry would be implemented and enforced through the orders, rules, and regulations issued by the RA. In the event that the Minister is not satisfied with the manner in which the RA is carrying out explicitly stated policies, the Minister may appeal decisions of the RA to the courts and/or the Minister may propose changes to the legislation which guides the RA.¹⁶

METEC's policy and legislative development would include the development of public policy papers which would, at a minimum, identify overall Government objectives, consider trade agreements and international best practice, and provide the supporting analysis by METEC's staff and advisors. METEC would also be required to employ consultation procedures whose minimum requirements include public consultation and hearings, and the publication of draft policy papers so that METEC may consider the comments of all effected parties prior to finalising its policies.

Structure of METEC

To carry out his role as legislator and policy maker, the Minister, as the head of METEC, would require the support of legal and telecommunications policy advisors, and administrative staff. It is anticipated that METEC's staff would be comprised of

¹⁵ METEC may delegate representation at some functions to the RA as appropriate, subject to costs to be assumed by METEC

¹⁶ The appeals process is discussed below in the section The Role and Responsibilities of the Judiciary

approximately six to eight personnel, including administrative staff.¹⁷ It is estimated that METEC's funding requirements may be reduced by as much as \$300,000 due to the transfer of responsibility to the RA.

3.3.2.3 Role and Responsibilities of the RA

The RA would be given responsibility for all matters of governance related to the regulation of the communications industry in Bermuda. As such, the RA's core responsibilities would include, but not be limited to the governance of:

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

Regulatory interventions would be designed, implemented and policed by the RA. It is therefore necessary to set out a framework that outlines the RA's duties and powers regarding imposition and scope of regulatory interventions.

Structure of the RA

It is proposed that the RA would be comprised of two main groups; a Commission which is responsible for making all decisions for the RA¹⁸, and a full-time professional and administrative staff that supports the Commission.

It is proposed that the RA be led by a 4-person Commission – made up by three voting Commissioners and the RA Head of Staff, working full-time but who would have no vote on the Commission. All Commission positions would be salaried at a senior professional level.¹⁹

It is proposed that positions on the Commission would be filled as follows:

- The vacant positions for Commissioners would be advertised, with clear specification of duties and qualification requirements²⁰. The selection of the Commissioners would be done by a Selection Committee, created to represent the relevant interest groups in Bermuda, including but not limited to business, consumers, workers and the Government. Commissioners should be confirmed by the Minister, who should not unreasonably withhold his consent.

¹⁷ It is anticipated that there would be a net increase of employees when considering METEC and the RA together.

¹⁸ Commission would be authorized to delegate routine decisions to staff, providing that such decisions are concerned with the implementation of rules already decided by the Commission

¹⁹ Given that the position requires a two-day work week, voting Commissioners would be salaried at 40% of a full time position.

²⁰ Commissioners would not need background in telecommunications or regulation, but should be individuals capable of complex analysis and with a professional background

- The position of Chairperson of the Commission would be determined by Commission vote, with no person serving more than two consecutive terms as Chairperson.
- The head of staff would be a non-voting member of the Commission for the term of his or her employment with the RA. The head of staff would not be able to act as Chairperson of the Commission.

Commissioners would be appointed for periods of three years with staggered terms to ensure continuity.²¹

METEC proposes that the RA technical staff would be comprised of seven to nine full-time professionals²² (including administrative staff) with skills in the fields of economics, accounting, engineering, and law. The RA staff would be led by a full-time head of staff recruited²³ based on a clear specification of technical skills and experience.

Independence of the RA

To ensure that the RA can operate free from undue influence, METEC proposes the establishment of an RA that is structurally, functionally, and financially independent from all Government agencies and stakeholders.

Structural independence, that is, the establishment of an RA that is insulated from political or stakeholder influence, facilitates objective and transparent decision making. This could be achieved by establishing the RA as a body similar to that of the Bermuda Monetary Authority ("BMA"). Consistent with this proposal, the RA and its staff would be separate and distinct from METEC and the civil service.

Fiscal independence would be ensured by funding the RA through a combination of fees and administrative charges levied on the industry. Fiscal (and functional) oversight would be achieved through the publication of an annual report by the RA. This report, which would contain a review of the RA's accounts by an independent auditor and a description of the RA's prior activities and future plans, would be tabled in the House of Assembly and published on the RA's web page.

It is proposed that the independence of the RA would be balanced by clearly identified requirements for accountability, including strict procedural requirements, reporting mechanisms, public consultations, and judicial review.

Function of the RA

To achieve its mandate the RA would rely heavily on industry and public consultation. The RA would also be required to develop and adhere to strict administrative processes that are clearly defined and consistent.

Rulemaking and regulatory proceedings of the RA would be subject to a strict set of administrative rules to ensure transparency, efficiency, and due process. While permissible in general information collection and consultation processes, *ex parte* communications with the RA would be strongly discouraged in connection with dispute resolution processes, and would in such contexts be subject to strict administrative rules

²¹ It is recommended that the initial terms for the three positions on the Commission be for 4, 3, and 2 years, respectively, with the person holding the 2 year position being named Chairperson. When the Commission is reconstituted after year 2, the Commissioners would hold a vote to determine which Commissioner would become the Chairperson

²² It is anticipated that some of the initial RA staff may be expatriates. This is due to the skill-sets and experience in economic sector regulation required for the RA possibly not being available in Bermuda. All positions will, however be advertised in Bermuda and Bermudians will be employed if they meet the selection criteria. The budgeted number of professional staff in the RA has been increased to allow Bermudian staff to undertake training and potential secondments to more mature RAs. This is to develop skills in Bermuda in order to eventually phase out the need for expatriates within the RA staff.

²³ The initial Head of Staff would be selected by the Director of the Department of Telecommunications and subsequently approved by the Minister; subsequent appointments would be approved by the Commission

regarding disclosure. Similarly, the use of confidential exhibits, while permitted, should be kept to an absolute minimum in dispute resolution proceedings.

The rules, regulations, and orders issued by the RA would have to follow strict administrative procedures to ensure transparency²⁴ and consistency in its decisions.

3.3.2.4 The Role and Responsibilities of the Judiciary

It is proposed that decisions made by the RA would be subject to judicial review by the courts. Decisions of the RA may be appealed by the Minister, licensees, and/or consumers. According to this proposal the courts would only be empowered to hear an appeal, or remand decisions (in whole or in part) for further analysis by the RA, based on either questions of law, or mixed fact and law. In the event of a remand, the court would provide the RA with a detailed explanation as to why the decision was deemed to be illegal and/or wholly inconsistent with the facts, so that the RA is well placed to reconsider the issue(s) in question and return a decision that would withstand legal scrutiny. The courts, however, would be prohibited from imposing specific solutions or remedies on the RA as the courts would be required to defer to the RA's expertise in all factual matters, except where an obvious and egregious error has been committed by the Commission. It is proposed that the judiciary should not award a stay upon appeal of a decision by the RA unless the execution of the decision would cause significant and irreparable harm on the appellant. It is proposed to retain the existing rules regarding the escalation of appeals up the judicial chain. Similarly, METEC's proposal does not restrict parties' ability to seek judicial review of legislation or Ministerial decisions.

The proposed regulatory process is illustrated in Section 3.1 of this document.

3.3.3 Impact Analysis

The regulatory structure described above should increase the efficiency and transparency of the regulatory process and result in greater accountability, more consistent decision-making, and ultimately, fewer appeals.²⁵ Both licensees and consumers are expected to benefit from the reduced regulatory risk brought about by a clear and consistent regulatory process.

It is not anticipated that the proposal would cause a significant impact on Government's budget given that the Licence Fee contribution to the Government General Fund is anticipated remain unchanged. The net increase in costs due to the creation of the RA would be borne by the industry.²⁶ It is expected that the cost increase to licensees (and ultimately consumers) would be largely offset by the increased efficiency and transparency of the regulatory function.

According to the proposals contained herein, orders, rules, and regulations issued by the RA would be appealed directly to the courts. This policy change may increase the court's workload in the early stages of the reform process as the new framework 'settles down'.

²⁴ Transparency can be ensured by requiring a detailed explanation of the Commission's analysis which shows that the decision was based entirely on evidence taken during the proceeding and that *ex parte* communications did not influence the decision.

²⁵ It is noted that there may be an initial spike in the number of appeals and court's workload until licensees and consumers gain familiarity with the new regulatory process and the interpretation of the new Communications Act.

²⁶ Based on current operator turnover and project budget requirements for the RA, the Regulatory Fee would amount to less than 1% of industry revenues.

3.4 Licensing

3.4.1 Introduction

Presently in Bermuda, there are three separate licence groups (the Class As, Bs, and Cs²⁷). Each group has different rights and obligations, and each group is subject to the 60/40 Bermudian ownership rule with different levels of exemptions granted. The different licence groups have resulted in a fragmented telecommunications market in Bermuda, which impedes investment in new technologies and services due to limitations on the type of services that can be provided by each licensee. This tension has led to merger discussions between firms in different licence groups prior to the initiation of this policy review.

Convergence across industry sectors, technologies, and services means that the artificial market structures established by segmented licences are becoming increasingly difficult and inefficient to maintain. The maintenance of these artificial boundaries could result in under-investment, which is not in the interest of either the public or the business community, and therefore, is not in the interest of the Bermuda economy.

3.4.2 Policy Objective

This policy proposal has two main objectives within the area of licensing:

1. To encourage innovation and investment by removing the current service-specific licence boundaries, allowing all providers to compete across the full set of communications services, and thus, access economies of scope to facilitate investment in the relatively small communications market in Bermuda; and
2. To reduce regulatory uncertainty by introducing a standardised and predictable licensing process.

3.4.3 Licensing Policy, Authority, and Procedure

The RA would be responsible for issuing licences and for the monitoring of compliance with all licence conditions. The RA's duties, responsibilities, and powers relative to licensing would be set out in the policies and legislation developed by METEC.

3.4.4 Communications Licences

It is proposed to move from the current three licence categories to a single standard Communications Licence (CL) which would authorise the licensee to offer all communications services and to build and operate all communication infrastructure and apparatus as it sees fit. It is proposed to standardize the licence text so that only details relevant to the individual licensee (e.g. company name etc.) would be specific to the individual licensee.

The CL would be a standard document for all licensees. It would not be necessary to modify the licence if, for example, a licensee wanted to expand its service portfolio or build new infrastructure.

The CL would include provisions for the RA to impose, enforce, and monitor compliance with regulatory remedies and restrictions on licensees found to be dominant in one or more relevant telecommunications markets in Bermuda.²⁸

It is proposed that current licensees would be offered CLs. This is discussed in some detail below.

²⁷ Please refer to Appendix A – Current Licensing Framework for a definition of these terms

²⁸ Please see section 3.6 for a discussion of dominance analysis and the remedies that may be applied

3.4.4.1 Domestic Market Entry

Bermuda has a comparatively large number of telecommunications licensees relative to its market size and METEC therefore proposes that no licences would be issued initially to new firms after the implementation of the regulatory reform. This is to allow the current licensees to adjust to the changed market conditions without the additional challenges posed by potential new market entrants.

It is proposed that the RA would review whether the market should be open to new licensees. This review would be undertaken at a time to be decided by METEC, but no earlier than one year after and no later than three years after the implementation of the regulatory reform²⁹. Depending on the result of the RA's review, the Minister may decide to either permit or deny further market entry. There should be no presumption that the market would be opened to new licensees at the completion of the review.

3.4.4.2 Implementation and Transition Mechanisms

Dominance tests

It is proposed that current licensees be offered CLs in exchange for their current service-specific licences. Each licensee would only be offered a CL once it has either been deemed non-dominant³⁰ in all markets or it has complied with the remedies imposed by the RA in relevant markets where it has been deemed dominant.

The purpose for not allowing dominant licensee access to the CLs until they have complied with the relevant remedies is to prevent any abuse of dominance by these licensees in markets where other (non-dominant) licensees are active. This should therefore protect the smaller licensees from anticompetitive market behaviour by larger dominant licensees.

CL Acceptance process

Each licensee would be offered a CL and would be free to accept it or retain its current licence. If not all licensees accept a CL, a process would need to be developed under which the non-CL licences would be phased out³¹. The CL will however be designed to make it attractive for licensees to migrate to the CL. If licensees do not move to the CL then they will have to cover the costs of continuing the old regulatory regime.

International licence provisions

Current holders of Class A licences³² would need to demonstrate compliance with non-discrimination rules before a CL is made available to them. This means they would have to offer non-discriminatory prices and other terms and conditions for access to international services and capacity. They must also show that services offered to their retail customers incorporate these prices, terms and conditions.

Exceptions

A few organisations currently hold Class C licences but are either not actively using them or the licences are peripheral to their activities. It is proposed that such licence holders be given the opportunity to demonstrate either their need for a CL or that they should be granted a licence within a special licence category to enable them to continue their current activities (e.g. not offering public telecommunications services) outside the CL framework.

²⁹ Regulatory reform is considered to be completed when the new legislation has been adopted by Parliament.

³⁰ Please see Appendix B - Overview of Consultations and Planned Reform Process

³¹ Non-CL licences would not be renewable

³² TeleBermuda International and Cable & Wireless (Brasil Telecom holds a special wholesale-only a licence and is treated separately).

3.4.5 Impact Analysis

Bermuda has a larger number of licensed telecommunications providers than most other markets of its size. This is partly a result of the current licence framework where cross-service competition is not accommodated. If the service-specific licensing is removed, then this could result in a reduction of the number of licensees overall, but most likely in an increase in the number of providers offering any one type of service. Thus consumers would likely see an increase in choice. Price competition should increase with potential resulting price reductions and the increased scope of individual licensees could increase scope for innovation both in services and in tariff plans offered to residential and business customers.

The academic literature, as summarized in Appendix D - The 'Inverted-U', indicates that consolidation may increase the rate of technological innovation. Recent empirical work has found there to be an inverted-U shape relationship between innovation and the level of competition. At first, starting with a monopoly, an increase in competition leads to an increase in innovation. But as the intensity of rivalry increases, that is the number of licensees offering a specific service increase, the innovative activity reaches a maximum value and additional rivalry reduces the level of innovation. Although we do not know with certainty how the increased competition would affect the level of innovation in Bermuda, we believe that the reduction of barriers-to-entry associated with licensing would spur innovation in Bermuda.

The academic literature is clearer regarding the effect of eliminating the 60/40 rule. Recent researchers have addressed the impact that the reduction of barriers to entry to foreign products and firms has on the innovative process. They find both theoretically and empirically that the elimination of barriers has an overall positive effect on innovation and productivity growth in an economy. The impact though varies depending on the efficiency of operation of the domestically owned firms: "The higher the threat of entry, the more instrumental innovations would be in helping incumbent firms already close to the technological frontier retain the local market. However, firms that are already far behind the frontier have no chance of winning against a potential entrant."³³

A more detailed discussion of this issue is presented in Appendix D - The 'Inverted-U'.

3.4.6 Fees

It is proposed to streamline the current multi-tiered and service specific licence fee structure into a standardized system³⁴ which consists of two separate fees:

1. a Licence Fee and
2. a Regulatory Fee.

The Licence Fee, payable to the Accountant General, would be based on a percentage of each licensee's relevant revenue using a published scale that is applicable to all licensees. The Licence Fee scale would be established based on Government budgetary requirements and published on the Ministry of Finance, METEC, and RA websites. The revenue percentage paid by each firm would be proportional to both the level of foreign ownership and the level of foreign employment in that firm. Thus, firms with high levels of foreign ownership and/or a high percentage of foreign employment would be required to pay a higher percentage of revenues in their Licence Fee.

³³ Philippe Aghion and Rachel Griffith, Competition and Growth: Reconciling Theory and Evidence (2005): Cambridge: MIT Press, pp. 67, 71 (quote), 74-77.

³⁴ In the current license fee structure Class A carriers pay a higher percentage of their revenue, but are exempted from paying import duties on capital assets. After consulting the Ministry of Finance on this matter it is proposed to standardize the application of import duties on qualifying infrastructure capital assets for all licensees ending the exemption for all licensees

The Regulatory Fee, payable directly to the RA, would be a flat percentage of revenue for all licensees. The amount of revenue collected each year would reflect the RA's agreed work plan and budget for the year in question.

Both of the aforementioned fees would be levied based on each licensee's revenue over and above a minimum threshold. This threshold, which would be increased over the current level, would ensure that smaller firms are not unduly burdened by the fees. The Regulatory Fee would be subject to a cap in terms of the maximum percentage of licensees revenues the RA can collect. It is proposed that the cap be set at 3%. It is proposed that the budget for the RA would be set in advance for the relevant year so that licensees are not faced with unanticipated costs at the end of the year. Similarly, fines and administrative charges would not be used as a means to close budgetary gaps. To ensure transparency, the RA would publish an annual report detailing costs and revenues of the RA.

3.4.7 Impact Analysis

METEC notes that the newly proposed fee structure would result in changes to the fees payable by individual licensees as the fees would no longer be linked to the type of licence each firm holds and/or the services they offer. Instead, each licensee's total fee would reflect the firm's level of foreign ownership and employment, and a proportionate amount of the cost incurred to provide regulatory oversight.

3.5 Foreign Direct Investment

3.5.1 Introduction

Bermudian Law requires that all firms incorporated in Bermuda and providing service to the domestic market should have no less than 60% Bermudian ownership. In telecommunications, several current licensees hold individual exemptions allowing up to 100% Foreign Direct Investment (FDI). Licensees 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 at reasonable rates because of the risk associated with investing in sunk capital.³⁵ Furthermore, the local stock market has a low turnover rate relative to foreign capital markets. The reduced liquidity raises the cost of capital.

In the proposed regulatory regime, licensees who currently hold exemptions would 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.

3.5.2 Policy Objective

It is proposed that any requests for further 60/40 exemptions by telecommunications licensees will be considered on their individual merits, recognising that companies with restricted access to foreign investment may be disadvantaged.

Further, it is proposed that the licence fees payable to the Government should reflect the level of foreign ownership by each licensee as well as the level of foreign employment in each licensee. This would ensure that licensees are incentivised to keep Bermudian ownership and employment as high as possible.

³⁵ Unlike many other tangible assets, telecommunications facilities are not easily transferable to different use, this raises the risk associated with each project

3.5.3 Impact Analysis

Individual companies considering requesting 60/40 exemptions would have to carefully consider whether they really need the increased foreign ownership as this would result in an increase in the licence fee payable to the Government. The scale of increased licence fees linked to foreign ownership will be published on the RA's and the Ministry's websites and therefore readily available to licensees.

It is important that the process for seeking 60/40 exemptions be handled expeditiously and based on standard parameters in order that firms can plan their business activities and investments in what is likely to become a fast-moving competitive environment.

3.6 Proposed Competition Regulation

3.6.1 Introduction

Encouraging competition in markets that depend on the use of a physical network controlled by the existing provider(s) typically requires regulatory intervention. This is to ensure that competitors are allowed to interface with the existing providers' network(s) and (to the extent deemed necessary to encourage competition) can purchase access to the existing providers' network(s) to develop and deliver competing services to customers.

3.6.2 Policy Development

A core building block for the proposed new regulatory framework is the introduction of the principle of dominance-based regulation. This means that regulatory action would be concentrated on preventing anti-competitive behaviour by companies deemed to be dominant in specifically defined markets. Dominance-based regulation is also known as asymmetrical regulation as it applies different levels of regulatory constraints on operators according to their market positions.

Dominance-based regulation is accepted world-wide³⁶ as it complies with the following criteria:

- Regulation applied only where needed;
- Reducing the cost of regulation (e.g. the cost of the RA);
- Reducing the cost of regulatory compliance (e.g. non-dominant operators have minimal regulatory compliance requirements); and
- Reducing regulatory barriers to market entry (by imposing minimal regulatory obligations on smaller operators and new market entrants).

The primary principles and objectives of the dominance-based regulation would need to be specified in the new Acts; these are discussed below³⁷. The detailed interpretation of those principles and objectives would be undertaken by the RA, which would be tasked with developing and issuing clear and comprehensive guidelines. These guidelines would include processes and procedures for conducting the necessary analysis to support the dominance-based regulatory framework. The new Acts should stipulate the duty of the RA to perform these duties and should also stipulate the requirements for the RA to

³⁶ See ITC toolkit: <http://www.ictregulationtoolkit.org/en/Section.3113.html>

³⁷ Please note that the specific parameters set out below for measuring dominance in Bermuda are indicative only. The detailed dominance parameters and the analytical process to be undertaken by the RA when determining dominance in Bermuda will be subject to further analysis and consultation with industry. The principles for dominance should be included in the new legislation but the detailed application should be determined by the RA, subject to transparent consultation with industry.

consult with interested parties and take due account of responses received prior to completing and publishing the guidelines.

3.6.3 Ex ante Regulation

The proposed new regulatory framework is based on the principle of implementing preventative (*ex ante*) measures that remove or reduce the ability of a dominant provider to abuse its dominance and act anti-competitively.

The purpose of imposing *ex-ante* obligations on undertakings designated as having Significant Market Power is to ensure that undertakings could not use their market power either to restrict or distort competition on the relevant market, or to leverage such market power onto adjacent markets.

An example of *ex ante* regulation would be the obligation on the Class A licensees to offer non-discriminatory access to international capacity in order to prevent anti-competitive behaviour.

In order to determine which providers are dominant in a specific relevant market and design the most appropriate measures to impose to prevent abuse of that dominance, the RA needs to perform forward-looking market analyses.

3.6.4 Ex post Regulation

In addition to the application of preventative *ex ante* measures, the RA would also be able to investigate allegations of anticompetitive behaviour. This ability to punish providers for anticompetitive behaviour after the event has taken place (*ex post*) would include seizing of information and data and the imposition of fines. The new Acts would need to specify the conditions in which the RA could impose fines and may also set limits and guidelines for the level and structure of such fines. It is proposed that the RA should be authorised to apply fines of up to ten percent of the licensee's relevant revenues. However, fines should be applied proportionately. The specific powers and obligations of the RA in this regard should be based on international best practice.

3.6.5 Proposed RA powers

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

As Bermuda does not have competition legislation and also no competition authority, it is proposed that the RA be vested with both *ex-ante* and *ex post* powers. Such powers may include the right to collect data, impose fines and other such appropriate measures. The areas in which these powers could be applied should be clearly delineated in the new Acts. This is to ensure that the RA acts within the scope and spirit of the overall telecommunications legislation and policy.

3.6.6 Market Analysis

The market analysis framework proposed in this reform is based on international best practice which has been modified to the extent necessary to accommodate the specific characteristics of the Bermuda telecommunications market, including its size and the level and structure of the competition currently in the market.

Market analyses would be structured into two main sections:

1. Definition of relevant markets: - product service/geographic markets that are susceptible to ex-ante regulation
2. Analysis of relevant markets to establish whether one or several licensees are dominant in each market.

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

Definition of relevant markets in Bermuda

A relevant market for the purpose of ex-ante regulation is a market defined as outlined below, based on product/service characteristics and geographic scope, but additionally it is a market in which it is likely that a provider would have significant market power (SMP) and thus a market where ex-ante regulatory intervention is likely to be required in order to prevent anti-competitive behaviour and remove or reduce barriers to market entry/exit.

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 RA 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 market³⁸.

Dominance analysis

Once the relevant markets have been defined, the RA should then analyse each of these to ascertain whether one or several licensees hold a position of significant market power (i.e. dominance).

Significant Market Power (SMP) is defined as follows “Having sufficient market power to behave to an appreciable extent independently of competitors, customers, and ultimately consumers.”

Although not sufficient on its own to determine dominance, market share is a key indicator of the potential dominance in the relevant market. A market share in excess of 50%³⁹ is generally considered to indicate dominance, although additional tests would still need to be undertaken to verify this finding.

³⁸ 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.

³⁹ The EU Electronic Communications Framework Market Analysis Guidelines (http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/documents/smp_guidelines/c_16520020711en00060031.pdf) state that a firm holding less than 40% market share is unlikely to be dominant whereas a firm holding more than 50% market share could be presumed to be dominant, although this finding would need to be supported by other analyses.

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:

1. Absence of potential competition,
2. Barriers to expansion,
3. Service and product bundling, and
4. The size of the undertaking being analysed.

For the Bermuda market analysis, it is proposed that the RA should develop a set of measures and analysis procedures after consultation with industry. These measures should reflect the Bermuda market size and complexity and aim to achieve the benefits of a thorough analytical approach but also aiming to be pragmatic and avoid complex analyses unless justified by the market conditions. As an example, one approach could be to segment the carriers into three categories based on market share and then apply different levels of analysis depending on which category the individual carrier is positioned in each relevant market. This could take the following shape:

A market share in excess of 65%⁴⁰ could create the presumption of dominance, with only limited additional tests to verify that finding. A licensee holding more than 50% but less than 65% market share would not be presumed dominant but be subject to further detailed analysis⁴¹ before a decision is reached of whether the licensee(s) holds a position of dominance. Licensees holding less than 50% market share could be presumed non-dominant unless other significant indicators suggest the contrary.

Remedies

Once the RA has established that one or more licensee(s) are dominant in a relevant market⁴², it needs to determine what remedies would be appropriate to prevent anti-competitive behaviour by the dominant licensee(s). It is proposed that a list of standard remedies be developed for the RA to apply as it considers necessary but that the RA should work on the basis of minimal regulatory intervention. The RA should therefore document clearly which remedies it considers necessary and why. Where deemed appropriate, the RA should undertake cost/benefit analyses before imposing remedies.

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

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

Dominant licensees could be subject to a range of regulatory remedies, including but not limited to:

- Preparation and submission of regulatory accounts
- Accounting separation

⁴⁰ This was the level of market share used to de-specify C&W when competition in the international market was originally introduced in Bermuda.

⁴¹ This analysis would be conducted within a clear framework to be developed by the RA in consultation with the industry

⁴² Two or more licensees may be found to be collectively dominant in a relevant market.

- Prior approval or notification of pricing for services in the relevant market for which the licensee(s) have been deemed dominant⁴³, with accompanying costing data to document that prices are not anticompetitive

Remedies over and above data submission and non-discrimination requirements may include⁴⁴:

- The preparation and publication of a Reference Interconnection and Access Offer (including cost-based pricing)
- Obligation to offer wholesale/regulated access for other licensees, to enable network interface(s) 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 would 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 would be critical that the RA 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 could only be undertaken if the RA has access to, and the ability to securely retain, the necessary data from industry to inform these analyses and decisions.

Some regulatory authorities 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 RA'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 and would be specified by the RA. It is recommended that the details of the data collection forms and scope should be developed in collaboration with the licensees.

3.6.7 Impact Analysis

The proposals described above mark a significant departure from the current regulatory framework in Bermuda.

Today an operator could be 'scheduled' by the Minister and, if scheduled, all the activities undertaken by that operator would be subject to scrutiny by the Telecommunications Commission and the Minister. The process for selecting an operator to become scheduled is not based on specific tests, but rather on the decision by the Minister, with only a limited requirement for documentation to accompany such

⁴³ Or adjacent markets where the RA deems it needs data in order to understand potential leverage of market power from one relevant market to another

⁴⁴ The Bermuda Legislation may include references to these and other remedies to be made available to the RA.

decisions. Additionally, there are no provisions for regular reviews of whether an operator should become or remain scheduled.

Under the proposed framework this process would be replaced by one possessing transparency and analytical rigor in which all operators would be required to participate. If an operator is deemed dominant in a specific market then its activities in that specific market would be subject to regulatory scrutiny, its other business activities, as far as its conduct in the market place is concerned, would be relatively free of *ex-ante* regulation.⁴⁵ The remedies imposed on a dominant operator would need to be clearly defined and justified and all operators would again be invited to participate in this process.

Impact on overall industry

The need for the market analyses would cause an increased burden on all operators in terms of provision of the necessary data to the RA as well as the participation in the consultation processes. The proposal is to keep data requests to the minimum required to support the analyses and thus to reduce the burden as far as possible.

Impact on dominant operators

Operators found dominant in one or more relevant markets would be required to submit more detailed data to the RA and would be required to demonstrate compliance with any further remedies imposed by the RA. These remedies would only be imposed following a decision arrived at through the open consultation process being proposed in the new framework. This process would afford market participants with a venue by which they may present the RA with evidence in support of a position and so help inform the RA's analysis and ultimate decisions. Any party to the consultation would be able to appeal the RA's decisions if it considers that the RA has not acted in accordance with its powers and obligations as established in the new Acts.

Additionally, dominant operators would only be subject to regulatory remedies in the markets where they are found to be dominant, subject to the proviso identified in footnote 46. This should result in a reduction in regulation relative to that imposed on scheduled operators today.

3.7 Proposed Regulation of Access and Interconnection

3.7.1 Introduction

The current access and interconnection (A&I) framework in Bermuda is relatively simple and has worked well in the service-specific 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.

Under the proposed licensing regime, the A&I services and interfaces required are likely to increase as licensees with different levels of infrastructure may enter all service markets. It is unlikely that the current A&I framework would meet the requirements under the new licensing regime.

3.7.2 Policy Objective

It is proposed to introduce a regulatory A&I regime that would seek to facilitate sustainable competition. This means that a balance would need to be struck between providing regulated access to facilities and ensuring that the regulated carriers retain investment incentives.

⁴⁵ The RA may find it necessary to collect data and impose remedies in adjacent markets.

In contrast with the current A&I provisions in Bermuda, obligations to interconnect would only be applied to licensees deemed dominant in that specific market⁴⁶. This is in line with international best practice⁴⁷ and is based on the principle that non-dominant licensees would benefit from interconnection and would only refuse interconnection if this was considered an undue burden without commensurate benefits to the licensee.

The RA would be responsible for analysing the relevant markets and imposing appropriate and proportionate remedies on licensees found to be dominant in one or more A&I markets. The RA would be required to explain and justify the analysis undertaken and the remedies proposed and all such decisions would be subject to public consultation processes. As with all other RA decisions, A&I decisions could be appealed to the courts.

3.7.3 Access and Interconnection Remedies

Dominant licensees could be subject to a range of regulatory remedies, including but not limited to:

- Development and publication of a reference A&I offer (RAIO), the typical contents and format of a RAIO are listed below;
- Non-discrimination on A&I terms (commercial, legal, operational and technical);
- Obligation to provide transit interconnection services;
- Imputation of A&I terms – e.g. the dominant licensee must prove that its' own retail business is subject to the same terms for A&I (underlying all its services) as other licensees;
- Development of cost-based tariffs for A&I - the RA could specify the principles and parameters by which costing and pricing of A&I services and interfaces should be conducted and dominant licensees would thus be obliged to comply with these requirements, if imposed;
- Development and launch of A&I services to support new and innovative retail services, prior to the launch of the corresponding retail service;
- Obligation to negotiate new A&I services and interfaces as requested by other licensees;
- Organisational separation between retail and wholesale sections of the dominant licensee's business to prevent information submitted by other licensees for A&I purposes from being used anti-competitively by the dominant licensee's retail business.

The overall policy would be to only apply remedies where necessary and RA should demonstrate the need for a specific regulatory remedy before it is introduced.

The Reference Access & Interconnection Offer (RAIO)

One of the A&I remedies the RA could impose would be the development and publication of a RAIO. The reasoning for mandating a RAIO would include that it reduces time and cost of negotiating access and interconnection between licensees and it secures non-discrimination between different licensees seeking access and interconnection from a dominant licensee. The RAIO would set out all the relevant terms and conditions applicable to the A&I services provided by the dominant licensee. The RAIO may require approval by the RA 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) may be mandated by the RA. Whether to impose a RAIO and what the scope of this would be, would be based on transparent analysis and consultation by the RA.

⁴⁶ In order to ensure end-to-end connectivity and service transparency, there may be occasions where it would be appropriate to impose obligations on non-dominant licensees

⁴⁷ See ICT Toolkit: <http://www.ictregulationtoolkit.org/en/Section.2078.html>

Pricing of access and interconnection services

Different A&I services and interfaces may be priced using different methodologies. Some may be priced on a cost plus basis (meaning that the dominant licensee charges the cost of providing that specific service or interface - sometimes broken down to individual network elements - plus a rate of return determined by the RA). Other services may be priced on different principles, one of which could be retail minus. Retail minus means that the dominant licensee can charge a price to other licensees, that is based on its retail price less what is known as 'avoidable costs'.

Costing of access and interconnection services

For services where the cost plus pricing principle is applied, the RA should 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)
- Incremental Costing (LRIC - Long Run Incremental Costing)

Both of these have different versions each with different strengths and weaknesses. Development of costing models is time-consuming and costly. The RA would be required to consider the costs and benefits of specifying complex costing methodologies over more simple methods, thus ensuring that overall the regulatory intervention produces net benefits to the Bermuda economy.

3.7.4 Impact Analysis

The proposed A&I regulatory structure is likely to create a more dynamic market place with regulatory A&I obligations only being applied to licensees dominant in the specific relevant markets. The RA will need to justify and document its underlying rationale for any A&I remedies it decides to impose on one or more dominant licensees.

To achieve this increase in transparency and market dynamics, the regulatory burden on operators in terms of compliance with data requests from the RA and participation in public consultation processes would increase from that under today's regulatory framework in Bermuda.

METEC believes firmly that the increase in regulatory resource requirements would be outweighed by the positive effects this is likely to have on the markets and ultimately consumers in Bermuda.

3.8 Retail Price Regulation

3.8.1 Introduction

It is not unusual for there to be an absence of effective competition in the telecommunications market. A lack of competition can allow an operator or service provider to exercise its market power in a way that is detrimental to consumers or to other players in the market. In particular, it can choose to set retail prices that are too high overall, with obvious consequences for consumers, or engage in anticompetitive pricing behaviour (such as predatory pricing or price squeezing), which can damage other players, or would-be players, in the market and consequently reduce choice for consumers in the longer term.

Retail price regulation is an attempt to replicate key characteristics of a well-functioning market with judgments made by the regulator. The substitution of regulatory judgment for a well-functioning market, however, is never perfect and it generates costs for the stakeholders involved. Price regulation should only be adopted, therefore, if these costs are outweighed by the benefits.

Moreover, to maximise these benefits, the application of price regulation must match and adapt to the changing conditions of the market. The aim in the longer term is to remove price regulation, or to reduce its scope, as competition becomes effective.

3.8.2 Policy Objective

To put in place a framework for price regulation that is suited to the current situation in Bermuda's telecommunications market, capable of adapting to the changes in those conditions as regulatory reform is rolled out and delivers a net benefit to Bermuda and its inhabitants at minimum regulatory cost.

Benefits of Retail Price Regulation

The potential benefits of retail price regulation include:

- Preventing the misuse of market power
- Ensuring telecom prices are competitive with other jurisdictions
- Achieving economic efficiency
- Improving the distribution of economic welfare benefits within Bermuda

As mentioned previously, an operator with market power has the ability to set prices higher than are necessary to cover its costs, including allowing for a fair return on its investments and the associated risk of those investments. To do so would not only be directly detrimental to consumers but the excessive profits can be a source of cross-subsidy, allowing the operator to under-price for services where it competes with other firms. If allowed to continue, such action could drive competitors from the market or discourage others from entering it.

It is also important that the prices of the telecommunications services available are competitive with other jurisdictions.

There is the potential, depending on the way in which it is implemented, to use retail price regulation to improve economic efficiency.

Price regulation can also be used to influence the distribution of economic welfare benefits. Another use of price regulation is to ensure that vital services remain affordable to customers in lower socio-economic groups.

The extent to which these benefits can be realised depends on the method of price regulation that is adopted.

3.8.3 Impact Analysis

The impact of price regulation, in its broadest sense, would depend on several factors including the application of the price control, its impact on market players (both the industry overall and those subject to any price control) and the role of the regulator.

Application of the Price Control

The proposed new retail price regulation for Bermuda would be based on the use of market analyses to determine whether a licensee is dominant in a relevant market⁴⁸. 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 would mean that whereas today a specified carrier must gain approval for all its proposed new or changed prices, a dominant licensee under the new framework would only be subject to regulatory scrutiny for pricing of products and

⁴⁸ Please see section 3.6 for further details.

services within the market in which it has been deemed dominant. This would mean that the licensee would 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 would 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 would 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 RA communicates to the dominant licensee within a specified time period from receipt of the proposed new prices, the licensee would be free to proceed with the implementation of the new prices. Should the RA subsequently consider that the prices may have an anti-competitive effect in the market or are harmful to consumers, it is free to launch an investigation and may request that the price or prices be withdrawn or amended. No response by the RA would not constitute a de-facto approval of the proposed prices.

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 that result in it earning supra-normal profits, and if there is little or no prospect of competitive pressure to reduce these prices, then it can be necessary to implement a framework that enables the RA to require that the dominant licensee(s) reduce prices over a specified period of time.

If, when undertaking the market analyses, the RA find 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,⁴⁹ and
- that the dominant licensee(s) is making super-normal profits on the products and services in that relevant market

then the RA may decide to impose a retail price regulation framework on the dominant licensee(s).

Impact on Overall Industry

As noted with regard to the proposed competition policy, the need for market analyses would cause an increased burden on all operators in terms of provision of the necessary data to the RA as well as the participation in the consultation processes, in this case, those specific to any proposed price control. The RA would be required to keep data requests to the minimum required to support the analyses and any subsequent price control and thus to reduce the burden as far as possible.

Impact on Dominant Operators

Licensees who are deemed dominant and subsequently subjected to price regulation would feel the direct impact of price regulation; the magnitude of that impact would depend on the methodology chosen and the terms of the price control. Price regulation would, by design, limit the operator's ability to earn excess or supra-normal profits. Of

⁴⁹ Market analyses are conducted in a forward-looking manner and are valid for a specified period of time

primary concern, however, is that if it is applied too harshly, stakeholders could be inadequately rewarded for past investments and future investment could be discouraged. The RA would be required to give consideration to this concern and to make adequate allowance when formulating any price regulation.

Role of the Regulator

The RA would be required, having conducted market analyses as a preliminary part of implementing the proposed competition policy, to formulate a proposed price control regime and to consult with interested parties on those proposals. Thereafter, it would be responsible for implementing and monitoring that price control.

Whilst any price control is likely to be effective for a period of several years, it would be the responsibility of the RA to regularly review the price control and to make changes to ensure that it remains suitably targeted and proportional to the conditions in Bermuda.

3.9 Consumer Protection

3.9.1 Introduction

The general promotion of fair trading practices in Bermuda is enacted through the Consumer Protection Act 1999. However, in some markets, factors conspire to make the consumer more vulnerable to unfair trading practices and additional protection is justified. Within telecommunications, these factors include:

- people's dependency on having access to key telecommunications services at reasonable prices;
- the complexity of the terms on which services and products are made available;
- the level of personal information that telecom service providers can obtain about their customers;
- the limited number, and sometimes complete lack, of options that a consumer might pursue when dissatisfied with a supplier's quality of service; and
- the need for consumers to have confidence in the safety of consumer products and to know that the products conform to relevant standards.

The first of the above points has wider policy implications than just consumer protection and is considered in further detail below with regard to Universal Service. More generally, the above concerns, amongst others, are typically addressed through industry-specific provisions for consumer protection. A variety of protection measures is available ranging from self-regulation, through adherence to codes of good practice and contractual obligations to legislative provisions. It is naturally important that appropriate measures are chosen to take account of the severity of the risk to consumers and the burden they place on operators. Moreover, the nature and/or scope of such measures are likely to change as competition evolves.

Certain industry-specific provisions are embodied in the current Telecommunications Act (such as requiring specified carriers to submit prices for approval by the Commission and requiring all licensed telecommunications operators in Bermuda to make their pricing available for public inspection). However, some elements of these provisions would not be relevant to the proposed new regulatory framework and so it is important to undertake a thorough review and establish a consumer protection framework that is appropriate for the anticipated market and regulatory developments in Bermuda's telecommunications market.

3.9.2 Policy Objective

METEC wishes to ensure that its consumer protection framework in Bermuda is in accordance with international best practice. This would typically include 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.

As such, METEC would develop consumer protection policies to be included in the new Communications Act. These parameters would be developed in a fully transparent manner, including public consultation and public hearings as appropriate.

In addition, it is proposed that the RA be empowered to require all licensees to submit a certain level of Quality of Service (QoS) data, specified by the RA, in order to police licence compliance as well as respond in a timely fashion to QoS complaints (retail or wholesale) filed against a licensee. Consistent with all other components of the proposed new regulatory framework, the RA would only require that licensees submit data that it deems necessary 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 best international practice, it is proposed that the RA shall draw up a proposal for data it requires licensees to submit and that the RA shall consult with the licensees on the proposed data submission.

In addition to submission of QoS data, it is proposed that the RA be empowered to specify licensee requirements for the development of Service Level Agreements. The RA may require that such Service Level Agreements be subject to approval by the RA. 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 RA be authorised to mandate where penalties should be applied, and what such penalties should be.

The Ministry proposes to maintain its existing policies whereby Bermuda relies on the guidance of international organizations, such as the International Telecommunication Union (ITU) and Federal Communications Commission (FCC) of the United States, for equipment and type approval. METEC seeks to continue on the current course as this process is efficient and appropriate for Bermuda. Furthermore, adhering to internationally recognized standards facilitates the uptake and availability of equipment in Bermuda while ensuring compatibility and minimizing interference.

3.10 Universal Service Regulation

3.10.1 Introduction

Universal Service policies are designed to ensure the availability of affordable connectivity for low-income groups as well as expanding the telecommunications network to unserved areas. Some more established jurisdictions, like Bermuda, have in

recent years defined broader universal service goals that include advanced telecommunications services and access to the Internet.

Universal Service is a means of achieving social policy and social empowerment and as such, this is an important area for METEC to develop and publish its policies. Thus, it is important to include explicit Universal Service policy objectives in the new Communications Act and regulatory framework.

Furthermore, Universal Service obligations have traditionally been imposed on the incumbent monopoly wireline carrier(s) as a means of encouraging 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. There is a need, instead, to ensure that the Universal Service objectives are clearly defined and consistent with broader policy goals, and that their financing is sustainable, reasonable for the parties involved.

3.10.2 Policy Objective

It is proposed that the RA is charged with defining Universal Service consistent with the policy established by the Ministry. The definition of Universal Service would likely include a description of the type(s) of services, consumers, and providers eligible or required to participate in the program. The RA would also be responsible for developing a mechanism to finance the Universal Service policy established by METEC.

3.11 Spectrum Management and Numbering

3.11.1 Introduction

The provision of communications services in Bermuda relies on the availability of scarce resources such as radio spectrum and (telephone) numbers. Whereas these are essentially national resources it is incumbent upon METEC to ensure that the policies for their efficient allocation and management continue to evolve in step with technology and market conditions.

Consistent with international trends, METEC proposes that Bermuda continue to assign spectrum in accordance with the framework formulated by the International Telecommunications Union (ITU⁵⁰). Maintaining this approach would reduce the likelihood of spectrum interference and allow Bermudian service providers to utilise equipment that is supplied globally. Although spectrum scarcity has not yet become a significant constraint in Bermuda because of Bermuda's small size it is critical that Bermuda's spectrum policy enable the rapid deployment of new technologies so as to stay ahead of competing jurisdictions in the development of new and sophisticated communications services.

Internationally, there are two main trends that are causing policymakers and regulators to consider policy 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 licence, 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 spectrum trading. Authorized spectrum trading allows any current and future licensee to sell or trade spectrum rights to third

⁵⁰ National Spectrum Management, ITU Handbook. Ed 2005

parties. 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.

With respect to numbering, Bermuda is included in the North American Numbering Plan (NANP) and has been assigned the entire 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) is unlikely to be an issue in Bermuda. However, increased competition and the advent of new Internet Protocol (IP) based services such as Voice over Internet Protocol (VoIP) telephony have required regulatory authorities to re-examine traditional number allocation policies and determine the degree to which numbering resources and/or traditional voice carrier obligations should apply to firms employing these new technologies.

It is proposed that issues including the numbering and naming conventions for existing and future services categories would be managed by the Regulatory Authority, based on the principles stipulated by METEC in policies and legislation. METEC proposes to implement a clear and open numbering framework in which the Regulatory Authority manages Bermuda's numbering resources and publishes tables of existing and planned number allocations on its website.

3.11.2 Policy Objectives

Going forward, it is proposed that the RA would, on its own volition or at the request of the Minister, licensees or consumers, initiate proceedings to explore the costs and benefits of introducing the aforementioned or other policy enhancements. To that end, it is proposed that the RA should encourage the establishment of a Numbering, Naming and Spectrum Forum (NNSF) comprised of licensees and other interested parties. The Committee would meet on a regular basis to discuss numbering and spectrum management and to present policy and implementation recommendations to METEC and the RA, respectively.

Moreover, the RA should carry out the policy goals established by METEC in a transparent manner through public consultation. In particular, it should maintain a continually updated list of existing (and proposed) spectrum allocations and an allocation plan for all current and planned numbering resources on the RA web portal.

3.12 Conclusion

Bermuda's telecommunications industry has thrived and served Bermuda and Bermudians well. There are currently a number of ISPs, local, and international providers offering services in what most of the world would consider a small market. The suppliers have a mixed record of deploying new services. The record is not so good with respect to pricing. Due to the licensing barrier-to-entry, price competition has been constrained relative to what would be expected occur with today's technology.

The Ministry has presented herein a comprehensive regulatory reform package which has been designed with the intention of enhancing the contribution that the telecommunications sector can make to the economy. The regulatory reform proposal will potentially result in greater price competition, more rapid introduction of new services, and increased resiliency. The result is an improved telecommunications industry which ensures that the objectives of the Ministry are met.

A considerable amount of thought has gone into the proposed regulatory reform package. We believe the proposal will establish the proper balance between the Government providing protection to consumers and firms in a manner proportionate to

the need, while simultaneously creating a framework that will result in an efficient level of competition.

Appendix A – Current Licensing Framework

The Telecommunications Act covers a wide range of different licences. This Annex covers only the licences included in the proposed reform. All other licences would remain unchanged, subject to future review.

Class A Licences: This class of licences covers the building and operation of international telecommunications facilities and the provision of international telecommunications services. Class A licensees can also offer ISP services to Business customers.

Class B Licences: This class of licences covers the building and operation of domestic telecommunications facilities (fixed and wireless) and the provision of domestic telecommunications services.

Class C Licences: This class of licences covers the provision of Internet Service Provider services in Bermuda. Class C licences do not allow licensees to build or operate their own telecommunications infrastructure. Class C licensees can also offer VoIP services.

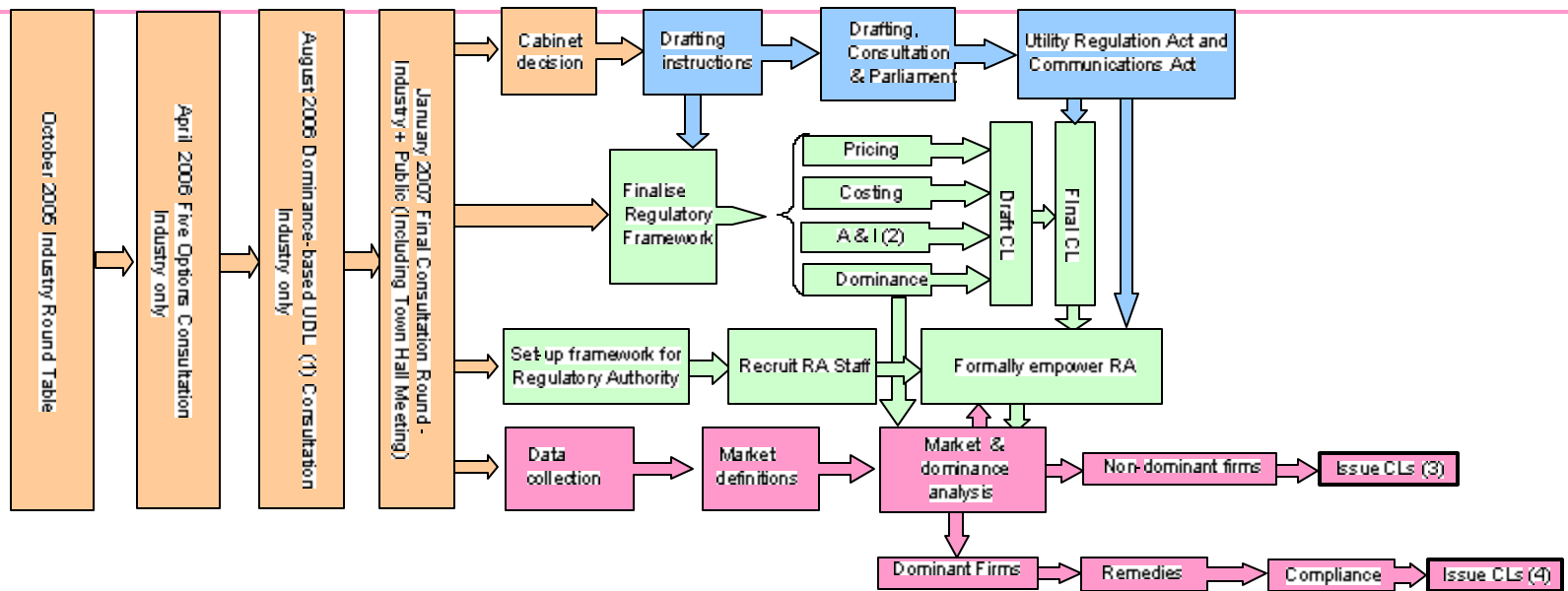
CATV Licences: This class of licences cover the building and operation of domestic Cable TV infrastructure and the provision of Cable TV services in Bermuda.

Appendix B – Overview of Consultations and Planned Reform Process

The reform process, which was initiated by a written consultation and Round table Meeting in October 2005, has included extensive consultation. Below are some highlights as well as a diagrammatical overview of the process so far and projected activities:

- METEC has undertaken three written consultations with industry (in addition to the initial Roundtable exercise),
- One written consultation with the general public as well as a public meeting and consumer research
- Two workshops have been held in which METEC and its advisors presented reform proposals and answered questions from the industry, and
- All industry parties have been invited to one-to-one meetings on two occasions in which METEC and its advisers offered to explain the proposed reform in detail and answer any queries arising.

Overview of Bermuda Telecommunications Regulatory Reform Process



- = Policy development process
- = Legislation development process
- = Regulation development process
- = Dominance analysis process

Notes

1. UDL: Unified Domestic Licence - this was subsequently superseded by CL (Communications Licence)
2. A & I: Access and Interconnection.
3. Non-dominant carriers will be offered CLs on completion of new legislation, CL text and dominance analysis.
4. Dominant carriers will be offered CLs on completion of new Telecoms Act, CL text, dominance analysis and individual carrier's compliance with relevant remedies. Depending on time required to formulate remedies and achieve compliance, this may be at the same time or later than for non-dominant carriers.

Procedural History of the Regulatory Reform Process

Government has long recognized that the continued development of Bermuda's Telecommunications and ICT (Information and Communication Technology) markets are vital to the promotion of economic and social development goals. Previously, TA-86 and its subsequent amendments fostered a well-functioning market that adapted to the introduction of new technologies and services. However, beginning in 2005 the Ministry of Telecommunications and E-Commerce (MTEC) determined that it was necessary to review the existing legislation and the policies underpinning it in order to ensure that the legislative framework continued to promote critical service provision and accommodated future technological advancements.

The first stage of this review was initiated on 11th August, 2005 when MTEC issued a Call for Written Comments and Invitation to Register for an Industry Roundtable.⁵¹ Between 12th September and 3rd October, 2005, 12 parties filed comments. Through this consultation the Ministry invited licensees to submit responses to questions regarding a wide range of telecommunications and ICT topics. The purpose of the Call for Written Comments was to solicit and focus comments from operators as a precursor to a two day Industry Roundtable which began on 27th October, 2005. During the Industry Roundtable licensees were invited to provide oral presentations on a number of regulatory issues. The terms of this consultation were broad as they encouraged comments beyond the immediate scope of the questions provided by the Ministry. Participants were also invited to highlight any regulatory issues which they believed to be important.

Subsequent to the Industry Roundtable, MTEC initiated a series of written and verbal consultations with industry participants, the business community, and the general public.

On 20th April, 2006, MTEC issued its First Consultation Document to licensees.⁵² This document presented for discussion 5 distinct regulatory scenarios which covered a wide-range of regulatory options from maintaining the current regulatory model to the removal of nearly all regulatory oversight.⁵³ Five wide-ranging scenarios were developed and provided to the licensees in order to facilitate open discussion on a broad range of topics and develop a robust record upon which sound policy recommendations could be made. Although not all of the five scenarios developed were considered equally prudent options for Government to pursue,⁵⁴ this approach was taken because the exploration of a wide-range of contrasting approaches would ensure that industry participants, interested parties, and the Cabinet would appreciate the scope of MTEC's investigation and recognize that all potential alternatives were being considered.

Notably, the First Consultation Document cautioned that because Regulatory Reform would seek to address multiple issues that were both dynamic and intertwined, the manner in which any one issue was resolved would most definitely influence how any subsequent issue could be resolved. Accordingly, the First Consultation Document stated that it was essential to keep in mind that no single issue could be considered in isolation.⁵⁵ This context was provided with the hope that it would reduce the likelihood that parties would focus only on their immediate financial or political concerns, at the

⁵¹ Document entitled: Consultation Paper for Industry Consultation Roundtable. (Hereafter: Call for Written Comments")

⁵² Document entitled: A New Regulatory Framework for Telecommunications in Bermuda. (Hereafter: First Consultation Document")

⁵³ The 5 scenarios were primarily differentiated by licensing regime as this parameter best defined the various regulatory environments under consideration as all other parameters were of secondary importance. Consequently, the regulatory scenarios discussed in the First Consultation Document differed primarily on the magnitude of the service restrictions licensees would face.

⁵⁴ Often, attempts to 'prop up' an inferior solution were fruitless, unexpectedly revealed additional infirmities that cannot be corrected, and/or provided additional support for competing alternatives.

⁵⁵ First Consultation Document, page 3.

expense of addressing efficient long term solutions for Bermuda which would encompass the entire slate of issues before the Government.

To assist respondents in analyzing the contents of the First Consultation Document each licensee was provided the opportunity to participate in one-on-one meetings with MTEC and its advisors between the 10th May and 15th May, 2006.

Also during the month of May, MTEC commissioned Research.bm to conduct a Market Research Study⁵⁶ which addressed the Bermudian and international telecommunications markets from the perspective of Information Technology (IT) and telecommunications decision makers for key businesses located in Bermuda.⁵⁷ Significantly, the Market Research Study found that:

Redundancy is considered to be a critical part of Bermuda's telecommunications success. The need for the island to maintain redundant systems to avoid any single point of failure was recognized in a nearly unanimous fashion across every industry. Business leaders felt that no system, however well engineered, was immune to failure. Redundancy insured against this by providing greater odds against a total system failure.⁵⁸

The need for redundancy in off-island connectivity was considered paramount because:

Most businesses in Bermuda rely on links off island for their very existence. Financial companies in particular require access to information from capital markets around the world. The viability of this industry's business model is based on the assumption of constant contact off island and therefore downtime is not an option. This dependence trickles down to the companies servicing these sectors.⁵⁹

During the week of 22nd May, 2006 10 parties filed their responses to the First Consultation Document.⁶⁰ These responses were published on the Government web portal so that licensees could reply to the comments provided by other parties; 6 parties⁶¹ provided reply comments on 13th June, 2006.

As a follow up to the Market Research Study, MTEC arranged for one of its advisors to meet with a number of licensees and large telecommunications users during the week of 23rd July, 2006. The purpose of these meetings was to discuss existing and potential fault recovery remedies with network operators, to clarify the redundancy concerns raised by the business community, and to discuss the likely reaction of the business community if Bermuda were to experience a non-trivial disruption to its off-island connectivity. In sum, the business community suggested that disruptions lasting a week or less could be overcome by temporarily moving key business operations and employees to other jurisdictions until service is restored. Disruptions lasting a week or more would likely result in the permanent relocation of key business operations and employees to other jurisdictions. These suggested responses were particularly true for small to medium sized firms. Due to the cost and difficulty associated with relocating operations on short notice, large and very large firms suggested that they were 'locked-

⁵⁶ Document entitled: Ministry of Telecommunications and E-Commerce - Market Research Study; May 2006. (Hereafter: Market Research Study)

⁵⁷ The researcher noted that many, if not most of the respondents, were Bermudian.

⁵⁸ Market Research Study; page 5.

⁵⁹ Id. page 6.

⁶⁰ Bermuda Digital Communications Limited ("BDC"); Bermuda Telephone Company Limited ("BTC"); Cable and Wireless Bermuda ("C&W"); Bermuda Cablevision Ltd; Telecommunications (Bermuda and West Indies) Limited ("Digicel"); Logic Communications Limited ("Logic"); M3 Wireless Limited ("M3"); North Rock Communications Limited ("North Rock"); Quantum Communications ("Quantum"); and TeleBermuda International Limited ("TBI");.

⁶¹ C&W, Digicel, Logic, North Rock, TBI, and Transact.

in' to being more tolerant of service disruptions. However, firms of all sizes suggested that a lack of redundancy or a non-trivial disruption to off-island connectivity would cause them to either reconsider or eliminate plans to expand the size and scope of their Bermudian operations.

After analysing the parties' responses to the First Consultation Document, MTEC issued its Second Consultation Document⁶² to licensees on 15th August, 2006. The Second Consultation Document retained the structure of the First Consultation Document, provided a brief summary and analysis of the parties' comments, and described MTEC's proposed new telecommunications regulatory framework. The Second Consultation Document narrowed the scope of discussion for the proposed regulatory reform, and thereby, permitted more granular analysis and discussion of each topic. The scope of discussion was narrowed from 5 wide-ranging regulatory scenarios to a single scenario in which, ultimately, service specific license restrictions would be eliminated and all licensees would be permitted to operate with identical licenses. More detailed analysis and policy questions regarding this scenario ("Scenario 4 – Unified Licenses")⁶³ were then presented for comment.⁶⁴

Also on 15th August, 2006, the Honourable Michael J. Scott, Minister of Telecommunications and E-Commerce, delivered a presentation to Cabinet in which he outlined the reasons why telecommunications regulatory reform was required in Bermuda. This presentation also offered a high-level summary of MTEC's regulatory reform proposal, and the target outcomes.

To assist respondents in analyzing the contents of the Second Consultation Document, the Ministry arranged a 1-day workshop on 22nd August, 2006, at which the Ministry's advisors presented and discussed the main components of the regulatory reform proposal. On 29th September, 2006, twelve parties⁶⁵ filed responses to the Second Consultation Document.

On 30th October, 2006, the Ministry of Telecommunications and E-Commerce was combined with the Ministry of the Environment. As a result, the newly formed Ministry of the Environment, Telecommunications and E-Commerce ("METEC"), under the leadership of the Honourable Neletha Butterfield, JP, MP, assumed jurisdiction over this process.⁶⁶

On 15th November, 2006 METEC issued a document entitled METEC's Questions and Requests for Clarification to which five parties filed responses on 1st December, 2006.⁶⁷ The purpose of this request was to clarify a number of issues raised by parties in their response to the Second Consultation Document.

On 12th January 2007, METEC issued its Third Consultation Document⁶⁸ to telecommunications licensees.⁶⁹ In this document METEC noted that parties might not

⁶² Document entitled: Reforming Telecommunications Regulation in Bermuda. (Hereafter: "Second Consultation Document")

⁶³ See First Consultation Document; page 33.

⁶⁴ Although the Second Consultation Document focused on a single regulatory framework MTEC was careful to point out that no part of the proposed framework had yet been finalized, and therefore, all parts of the proposal remained open for discussion. See: Second Consultation Document; page 2.

⁶⁵ BDC, BTC, C&W, CableVision, Digicel, Fort Knox, Logic, M3, North Rock, Quantum, TBI, and Transact.

⁶⁶ Therefore, any prior references to "Ministry" or "MTEC" can be considered as explicit references to METEC as all of the aforementioned terms may be used interchangeably.

⁶⁷ Hereafter: "METEC Questions". The respondents were: BTC, Digicel, Logic, North Rock, and TBI.

⁶⁸ Document entitled: Review of Consultation Responses and Draft Proposals for Regulatory Reform for Telecommunications in Bermuda. (Hereafter: "Third Consultation Document")

⁶⁹ On 19th January, 2007, METEC issued an update to the Third Consultation Document. The updated version included comments from four carriers whose comments had not reached METEC and were therefore not included in the original version. Although the comments from the four carriers were valuable, and informed the analysis and discussion, no significant changes resulted from their inclusion as the majority of substantive

have been able to see how their prior input(s) contributed to the proposals contained therein as the Ministry had not attempted to attribute its proposals to specific parties or comments. However, despite the lack of attribution, METEC assured parties that the proposals contained in the Third Consultation Document were based on a thorough and deliberate consideration of all prior comments. METEC also noted that, to date, it had refrained from developing detailed regulations for discussion because the high-level regulatory framework had to be defined and then approved by Cabinet prior to addressing the more detailed issues.

Consistent with prior procedure, METEC also arranged one-on-one meetings with the licensees during the week of 15th January, 2007, to discuss the reform proposal and clarify outstanding questions regarding the Third Consultation Document.

Also on 12th January, 2007, METEC issued a consultation document for non-industry members of the public, which discussed the proposed regulatory reforms and the potential impact they would have on communications end-users in Bermuda.⁷⁰ To assist the public in understanding the reform proposals, the Ministry also arranged a 'Town Hall' meeting on 8th February, 2007, at which the Ministry and its advisors presented and discussed the main components of the regulatory reforms.

On 19th February, 2007, 13 parties⁷¹ filed responses to the Third Consultation Document. Between 23rd February and 1st March, 2007 members of the public filed responses to the non-industry consultation document.

issues were also raised by other respondents and/or related to subjects that will be addressed in subsequent consultations, once the overall policy has been approved by Cabinet.

⁷⁰ Document entitled: [Telecommunications Regulatory Reform in Bermuda](#).

⁷¹ BDC, BTC, Brasil Telecom, C&W, CableVision, DigiCel, Fort Knox, Logic, North Rock, Quantum, TBI, and Transact.

Appendix C – Glossary of Terms

Access: Access means the making available of facilities and/or services, to another undertaking, under defined conditions, on either an exclusive or non-exclusive basis, for the purpose of providing electronic communications services.

(regulatory) **Accountability** – This will be achieved by ensuring appeal rights for all parties. Also, substantive reporting and audit obligations, ethical and procedural obligations, and **transparency** obligations assist in achieving accountability.

Abuse of Dominance – Conduct by a firm, made possible by its dominant position in a market, that is or may be harmful to efficient competitors in that market or to consumers.

Avoidable Cost – A cost that would not be incurred if certain activities were not undertaken. For example, if a service is sold as wholesale rather than retail, then the specific retail costs such as marketing, retail billing, customer service and retail bad debt may be avoided.

Barriers to Market Entry - Obstacles in the path of a firm which wants to enter a given market. This barrier typically involves an expenditure that must be made by an entrant, but not by an incumbent.

Bundling - The tying of one service or product to the purchase of another, especially in situations where one or both products/services are not available separately. This can include situations where the acquisition of two (or more) services are linked through the use of discounts.

Connectivity – The capability to provide communication links to other communications networks or end users.

Consistency – Consistency is achieved through the publication of standard processes and rules and the subsequent application of these in a **transparent** and consistent manner.

Cost-Plus Pricing – Occurs when a firm or regulation determines the price of a service by adding a given percentage mark-up to the cost of providing that service.

C&W – Cable and Wireless (Bermuda)

Dominance – A firm which has sufficient economic power to behave to an appreciable extent independently of competitors, customers and ultimately consumers is considered dominant.

Economic Efficiency – The principle of producing every product, at a point in time, at the least possible cost or selling goods to customers at cost, where cost includes a normal rate-of-return. Economic efficiency also has an inter-temporal aspect. Dynamic efficiency can be defined in terms of efficient resource allocation over time - where it is not possible to increase welfare by any reallocation.

Economies of Scope - The property that a firm can produce two or more products at a lower cost than the sum of the costs incurred when each product is produced on a stand-alone basis by different firms.

(Regulatory) **Efficiency** – See Proportionality

Ex ante – Before an event takes place

Ex parte – Where a representation is made to a regulator or other body on behalf of only one party, without notice to any other party.

Ex post – After an event takes place

Federal Communications Commission (FCC) – The US regulatory body that regulates all inter-state and foreign communications by wire, radio and television.

Fully Allocated Cost – A study of historical costs in which joint and common costs are divided among services in accordance with a set formula or by judgement. Direct costs are directly assigned to the cost-causing service.

Incumbent Operator – The established telecommunications network operator in a country.

Interconnection – the exchange of telecommunications signals and traffic between two telecommunications carriers. Interconnection is a form of Access.

Interconnection services - Services provided by one telecommunications organisation to another for the purpose of the conveyance of messages and information between the two systems and including any ancillary services necessary for the provision and maintenance of such services.

Internet Protocol (IP) – The packet data protocol used for routing and carriage of messages across networks.

Internet Service Provider (ISP) - A company that provides access to the internet.

International Telecommunication Union (ITU) - A body within the United Nations devoted to the international harmonisation of telecommunications.

Long Run Incremental Costs (LRIC) – The incremental economic costs that arise in the long run due to a specific increment in volume of production.

METEC – Ministry for the Environment, Telecommunications and E-Commerce

Number Portability – An arrangement that allows subscribers of a telecommunications service to change carriers without having to change their number.

NXX Codes - The first three digits in a locally dialled phone number

Port – The physical access point to a computer, switch, device or network where signals may be supplied, extracted or measured.

Predatory Pricing – A (deliberate) strategy, usually by a dominant firm, of driving competitors out of the market by setting prices below production costs.

(Regulatory) **Predictability** – See Consistency.

(regulatory) **Proportionality** – The calibration of regulatory actions and remedies to the circumstances faced.

Quality of Service (QoS) - A measure of performance for a system that reflects its quality and availability of service.

Reference Access & Interconnection Offer (RAIO) - An obligation on the **dominant** operator to provide a description of the **access** or **interconnection** offerings broken down into components according to market needs and the charges and other terms and conditions on which they are offered. The RAIO should establish the commercial, legal, operational and technical aspects of interconnection and access between the two interconnecting parties.

Retail Minus - An approach to setting wholesale prices whereby they are explicitly related on the retail prices of the corresponding retail services. The retail price is reduced by an amount or a percentage representing the **avoidable costs** not incurred if the product is sold in wholesale. In some cases specific wholesale costs may be added to replace avoidable retail costs

Satellite Orbit Slot – The longitudinal position in the geosynchronous orbit into which a satellite is parked.

Service Level Agreement (SLA) – The part of a service contract where the level of service is formally defined.

Sunk Capital - Capital which cannot be recovered.

TA 86 – The Telecommunications Act 1986

(regulatory) **Transparency**: The rationale, rules and analysis used to arrive at regulatory decisions should be based on published documentation and the decision-making process should include consultation with interested parties.

Universal Service - The telecommunications services identified by the government which should be available and affordable to all customers.

Universal Service Obligation (USO) – An obligation to ensure that standard telephone services, payphones and prescribed carriage services are reasonably accessible to all.

Voice over Internet Protocol (VoIP) - A technology that allows users to make voice calls using **Internet Protocol**, using either the public Internet or private IP networks.

Appendix D - The 'Inverted-U'

The "Consortium" of licensees⁷² has contended in its submissions to METEC's consultation that the proposed regulatory reforms would result in consolidation, which in turn, would reduce the incentive for firms to innovate. In the end, according to the Consortium, Bermuda would "la[g] the rate of technological advance in other countries."⁷³ Their proposition follows directly from the hypothesis that rivalry encourages innovative behaviour while monopolists are dilatory in improving their mode of operation because they do not face as many competitive threats. The Consortium find support for their view in economic journal articles published more than twenty-five years ago. The researchers found that in "more concentrated industries, all else equal, [firms] are slower to adopt innovations developed elsewhere."⁷⁴

A related body of research, published in the early 1990s, found that, on the contrary, entry into an industry had a negative impact on productivity. The reduction occurred, theoretically, because firms were reluctant to make investments if they believed that their profits would quickly be taken away by rivals.⁷⁵ This theoretical work was consistent with the Schumpeterian hypothesis that innovation occurs more rapidly in large firms or firms that have large market shares.⁷⁶

Both hypotheses are plausible because one can easily envision why rivalry would propel a firm to rapidly adopt an innovation in order to ensure its survival. On the other hand, if rivalry is intensive a firm may be reluctant to innovate because a failed investment could handicap its ability to compete with its rivals; or, even if the innovation is successful, the innovation could be quickly copied by its rivals, and therefore, the first firm to innovate would not have an opportunity to earn a return that is commensurate with its investment risk.⁷⁷

More recent theoretical and applied economic research has allowed for the possibility that both hypotheses could be true. While early empirical work in this field effectively allowed for only a linear relationship between rivalry and innovation, recent work no longer presumes that there must be a linear relationship between innovation and the degree of rivalry. Rather, researchers have allowed for the possibility of a non-linear relationship. The more recent empirical work has found there to be an 'inverted-U' shape relationship between innovation and the level of rivalry. As shown in Figure 4 at first, an increase in rivalry leads to an increase in innovation. But as the level of rivalry increases, the innovative activity reaches a maximum value and additional rivalry reduces the level of innovation.⁷⁸

⁷² The Consortium consists of the following licensees: Bermuda Telephone Company, CableVision, Cellular One, Logic, M3, North Rock, and Transact.

⁷³ Kent Mikkelsen and Henry McFarland, "Economic Study of Aspects of Proposed Telecommunications Regulatory Changes in Bermuda," February 2, 2007, pp. 24-25. The study was sponsored by the Consortium.

⁷⁴ Id., footnote 81.

⁷⁵ Philippe Aghion and Rachel Griffith, Competition and Growth: Reconciling Theory and Evidence (2005): Cambridge: MIT Press, pp.15-16.

⁷⁶ Id., p. 19.

⁷⁷ The first firm to invest in innovations takes on risk that is not shared by its rivals which merely copy the first firm's innovations. All else being equal, the first firm to innovate is expected to have a higher cost of capital for the innovative project since it faces more risk.

⁷⁸ Id., pp. 32, 52. Aghion and Griffith report that the peak of the inverted-U occurs where their level of competition, C, is .95. C is defined as $1 - \text{Lerner Index} = 1 - (\text{Price} - \text{marginal cost} / \text{Price})$. Id., pp. 58, 60. Their econometric analysis was done using U.K. firm-level data.

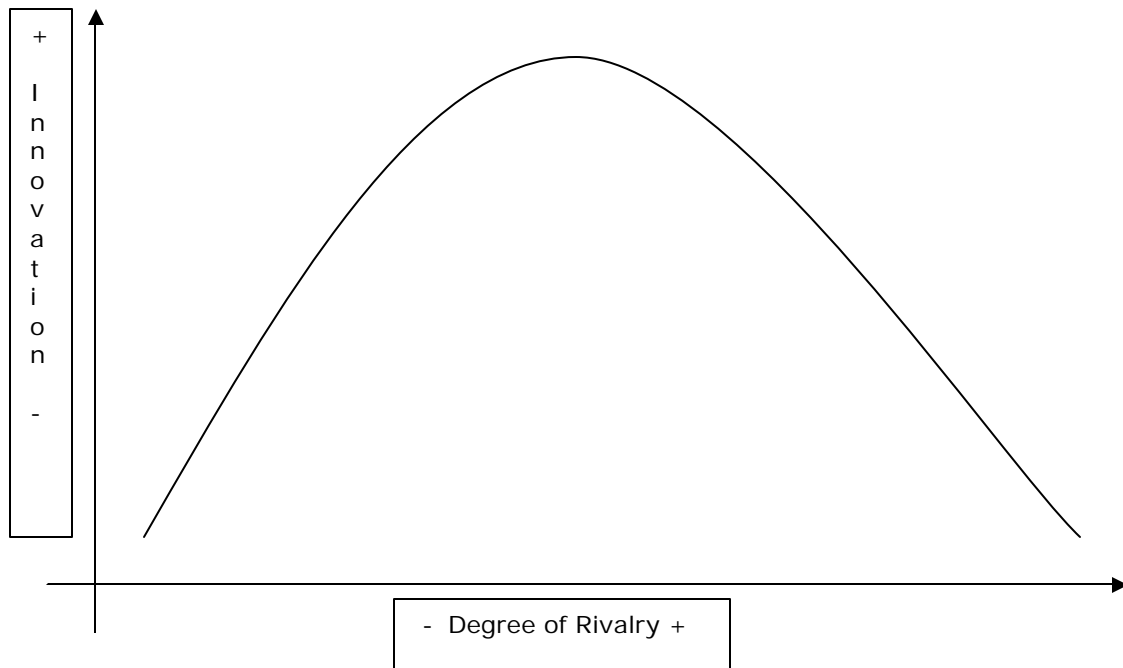


Figure 4 – Inverted-U Diagram

Therefore, even if the Consortium is correct that the proposed regulatory reform would lead to a reduction in the number of players, it is not necessarily true that this would reduce the level of innovation.⁷⁹

It is important to note that Aghion and Griffith also address the impact that the reduction of barriers to entry to foreign products and firms has on the innovation. They find both theoretically and empirically that the elimination of barriers to entry for foreign products and firms has an overall positive effect on innovation and productivity growth in an economy.

⁷⁹ It is important to note that the number of firms competing in a market is not synonymous with the degree of rivalry. That is, an increase (decrease) in the number of firms does not necessarily result in an increase (decrease) in rivalry.