

EXECUTIVE COUNCIL

RESTRICTED

Title of Report: PUBLICATION OF DOYLE REPORT AND FUNDING OF FURTHER
TELECOMMUNICATIONS CONSULTANCY WORK

Paper No: 11/2010

Date: 18 January 2010

Report of: Attorney General

1.0 Purpose

1.1 To advise Executive Council that the final and complete version of the Doyle Report has now been received (Annex 1 to this paper); to seek Executive Council's agreement to the Report being released for public consultation; and to agree that further consultancy work relating to telecommunications should be commissioned.

2.0 Recommendations

2.1 It is recommended that Executive Council agree that:-

- (a) the Doyle Report should be released for public consultation tomorrow, with a one month period for responses to be received;
- (b) the publication of the Report should not be accompanied by an initial FIG response;
- (c) Dr Doyle should be commissioned to carry out the work set out in the proposal at Annex 2;
- (d) the work being carried out by Actual Experience on monitoring the quality of service provided to C&W customers be extended for a period of six months.

3.0 Summary of Financial Implications

2009/10 - Operating Budget £31,000

4.0 Background

4.1 The final “final version” of the Doyle Report was received in 14 December 2009.

4.2 It had previously been the intention that this should be released for public comment together with an initial response from FIG to the Report.

4.3 Members have now considered this, and believe that it would be more appropriate to simply release the Report to the public, on the basis that this then enables Members to consider all the responses to the Report before reaching even an interim conclusion.

4.4 That is what is now proposed, with a period of one month being given for responses to be received.

4.5 A particular concern of Members (and indeed the public) is the current broadband pricing – both in relation to the current tariff structure and in particular the charges levied for data usage in excess of the monthly allowance. In order to better understand the issues that arise, it is proposed to engage Dr Doyle to carry out the work described at [Annex 2](#).

4.6 A key element of future regulation will be regulation of the quality of the service provided by C&W to customers. This is something that FIG has not done to date, and it is important for us to analyse the quality of the service that is currently provided, so we can establish the improvements that should be required.

4.7 One way of doing this is by utilising software agents developed by Actual Experience. We have been doing so since the end of last year in order to monitor the impact of the increase in broadband capacity that C&W put in place in December (the Actual Experience proposal is at [Annex 3](#)). We would propose continuing the monitoring that is in place for a further period of six months to enable us to define key performance indicators for future regulation.

5.0 Financial Implications

5.1 Dr Doyle has quoted a figure of £19,800 for the work at 2.1(3) with flights, accommodation and subsistence for a week in the Islands in addition. £25,000 accordingly seems a reasonable estimate of total cost.

5.2 The cost of Actual Experience is £1,000 per month, so an addition of £6,000 is needed for the additional six month period.

5.3 These costs cannot be accommodated from within the Regulatory budget for 2009-10 (there is none!) and whilst the Attorney General’s Chambers was prepared to fund the first two months of the Actual Experience trial, it cannot fund the additional sums now needed from within existing resources, so additional finance of £31,000 is sought for 2009-2010.

6.0 Legal Implications

None

7.0 Human Resources Implications

None

Telecommunication Services in the Falkland Islands: A Report Prepared for the Falkland Islands Government

Dr. Chris Doyle
Apex Economics & Warwick University
www.apexeconomics.com

Final Version 14 December 2009

PUBLIC VERSION

Table of Contents

About the Author	iii
Abbreviations used	iv
Foreword.....	viii
1. Introduction	1
1.1 The Terms of Reference (TOR).....	1
1.2 The Field Visit.....	1
1.3 My 2009 Report.....	2
2. The December 2004 Report.....	4
2.1 Market Structure	4
2.1.1 Competition <i>versus</i> Monopoly.....	4
2.1.2 Camp negotiations of 2007	9
2.1.2 Licence renewal and licence extension	10
2.2 Regulation	11
2.3 Other Policy Measures	12
2.4 Immediate Policy Actions	12
2.5 Strategic Visions and Plans.....	13
2.6 Regulation of telecommunications.....	14
3. Field visit	15
3.1 Billing and resolving disputes	18
4. Modernising the law	19
5. Recommendations	20
Annex 1 Terms of Reference (TOR)	22
Annex 2 A Non-Confidential Assessment of C&W's Financial Accounts up to March 2008	31

Annex 3 Telecommunications in the Falkland Islands Presentation to the Chamber of Commerce	33
Annex 4 Falkland Islands Chamber of Commerce Statement	40
Annex 5 Suggested structure of a new telecommunications law in the Falkland Islands	44
Annex 6 Summary Curriculum Vitae	51

About the Author

Dr Chris Doyle, Apex Economics

Apex Economics, led by Chris Doyle, provides economic consulting services in the fields of economic regulation and competition policy relevant to the broadcasting, radio spectrum and telecommunications sectors. Apex Economics has 20 years experience in providing economic and business consulting services to numerous corporate and government clients.

Chris Doyle is a member of Warwick Business School and an Associate Fellow at the top rated Department of Economics at University of Warwick, UK. He has published many academic papers on regulation and competition policy and in 2007 was a joint author of a book on spectrum management published by Cambridge University Press.

Chris is an advisor on telecommunications policy to the Falkland Islands Government and has performed this role since 2004. In April 2009 he visited the Islands to discuss a wide range of issues and this report contains his findings and recommendations arising from that visit and from dialogue over the intervening months.

Abbreviations used

2G	Second Generation mobile cellular telecommunications system (current commercial deployment in advanced countries is 3.5G leading to what is termed LTE – ‘Long Term Evolution’ or 4G, which will have download speeds of up to 100Mbit/s and upload speeds up to 50Mbit/s).
C&W	Cable & Wireless plc operates through two standalone business units – CWI (formerly International) and Worldwide (formerly Europe, Asia & US). The Falkland Islands business unit resides in the CWI portfolio (Monaco & Islands, see CWI below). On 5 November 2009 C&W announced that a demerger of the two stand alone businesses and on 17 November 2009 stated this would occur by 31 March 2010.
CWI	Cable & Wireless International (formerly <i>International</i>) is an owner and operator of leading regional telecoms businesses. Headquartered in London, it operates businesses through four regional operations - the Caribbean, Panama, Macau and Monaco & Islands - delivering world class service and efficiency. CWI is a full service telecommunications provider offering mobile, broadband and domestic and international fixed line services, as well as enterprise and managed service solutions.
C&W FI	Cable & Wireless Falkland Islands, a business unit forming part of C&W SAL operating under an exclusive licence granted originally in 1988.
C&W SAL	Cable & Wireless South Atlantic Limited, includes the businesses of C&W Saint Helena and C&W Ascension, which submits statutory accounts to the authorities in the Falkland Islands.
DSL	Digital Subscriber Line (broadband enabled copper pair – twisted copper pair cable that runs from the local exchange to the end user premises).
EBITDA	Earnings Before Interest, Taxation, Depreciation and Amortisation (alternatively <i>operating cash flow</i> , effectively the amount of cash generated by a business). It is one of the favoured metrics of C&W in terms of assessing and reporting company financial performance. EBITDA has been discredited in some circles as not providing a complete picture of performance and emphasising short-term characteristics. <i>EBITDA margin</i>

(referred to in Annex 2) means EBITDA divided by gross revenue. For a capital intensive business like telecommunications, the EBITDA margin is expected to be relatively high. For a business not making much use of capital (such as retailing), it ought to be lower. EBIT when divided by the capital employed by an enterprise is a measure of the return on capital employed (ROCE).

EDS	Economic Development Strategy – a strategy devised by the FIG Executive considering scenarios for future economic development on the islands.
FIG	Falkland Islands Government
GSM	Global System for Mobile communications (2G digital mobile telecommunications developed originally in Europe but used globally for many years. This is the standard deployed in the Falkland Islands.
IP	Internet Protocol is a protocol (a convention or standard that controls or enables the connection, communication, and data transfer between computing endpoints) used for communicating data across a packet-switched internetwork using the Internet Protocol Suite, also referred to as TCP/IP (TCP means Transmission Control Protocol). IP is the primary protocol in the Internet Layer of the Internet Protocol Suite and has the task of delivering distinguished protocol datagrams (packets) from the source host to the destination host solely based on their addresses. The first major version of addressing structure, now referred to as Internet Protocol Version 4 (IPv4) is still the dominant protocol of the Internet, although the successor, Internet Protocol Version 6 (IPv6) is being deployed actively worldwide.
MLA	Member of the Legislative Assembly, Falkland Islands Government,
MSANs	Multi-Service Access Nodes (equipment located typically at the local exchange or in a roadside cabinet – there is one local exchange in the Falkland Islands – also known as MSAG or Multi-Service Access Gateway) which connects end users' telephone lines to the core network, to provide telephone services and broadband such as DSL all from a single platform.
NGN	Next Generation Network (NGNs are commonly built around the Internet Protocol, and therefore the term "all-IP" is also sometimes used to describe the transformation toward NGN).

OFCOM	Office of Communications (UK sector regulator of electronic communications and media industries) see www.ofcom.org.uk .
REA	Regulatory Executive Agency – an agency that has been considered by the FIG Executive as a possible authority to oversee a number of monopoly and near monopoly sectors.
SSL	Stanley Service Limited was formed in 1987 and is a joint venture between the FIG and commercial partners S & JD Robertson Group, who were a well-established distributor of fuels in Orkney, Shetland, Northern Scotland and the Western Islands of Scotland and are now a Business Services Group and Lavinia Corporation which is a Shipping, Leisure and Real Estate Group with substantial interests in other industries such as aviation, pelagic fisheries and bunker trading activities. The Company provides fuel to both the Domestic population of the Falkland Islands and the fishing fleet, which operates in the waters near and around the Islands.
TOR	Terms of Reference – as set out for this report and presented in an Annex 1.
VoIP	Voice over Internet Protocol (e.g.Skype; VoIP is a general term for a family of transmission technologies for delivery of voice communications over IP networks such as the Internet or other packet-switched networks. Other terms frequently encountered and synonymous with VoIP are IP telephony, Internet telephony, voice over broadband (VoBB), broadband telephony, and broadband phone).
VSAT	Very Small Aperture Terminal comprising a two-way satellite ground station with a dish antenna that is smaller than 3 meters. Most VSAT antennas range from 75 cm to 1.2 m. Data rates typically range from 56 Kbit/s up to 4 Mbit/s. VSATs access satellites in geosynchronous orbit to relay data from small remote earth stations (terminals) to other terminals (in mesh configurations) or master earth station "hubs" (in star configurations). VSATs are most commonly used to transmit narrowband data (point of sale transactions such as credit card, polling or RFID data [Radio-frequency identification (RFID) is the use of an object (typically referred to as an RFID tag) applied to or incorporated into a product, animal, or person for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader]; or SCADA [SCADA stands

for supervisory control and data acquisition. It generally refers to an industrial control system: a computer system monitoring and controlling a process.], or broadband data (for the provision of Satellite Internet access to remote locations, VoIP or video). VSATs are also used for transportable, on-the-move (utilising phased array antennas) or mobile maritime communications.) Some VSAT services have been offered by C&W FI.

WiMAX

Worldwide Interoperability for Microwave Access is a telecommunications technology that provides wireless transmission of data using a variety of transmission modes, from point-to-multipoint links to portable and fully mobile internet access. The technology provides up to 10 Mbit/s broadband speed without the need for cables. The technology is based on the IEEE 802.16 standard (also called Broadband Wireless Access). The name "WiMAX" was created by the WiMAX Forum, which was formed in June 2001 to promote conformity and interoperability of the standard. The forum describes WiMAX as "a standards-based technology enabling the delivery of last mile wireless broadband access as an alternative to cable and DSL". Wimax is the technology used by C&W FI to serve much of the Camp population.

Foreword

Earlier this year I was invited by the Falkland Islands Government to scope out services with regard to:

- (i) Telecommunications tariffs
- (ii) Telecommunications law

Following correspondence with executive officers of the Falkland Islands Government, a schedule of services was agreed.

This report forms part of those services, though its focus has widened as a result of public concerns raised during a field visit in April this year and in response to consultations with new Members of the Legislative Assembly.

My report starts by revisiting the recommendations made in a report I presented to the FIG almost exactly five years ago, my “December 2004 Report”. I inquire into the appropriateness of the recommendations made then in today’s environment. The report then proceeds to analyse current issues and makes recommendations for future action and on the implementation of regulatory policy.

I am informed by the current Falkland Islands Government that my report is expected to form a key input into the development of future policy overseeing telecommunications. An earlier confidential version of my report (dated 7 August 2009) was circulated within government and shown to key stakeholders including Cable & Wireless Falkland Islands (C&W FI) who submitted detailed written comments in a letter (dated 25 September) to Mr. David Pickup, Attorney General.

Following the election of the new Assembly on 5 November 2009 the *Post & Telecommunication* portfolio is now the responsibility of Hon. Richard ‘Dick’ Sawle MLA and deputy of the portfolio Hon. William ‘Bill’ Luxton MLA. These same Assembly members also oversee *Information Technology* and *Monopolies* (SSL & C&W FI).

It has always been the intention of the FIG to make public my report, in a form that does not breach commercial confidentiality. Regrettably a considerable amount of telecommunications data is marked ‘confidential’ and I am not in a position to disclose financial figures that would be readily available in many other countries. Therefore the public version of my report contains a number of redactions (omitted text). I hope in future with the passage of a new telecommunications law citizens will be able to debate issues from a more informed perspective.

At the outset it is important I set out my views on C&W FI’s compliance with the current statutes. I have no reason to believe C&W FI is in any way in breach of current statutory obligations. The company and its officers have been very cooperative throughout this extended review and I have enjoyed a good working professional relationship with senior management.

Notwithstanding C&W FI’s record on compliance, there is much public concern in the Falkland Islands about the performance of telecommunication services – particularly with regard to the level and structure prices, quality of service, choice and customer care. These concerns have been raised across the community and were debated during the recent general election.

It has been clear for sometime that the current statute overseeing telecommunications is not *fit for purpose*. The current law, which was enacted in 1988, omits many issues pertinent to telecommunications today and contains a far too simplified regulatory structure. In this report I have

outlined the structure for a new law by making a comparison with the current law.

My report also proposes to apply a new form of price regulation on C&W FI, known as a *retail price-cap*. At present C&W FI is subject to price controls in the form of individual tariff ceilings. Whenever the company wishes to increase a tariff of one service above the current ceiling it is required to write to government and then awaits a response. This arrangement worked satisfactorily in the 1990s, but with the advent of more services (principally broadband and mobile), greater use of satellite bandwidth, and IP technologies which impact on costs, the application of individual tariff ceilings is not working well for both government and C&W FI.

In many other parts of the world, the regulation of the tariffs set by dominant companies such as C&W FI has shifted towards what is known as *incentive based regulation*. This system can also be designed to accommodate individual price ceilings, but more generally it is formulated in practice to provide the regulated firm greater discretion over individual tariffs. In practice incentive based regulation typically places a ceiling (or cap) on the annual changes of a measure of the average price for a broad range of services (known as the basket of regulated services), rather than set individual price ceilings.

I am pleased to report that C&W FI accepts in principle a move towards incentive based regulation in the Falkland Islands. This is because it should allow the company management greater discretion to adapt tariffs, subject to complying with an overall price control. However, C&W FI reiterated in its letter to the Attorney General dated 25 September 2009:

“That any regulatory regime that is put in place should be appropriate and proportionate to the size of the Falkland Islands and not place undue and unnecessary burden on either the regulator or C&W”

By necessity regulation in the Falkland Islands needs to be proportionate and the principle of proportionality is enshrined throughout my report. However, it is important that proportionality does not lead to regulatory ineffectiveness in practice.

The key issues in practice in the Falkland Islands are:

1. What kind of price control should be applied?
2. How should the price regulation be formulated?
3. Who shall be responsible for implementing a price control?

The first two points above are closely related. Given the very small size of the market in the Falkland Islands, it would be mistaken to choose a form of price control that mirrors the sophistication seen in markets such as the United Kingdom (UK). In the UK the telecommunications regulator Ofcom (and its predecessor Oftel) has expended several millions of pounds on applying incentive based price regulation in telecommunications which are founded on detailed financial models. In the UK the scale of the market is such that this expenditure is justified – the impact of the regulation has a net benefit for the citizens.

Clearly the Falkland Islands is working within the parameters of a considerably smaller financial model than that of the UK. Regulation of telecommunication services in the Falkland Islands is operating in the realms of thousands of pounds – not millions. Therefore the application of regulation in the Falkland Islands will be an approximation of more elaborate regimes elsewhere. Rather than construct very detailed financial models of C&W FI looking into the future, a more pragmatic position will form the basis of the formulation of the price control.

I set out in my report a proposal for an incentive based regulation system of C&W FI's which draws on international best practice. However, the proposal

does not constitute an absolute guarantee that consumers will see C&W FI earn on average returns at some future date commensurate with its cost of capital. It is possible C&W FI may earn higher or lower returns. The proposed incentive regulation provides for an improvement on the current regulatory pricing regime, but it is not necessarily a regime that is optimal or the best.

The regime I am proposing does, however, lend itself to straightforward modification from time to time. If after an initial three years of application the proposed price controls fail to achieve a fair deal for consumers, it would be appropriate at that time to reconsider a more stringent form of incentive based regulation. In many other countries, including the UK, the authorities have tended to start leniently before applying more robust price controls.

I believe that the recommendations in my report strike a fair balance between the interests of the monopolist C&W FI and consumers, given the principle of proportionality. Nevertheless, I have to exercise words of caution in two areas:

1. Incentive based price controls may not be sufficient alone to deal with quality of service matters; and
2. The incentive based price controls do not address the appropriate structure of tariffs.

On quality of service the FIG has commissioned an independent analysis of the performance of C&W FI's broadband services. This analysis is being conducted in parallel with the wider review of the sector. On the appropriateness of tariff structures, the FIG has expressed recently particular concerns about the current C&W FI broadband tariffs and is considering a review. Of special concern to the FIG are the monthly data allowances and the degree of transparency available to customers to keep track of broadband usage and plan monthly expenditures.

There is clearly an overlap among all these issues, and the proposed incentive based regulation presented in this report may need to be revisited sooner rather than later following a review of the broadband tariffs. Indeed, I am inclined to advise that the incentive based regulation is applied with an important caveat that a review of the price control will be required following the review of broadband tariffs.

It is unusual to conduct a review of an incentive based price control within a short time period, and certainly within one year. Indeed, the anticipation of such a review will likely negate any positive incentive effects from the price controls. I believe it is a price worth paying – the review of broadband tariffs may lead to no change in the incentive based regulation price controls. On the other hand, if a change is needed, the FIG ought to be able to negotiate with C&W FI a revised scheme – without changing the form of the price control scheme.

The recommendations I make in my report are designed to ensure that government does not micromanage the C&W FI business; on the other hand they should provide sufficient safeguards to ensure that the monopoly provider does not abuse its status in the market by charging excessively high tariffs.

The compilation of this report has involved much public consultation and key stakeholders have been closely consulted. Following consultation with the FIG, I have also taken account of likely developments to the operation of government and of the Islands Plan 2008/12. Finally, I would like to thank the many people who have contributed to my review.

I am confident that if the recommendations in my report are adopted the future regulation of telecommunications in the Islands will be better and the protection of customers against monopoly excess will be more effective. All

this should serve to meet the objective of making telecommunications an important enabler for the future prosperity of the Islands.

I would like to thank all those who have contributed to the writing of this report, and to all the persons I met during my visit in April this year. This final public version of the report has benefitted from comments received from FIG officials and C&W FI.

This report is delivered to the people of the Falkland Islands and all errors herein are solely my responsibility.

A handwritten signature in black ink, appearing to read 'Chris Doyle', with a stylized flourish at the end.

Dr. Chris Doyle
Apex Economics & University of Warwick
December 2009

1. Introduction

1.1 The Terms of Reference (TOR)

In March 2009 I agreed with the FIG the TOR (see Annex 1) for the delivery of consulting services focussed on regulatory policy of telecommunications in the Falkland Islands. The principal focus was intended to be the creation of a new law dealing with telecommunications. As part of the task a field visit occurred over the week beginning Monday 27th April 2009.

1.2 The Field Visit

The field visit revealed a considerable amount of disquiet in parts of the Community about telecommunications service provision. The general feelings at the time are summarised as follows:

- Service quality for broadband is variable and cost of service is relatively expensive, with notably high charges for visitors
- Broadband service provision is inflexible and the reluctance of C&W FI to offer bespoke VSAT solutions on reasonable terms was cited by a number of business interests as detrimental
- Customer service fails to provide customers with sufficient and/or clear information
- Billing is not trusted – measurement of data usage on broadband packages was questioned by some
- The application of monthly data allowances for the broadband service is unpopular, as many users exceed the allowances and find it difficult to plan budgets

Set against the negatives, the Community generally expressed favourable views on:

- Quality of voice telephony services – reliable though expensive for international calling
- Mobile telephony service
- Expansion of WiFi coverage – though many complained about the high charges for use

There was also a feeling expressed by some that FIG had not developed a strategic vision for telecommunications. In particular, the failure to act on recommendations presented in my earlier report of December 2004 was noted by many.

Since my visit in April 2009 I have received a number of queries on problems with the quality of service for broadband and billing issues.

1.3 My 2009 Report

In this report (“The 2009 Doyle Report”) I examine the status of telecommunications in the Falkland Islands and revisit the recommendations made in my December 2004 Report (“The 2004 Doyle Report”). Since my first visit to the Islands in 2004 telecommunications has changed markedly.

Today the Islands have a NGN network with a soft switch (a range of computers), a modern replacement for Camp based on the WiMAX platform offering broadband connectivity to the dispersed population, a cellular mobile service providing coverage for the population of Stanley and Mount Pleasant based on the 2G GSM platform offering limited international roaming, voice telephony and text messaging services, and a range of broadband services (delivered over cable and wireless media) that have replaced the older dial-up Internet service.

Unquestionably customers receive superior telecommunications services today when compared against those that were available in 2004 and at prices generally below those in 2004. However, due to the rising popularity of the Internet household expenditure on broadband services has increased dramatically and despite lower telephone calling charges, some households expend considerably more on telecommunications services than in 2004. On the other hand, the ability to use VoIP services on broadband enabled lines means that expenditure has fallen for some households – in effect the use of Skype and similar VoIP services has substituted for the more expensive international direct dialling services offered by C&W FI.

The improvement in services in the Falkland Islands over the last five years has also occurred in almost every other country in the world. Customers in the UK have broadband and mobile telecommunications services considerably faster and cheaper than those that were available just five years ago.

Against this backdrop I have undertaken my review. The structure of my report is as follows. Section 2 revisits the December 2004 report and examines progress between then and now. Section 3 reports on the field visit I made in the week beginning Monday 27 April 2009. Section 4 addresses the modernisation of the law, which is a priority in the Islands Plan 2008-2012.

Section 5 concludes with recommendations for future action and presents a suggested timeline for implementation. A number of annexes present other materials relevant to the visit and the report, as well as a summary CV.

This is a public version of my report. It has a number of redactions (omitted text) which are made clear. The redactions relate to matters that are commercially confidential. I wish to emphasise that the redactions are not material and do not impact on the findings in my report.

A non-redacted version of my report has been submitted to the FIG, labelled as 'confidential'.

2. The December 2004 Report

In December 2004 I submitted a report to FIG entitled 'Telecommunications and the Falkland Islands: Policy Options – An independent study for the Falkland Islands Government'. A redacted version of the 'December 2004 Report' was made public in early 2005.

In the 2004 Doyle Report a number of recommendations were presented and I identified three key areas for policy action:

1. Market structure
2. Regulation
3. Other policy measures

It is almost five years since these recommendations were made and I revisit them in the discussion below.

2.1 Market Structure

2.1.1 Competition *versus* Monopoly

I stated in 2004 that competition in the provision of telecommunications is desirable. This is because competition encourages rivalry among suppliers who seek to offer customers better deals in terms of quality and price. In the absence of rivalry, a supplier acting as a monopolist is likely to become complacent and inefficient, meaning consumers get a worse deal.¹ It is because of the problems associated with monopoly that governments often seek to regulate their activities – so as to protect people against what is sometimes referred to as *monopoly abuse*.

Economists advocate therefore that where possible competition should be encouraged. However, not all markets are conducive to competition. If the supply of a service involves a large setup cost (alternatively it involves considerable capital expenditure), then in small economies it will often be the case that having one firm supplying the market is the most cost effective solution. This is known in the economics literature as *natural monopoly*.²

In simple terms a natural monopoly posits that the least cost way to serve a market is to have one supplier, rather than several suppliers. By restricting supply to one provider, we avoid duplication of what are termed the fixed or

¹ This view is articulated Joseph Farrell "Monopoly Slack and Competitive Rigor: A Simple Model" in *Readings in Games and Information*, edited by Eric Rasmusen. Oxford: Blackwell Publishing, 2001.

² Kahn, A.E. (1970), *The Economics of Regulation: Principles and Institutions (Volume I)*, New York: Wiley.

setup costs. For example, rather than have two competing telecommunications providers each investing in their own infrastructure and potentially sharing the market, we could have one supplier with one network servicing the entire market.

In the Falkland Islands there are a number of monopolies, such as the supply of fuel and telecommunications. It seems appropriate in the light of current issues surrounding these monopolies to ask whether in fact they are natural monopolies. The influential regulatory economist Paul Joskow of MIT set out a number of interesting questions on natural monopoly in a survey paper:³

If an industry has “a tendency to monopoly” what are the potential economic performance problems that may result and how do we measure their social costs? This question leads to an evaluation of the losses in economic efficiency and other social costs resulting from an “unregulated” industry with one or a small number of sellers. This question in turn leads to a fourth set of questions: When is government regulation justified in the presence of natural monopoly and how can it best be designed to mitigate the performance problems of concern? Answering this set of questions necessarily requires both theoretical and empirical examinations of the strengths and weaknesses of alternative regulatory mechanisms. Regulation is itself imperfect and can lead to costly and unanticipated firm responses to the incentives created by regulatory rules and procedures. The costs of regulation may exceed the costs of unregulated naturally monopoly or significantly reduce the net social benefits of regulation. Are imperfect unregulated markets better or worse than imperfectly regulated markets?

Finally, firms with de facto legal monopolies that are subject to price and entry regulation inevitably are eventually challenged by policymakers, customers or potential competitors to allow competing suppliers to enter one or more segments of the lines of business in which they have de facto legal monopolies. Entry may be induced by changes in technology on the costs and demand sides as a response to price, output and cost distortions created by regulation itself. These considerations lead to a final set of questions. How do changes in economic conditions or the performance of the institution of regulated monopoly lead to public and private interests in replacing regulated monopoly with competition? How can policymakers best go about evaluating the desirability of introducing competition into these industries and, if competition appears to be desirable, fashioning transition mechanisms to allow it to evolve efficiently?

All of the above questions are relevant when assessing the market for telecommunication services in the Falkland Islands. It seems reasonable to ask today whether the market remains best served by a monopolist. If not, what segments of the market may be able to accommodate competition? What kind of regulation is required? I will be addressing questions of this kind in my report.

The first question concerns the proposition that the supply of telecommunication services in the Falkland Islands is a natural monopoly.

³ Paul L. Joskow (2007) “Regulation of Natural Monopoly” chapter 16 in the *Handbook of Law and Economics Volume II*, edited by A.M. Polinsky and S. Shavell, Elsevier, B.V.

In 1988 when C&W FI was granted an exclusive licence to provide public telecommunication services within the Falkland Islands, it was taken as given that the market was a natural monopoly. The cost of establishing a network with international connectivity and the small size of the customer base meant that a single provider was the most economical way to provide services. It should be noted that at this time competition in UK telecommunications was limited to a duopoly (two firms – BT and Mercury), despite a population of over 55 million.

In the late 1980s and early 1990s VSAT technology was not regarded as sufficiently well developed to provide an alternative means of international connectivity to larger satellite infrastructures then in use by C&W FI.⁴ The satellite earth station (the large satellite dish based in Stanley at the C&W FI premises) was constructed by Marconi in 1983.

In terms of services used on a telecommunications network, voice was the primary service up until the advent of the modern Internet in the form of the world wide web. Hence, the telecommunication network set up by C&W FI in the 1980s and 1990s was used primarily to support voice services and voice applications – both domestic and international direct dial (IDD) services. Data use was limited, though the popularity of facsimile in the 1990s saw some growth in data traffic.

By around 2003 demand for internet access started to grow in the Falkland Islands, which at that time was available to most users as a dial-up service. This was notoriously slow and expensive to use. By 2007 C&W FI started to introduce a DSL broadband service, which today forms the basis of broadband connectivity for most Islanders (for those in Camp service is provided either via WiMAX or VSAT). A few larger business users and entities such as the FIG and Military access the Internet via leased capacity from C&W FI.

The emergence of the Internet over the last 5 years or so has transformed the way people use the telecommunications network. Voice services are increasingly secondary to browsing the Internet, and many voice calls are made using VoIP service providers such as Skype. In terms of the economics of supplying services, a larger proportion of service revenue is derived from the sale of broadband subscriptions.

Table 2.1 presents revenue data broken down across the principal services offered by C&W FI for the financial year ending 31 March 2008.

⁴ VSATs entered into commercial deployment in the early 1980s and were originally one-way systems. In 1985, Schlumberger Oilfield Research co-developed the world's first Ku band (12-14 GHz) VSATs with Hughes Aerospace to provide portable network connectivity for oil field drilling and exploration units. Ku Band VSATs make up the vast majority of sites in use today for data or telephony applications which make use of IP standards.

Table 2.1 Gross revenues £000 by service for C&W FI 2007-08

Service	2007-08	2006-07	% change
<i>Domestic fixed</i>	████	████	-6%
<i>International Fixed</i>	████	████	9%
<i>Mobile</i>	████	████	71%
<i>Broadband</i>	████	████	197%
<i>Dial up</i>	████	████	-31%
<i>Direct Internet</i>	██	████	-53%
<i>Leased circuits</i>	████	████	14%
<i>Other</i>	████	████	-4%
<i>Total/Average</i>	████	████	16%

Source of data: C&W FI

Table 2.1 reveals that revenue from Internet access and services (Broadband plus Dial up plus Direct internet plus Leased circuits) grew by 20% between 2006/07 and 2007/08 – far above the growth rate in the economy and in excess of the overall growth in C&W FI revenues. These data suggest that overall expenditure on telecommunication services, which includes the Internet, was increasing markedly over the period.

Although the population of the Falklands remains small in absolute terms, expenditure on telecommunication services has been rising significantly as a result of the popularity of the Internet. This effect is what economists refer to as demand side growth.

On the supply side, which describes the conditions faced by firms supplying telecommunication services, costs have generally been falling for equipment – though labour costs, fuel and the cost of shipping materials to the Falklands have typically risen. However, of greater significance is the fact modern equipment is manufactured at a scale which is better suited to the size of the market in the Falklands.

Since 1988 the market has exhibited two effects:

1. A growth in demand for services; and
2. Lower equipment costs.

Economists recognise that these effects could transform a market from natural monopoly into one where multi-operator competition is viable.

Is multi-operator competition viable in the Falkland Islands? I am very sceptical that multi-operator competition would be sustainable *for all services*.⁵ It seems unrealistic to expect another entity to compete against C&W FI in all services: fixed (voice and Internet) and mobile. Demand for services, though larger today than in 1988, remains, in absolute terms, low and the supply side conditions are unfavourable (international connectivity is only possible by satellite, which is relatively expensive when compared with fibre optic cable used extensively in the islands in the Caribbean and elsewhere, and the small Camp population is widely dispersed).

However, some form of limited competition may be viable – for example in markets serving large corporate/business users.

The key issue is whether limited competition, in whatever form it might take, is compatible with an affordable national (universal) service. If competition to supply larger business users were to deprive C&W FI of income that is used to cross-subsidise loss making customers, this would put upward pressure on prices faced by end users.

Nevertheless, the situation is far from straightforward. In 1988 the fisheries businesses barely existed in the form they do today and oil exploration was, I understand, non-existent. The point here is that industries have emerged post-1988 which rely on reliable data communications with a potential global reach.

Consider, for example, an oil exploration company which requires a dedicated capacity link with an office located in Europe or North America. Under the current legislative framework, the company would have no choice but to approach C&W FI about its communication needs. But is this in the best interest of the Falkland Islands? If the oil exploration company were able to choose from a number of competing suppliers, it might be able to undertake operations more effectively and at a lower cost. This would likely benefit the Falkland Islands.

Furthermore, the revenue associated with the communication services used by an oil exploration company would be incremental to the overall revenue in the communications sector. In other words, if the oil exploration company were to be supplied by a company other than C&W FI this ought not to impact negatively on existing customers of C&W FI.

I hold the view that multi-operator competition across all telecommunication services is not viable in the Falkland Islands today.

⁵ By sustainable I mean I doubt two or more suppliers providing a full set of services could manage to break even.

The size of the population of the Falkland Islands has not changed much since 2004 and supply side conditions (the cost of supplying telecommunication services to the public) have not changed sufficiently to enable the entry of another full service provider. However, there would appear to be areas in which a relaxation of exclusivity could be considered – most notably in regard to the supply of services to certain larger strategically important business users, especially new oil exploration companies. Even if exclusivity is preserved, the FIG should consider adopting regulation that requires C&W FI to supply services to large business users on terms equivalent to those that would be offered by operators not eligible to enter the market.

In effect I am advocating that consideration is given to a relaxation of licence exclusivity. I am not suggesting that the market should be opened up to full competition; rather I am proposing that the FIG should consider ways to accommodate limited competition which would act as a stimulus for C&W FI to be customer responsive and as a result all users of telecommunication services in the Falkland Islands would benefit.

2.1.2 Camp negotiations of 2007

In 2007 financial terms that would support the modernisation and upgrading of the telecommunications infrastructure serving Camp between the FIG and C&W FI. The overall cost of the replacement Camp system, based on a WiMAX platform, was estimated to be around £2 million. The previous Camp system had been entirely funded by the FIG, but it was felt on this occasion that C&W FI should make a sizeable contribution. In return for making such a contribution, the FIG indicated that it was willing to extend the period of licence exclusivity.

A Memorandum of Understanding (MoU) was signed between C&W FI and the FIG in 2007, following C&W FI committing £1.3 million to the Camp replacement network, in which it is stated that the licence of C&W FI will continue to be exclusive until the end of 2019.

There is a cost to having a single provider – foregone choice and the need to regulate monopoly provision to ensure that C&W FI does not abuse its exclusive position in the market. Regulation of C&W FI should ensure that customers obtain a fair deal and that C&W FI obtains a fair return.

I have made an assessment of the financial accounts presented by C&W FI to the FIG over the recent years and this suggests that regulation has not been effective. C&W FI has enjoyed returns commensurate or in excess of a fair return, which implies customers have not received a fair deal. In the absence of competition, it is essential that FIG applies a sufficiently strong enough ‘stick’ to ensure that C&W FI delivers a fair

deal to customers without, of course, undermining C&W FI incentives to invest and modernise its network.

During the course of my visit a number of individuals suggested that monopoly provision is not delivering a fair deal and it was argued that competition in some form should be considered.

In particular, some individuals suggested that a better service (in terms of quality, prices and choice) can be obtained by contracting with a VSAT provider other than C&W FI. I am not in a position to judge the validity of such claims. However, it is clear that were persons allowed to contract with providers other than C&W FI this would diminish the revenue base flowing to C&W FI. Inevitably this would put pressure on the company to recover costs from a smaller customer base. In other words, were some persons allowed to contract with other suppliers the overall impact would likely be detrimental as the rest of the population would face higher prices and/or a reduction in the scope and quality of service.

It should also be noted that C&W FI has invested several millions in a very small business in the Falkland Islands since 2004. These investments have included the installation of a modern NGN soft switch, a WiMAX network in Camp, broadband services and a cellular network covering much of the population. These investments have been made with a reasonable expectation that exclusivity would be maintained for the lifetime of the operating licence. Indeed, the MoU signed in 2007 that led to the substantial investment in the new Camp network was predicated on exclusivity being extended until at least the end of 2019.

In view of recent investments extending the range of services and improving quality of service, exclusivity with appropriate and proportionate regulation is the best way to manage telecommunication service provision in the Falkland Islands. Although, whether exclusivity should be full is questionable, as I have already suggested above.

2.1.2 Licence renewal and licence extension

I observed in the December 2004 Report that with regard to licence renewal from the end of 2005 onwards FIG could choose to notify the termination of the licence granted to C&W FI at a date from the end of December 2010 onwards. I recommended that it should have been made clear to C&W that a competitive tender for a new exclusive licence would take place unless certain conditions were satisfied.

If C&W satisfied certain criteria, I recommended that the current exclusive licence be extended by a further 7 years. One criterion the FIG was recommended to consider was a clear commitment by C&W FI to replace and fully fund the Camp radio telephone system. The capital expenditure that

enabled the Camp radio telephone system that was in operation in 2004 was fully funded by FIG, a decision dating back to the 1990s.

As noted in the previous section, in 2007 the FIG and C&W FI concluded lengthy and detailed negotiations over the replacement of the old Camp radio telephone system. The outcome resulted in C&W FI making a financial commitment of £1.3m and the FIG committing £823,000 to support the build-out of new Camp system based on WiMAX.

Given the supply of a modern broadband based service to Camp fully interconnected with the system operational elsewhere in the Islands involves a substantial cost per installed line, it is impressive to observe that C&W has made a substantial contribution. Of course, C&W FI was prepared to make the contribution on the basis that it knew that if its business were operated efficiently it would be able to recover the cost of the new Camp network from its entire customer base in the Falkland Islands.

In effect the contributions made by both C&W FI and FIG represent a cross-subsidy of the Camp network: by all telephony users and tax payers respectively. Without such cross-subsidy the Falkland Islands would not benefit from having a fully interconnected national network.

It should also be borne in mind that the decision by C&W FI to provide a cross-subsidy was predicated on licence exclusivity applying to current customers – and that the exclusivity would be extended until at least the end of 2019.

The licence extension provided in the MoU of 2007 and the associated commitments to invest in a new Camp telephony system were deemed the best solution to meet public policy objectives in 2007. I was intimately involved in the negotiations of 2007 and maintain the view that the decision made then was consistent with the Ordinance and the wider public interest. Further, the installation of a modern system in the Camp has clear social and economic benefits beyond those found in the accounts of C&W FI and the FIG.

2.2 Regulation

I recommended in the December 2004 Report a number of issues with regard to regulation. Unfortunately a number of these remain unresolved.

I stated that:

- The FIG should scrutinise more closely the activities of the licensee. This was to be achieved by:

- Requiring C&W Falklands to submit an annual performance report to FIG (to the Chief Executive's office) at the end of each financial year. *Although C&W FI meets its statutory obligations, the current practice does not meet with the form expected for the performance report as set out in 2004 (see below).*
- The annual performance report should be presented to the Executive Council and made public following their approval (made public means provided online and in hard copy in the library). A summary of the report should be delivered to all subscribers to the C&W network. *I am not aware of a summary which is made public to subscribers of C&W FI.*
- The annual performance report would provide information on services, investment, prices, quality of service, profitability and future service plans. *This appears not to be the case at present.*
- The FIG should establish targets, based on benchmarks from other jurisdictions, against which the performance of the licensee would be appraised. *This has not happened.*
- The licensee should be allowed to submit requests for changes to its tariffs in the annual performance report, and approval should be granted subject to the performance of the licensee. *C&W FI applies for tariff changes in accordance with statutory obligations, which was the case prior to the December 2004 Report.*

With regard to regulation of C&W, FIG did not act on the above recommendations before the end of 2008. Most of the issues that were evident in 2004 remain evident in 2009, and additional issues related to broadband services have since surfaced.

2.3 Other Policy Measures

I also proposed a number of other policy measures be adopted, most of which related to dial-up internet service provision. These are largely irrelevant today as an always-on broadband service has superseded the dial-up service. I also recommended that FIG conduct a review of spectrum management policy. The latter has not taken place. However, this is not a pressing issue as radio spectrum is in abundant supply given the small population.

2.4 Immediate Policy Actions

I also stated in the December 2004 Report that a strategic vision for telecommunications be formulated by C&W and FIG. I suggested that C&W FI should be invited with immediate effect to provide the FIG with a strategic vision for the development of the electronic communications services over the next ten years. The intention of the document was to present FIG with a discussion of how the company intended to manage the challenges it faced

on the Islands, and how it foresaw best meeting the increasingly demanding needs of businesses, residents and public sector agencies. The document was also expected to assess in detail the financial implications of developing the electronic communications sector on the Islands.

The strategic vision was expected to take the form of a report submitted to the FIG and be made public. I suggested an indicative timetable that culminated in the publication of a vision for the development of electronic communications services over the next ten years in mid-2005.

The policy vision statement did not materialise, though numerous interchanges between the FIG and C&W FI have occurred over the intervening years.

2.5 Strategic Visions and Plans

In April 2009 FIG produced 'The Islands Plan 2008/12' in which section 4 addresses transport and telecommunications. The Plan states:

"We will work to develop infrastructure, particularly transport and communications, to meet the Islands economic and social development. We aim to provide our dispersed population with safe and cost effective transport and modern telecommunications to serve the needs of all sectors of the community and economy."

Serial	Outcomes by 2012	Milestones	Responsibility	Medium Term Financial Implications
4.4	Improved telecommunication services	2008 <ul style="list-style-type: none"> WiFi hotspots throughout Stanley and to the Canache 2009 <ul style="list-style-type: none"> New Camp telecommunications system operational Review telecommunications legislation 2010 <ul style="list-style-type: none"> Introduce new legislation Upgrade broadband services Develop a virtual classroom for Camp Education (see also 3.2) 	Government Secretary/ Cable & Wireless South Atlantic Ltd	High

On 16 July 2009 The Plan was formally adopted by the FIG.⁶ This Review of telecommunications forms part of the Islands Plan, though responsibility has shifted to the Attorney General rather than the Government Secretary.

On 25 June 2009 the FIG made public a version of the latest Economic Development Strategy.⁷ This includes references to telecommunications as

⁶ The formalisation of the Plan, which is reviewed on an annual basis, was approved by Executive Council on 25 June 2009.

an enabler to achieve the “aspiration” target of 6% real growth in GDP per capita.

2.6 Regulation of telecommunications

The regulation of telecommunications until recently was within the portfolio of the Government Secretariat, with the Government Secretary largely responsible for day to day oversight. During the course of the first half of 2009 day to day regulation of telecommunications has transferred to the offices of the Attorney General.

The Chief Executive published ‘Review of Government – major outcomes’ on 18 December 2008. Sections 8.18-22 deal with regulation. The Chief executive remarks specifically on telecommunications regulation:

“government currently undertakes a wide range of regulatory activities but they are spread across the organisation and sometimes undertaken as a small part of a much wider role, for example telecommunications regulation.”

The Chief Executive has proposed that day to day regulation of telecommunications (in particular the regulation of the exclusive licensee) be transferred into an executive agency “which is operationally independent of government”.⁸ This is a sensible policy and should lead to improved and more effective regulation of C&W.

The Chief Executive has submitted a recommendation to FIG (Recommendation 7 in his report):

“Recommendation 7: The Regulatory function of Government should be strengthened through the aggregation as far as practicable of regulatory functions within one department with substantial powers to regulate across a wide but defined field including private sector monopolies and mergers, civil aviation, telecommunications and all services transferred from government to the private sector. In the future, a **Regulatory Executive Agency** could be created which is operationally independent of government.” *Emphasis added*

In principle I endorse the setting up of a REA. However of greater urgency is the modernisation of the regulatory regime overseeing telecommunications.

⁷ Economic Development Strategy – Progress Update, Paper No: 108/09, 25 June 2009, Report of: Head of Policy.

⁸ Section 8.19 Chief Executive’s Report.

3. Field visit

A field visit to the Islands occurred in the week starting Monday 27 April 2009. The itinerary for the visit is shown below

TABLE 3.1 ITINERARY – DR CHRIS DOYLE

Falkland Islands visit 25 April to 3 May 2009

Sat 25 April 2009	Pm	arrive MPA via Lan Chile	bus booked Malvina House Hotel
Sun 26 April 2009		Free	
Mon 27 April 2009	8.15am	meet CE/Tim Thorogood	legislation
	9am	meet HoP/Sonny Jose	policy
	10am	meet AG/David Pickup	scope
	11am	meet Legislative Assembly/Lib Rm	ditto
	2pm	meet C&W/Aaron Richardson	Michael Poole
Tue 28 April 2009	9.30am	meet RBA Rep/Nick Pitaluga	Cable Cottage
	Am	working on legislation	
	1-3pm	meet MPA Rep/Com Sec – Chris Toogood Clare Pilkington Wg Cdr Allen Wilson (ACOS J6)	explain work & exemptions to be provided in the law and treatment of radio spectrum
	5pm	meet Chamber of Commerce meeting & buffet supper	
Wed 29 April 2009	9am	meet C&W/Aaron Richardson	
	11am	meet KTV/Mario Zuvic	Cable Cottage
	Noon	meet PN/Sharon Jaffray	PN office
	Pm	working on legislation	
Thu 30 April 2009	Am	working on legislation	
	10am	Stacey/FIRS	interview
	10.20am	Nick Barrett/IJS	collect from FIRS to IJS
	Lunch	Tim Thorogood & David Waugh (FIDC)	Malvina
	Pm	working on legislation	
Fri 1 May 2009	9am	meet C&W/Aaron Richardson	
	3pm	meet with FIG - AG/CE/HoP	
Sat 2 May 2009	Am	depart MPA via Lan Chile	bus booked

FIG: David Pickup 28464; Sonny Jose 28428; Tim Thorogood & Una 28450; Lynn 28430; Claudy & Cherie 27451

Aaron Richardson – C&W – jeanette.miller@cwimail.co.fk – 131

Chris Toogood – MOD – hqcmdsec@mountpleasant.mod.uk – 74467

Chamber of Commerce – commerce@horizon.co.fk – 22264

Mario Zuvic – KTV – kmzb@horizon.co.fk – 22349

Sharon Jaffray – PN – pnews.deputy@horizon.co.fk – 22684

Nick Pitaluga – RBA – cormocountry@horizon.co.fk – 31193

In the meeting with C&W FI on Monday 27 April I met with Aaron Richardson (CEO Falkland Islands, Director, Cable & Wireless South Atlantic Ltd, September 2006-present day), Justin McPhee (Networks Manager Cable & Wireless South Atlantic Ltd) and Ms. Chris Durnell (Regulatory Director, Monaco & Islands). Chris Durnell was visiting the Islands to coincide with my visit. Michael Poole of the FIG Policy Unit at FIG accompanied me to all of the meetings with C&W.

In the first meeting with C&W we discussed a range of issues. It was also confirmed that broadband service was making use of 8Mbit/s downlink and 4 Mbit/s uplink, and that according to C&W the capacity had been fully utilised during peak hours.

Meetings with other stakeholders throughout the week took place, with representatives of Camp and the business community, as well as with elected officials and government executives. A presentation was made to the Chamber of Commerce (see Annex 3) on Tuesday 28 April. The latter meeting was well attended. The Chamber produced a press release prior to my visit expressing concerns about telecommunications policy and also wrote to the FIG Councillor responsible for telecommunications (Mike Rendell) (see Annex 4).

The views expressed by the Chamber raise many concerns and suggest that service quality issues are not being addressed in the current regulatory framework.

Another meeting took place with C&W on Wednesday 29 April, focussing on the application of a price cap. In the discussions it was suggested that FIG was minded to apply a price cap constraining price changes at C&W FI to be related to inflation and other key cost drivers (such as satellite space segment costs, the contract for which is denominated in US dollars).⁹

The following issues in relation to the price cap were raised:

1. The scope of the price cap
 - a. That is what services would be included – I suggested all services would be included given the absence of effective competition

⁹ Satellite space segment is the capacity purchased from a satellite operator that enables C&W FI to establish a connection between the Falkland Islands and the United Kingdom (similarly enables CWI to establish a connection between the United Kingdom and the Falkland Islands), and from there to the rest of the world. Use of the space segment will involve facilities in both the Falkland Islands and the United Kingdom. It is not known whether C&W SAL is a signatory to the agreement to provide space on the satellite. It is also not known how the costs of the space segment are shared between each end of the satellite. Given the significance of these costs, I shall be recommending that the FIG write to C&W to request that C&W provide information that reveals how costs are shared between the UK and the Falkland Islands.

2. Initial prices
 - a. The initial prices are those chosen at the beginning of the price cap and against which changes are compared initially
3. Number of baskets
 - a. A price cap can be applied to a basket comprising all services, or to a number of baskets which in aggregate comprise all services – I suggested that probably two baskets would at most apply, with one basket being a sub-cap focussed on monthly line rental charges
4. Cost pass-through
 - a. We discussed what was meant by cost pass-through. The idea of a price cap is to incentivise a firm to undertake productivity improvements. Thus where a firm expends effort which lowers costs, it should be permitted to enjoy some of the extra profit made possible. Without this 'carrot', management would lack a desire to undertake productivity improvements. In this setting, customers would ultimately suffer as quality would be harmed and prices higher than would otherwise be the case. However, some costs are beyond the control of the firm – for example, the cost of fuel, electricity and satellite bandwidth. If these costs change dramatically they may require either a reduction or increase in retail prices. Cost pass-through allows for the pass through of cost changes 'exogenous' to the firm (i.e. outside the sphere of influence of the firm). Satellite bandwidth costs are likely to be hedged by C&W, given that they are denominated in US dollars, involve forward contracts and the company reports its earnings in UK sterling. Such hedging is presumably a function operated within CWI rather than C&W FI.
5. Administration and compliance
 - a. We also discussed how a price cap would operate in practice. I suggested that the burden of compliance would fall largely on the firm, which would have a requirement to submit a compliance statement on an annual basis.
6. RPI or Inflation
 - a. C&W asked whether the measure of inflation was accurate and to what extent it included communication services. Michael Poole stated he would investigate further. Since my visit FIG has published a note on the constituent components of the RPI in the Falkland Islands.¹⁰ It appears that mobile phone costs and broadband costs are not explicitly included in the measure of the RPI, an omission that needs addressing.

¹⁰ Basket of Goods & Services – Supplement to White Papers, June 2009 at <http://www.falklands.gov.fk/documents/RPI%20Explanation.pdf>.

The problem of bypass was also discussed in the meeting with C&W. I stated in the meeting that I do not condone bypass where it represents a clear violation of an existing law.

A final meeting was held with C&W on Friday 1 May. In this meeting it was agreed that the issue of regulatory oversight needed to be addressed and resolved by FIG during 2009. Four areas were identified as requiring attention:

1. Regulatory oversight of prices
2. Quality of service regulation (and auditing of bills – see section 3.1)
3. Exclusivity of licence
4. Modernisation of the law (see section 4)

In the meeting on 1 May we also discussed the possible value of X (the productivity offset factor) that might apply in a RPI-X price cap.¹¹ I put it directly to the C&W representatives present whether they would be prepared to accept a price cap where X was set at 2. It was remarked that this might be acceptable.

By setting $X=2$ this would mean in practice that on average customers would face prices which year on year would fall by 2% in real terms.

Applying a single price cap on all services with $X=2$ should start as soon as possible and be retrospective to 1 April 2009. I expect a price cap in the first instance to apply over three years covering the period 2009-2012, starting with the financial year 2009/10. As a safeguard for so-called “rate shock” (where the structure of prices may change dramatically under a price cap), I propose in addition that a sub-cap is applied onto the monthly line rental. I suggest that monthly line rental charges should not increase by more than inflation plus 5% in a year. The application of such a price cap would be proportionate and appropriate in the circumstances. A review of the price caps should take place not before October 2011.

3.1 Billing and resolving disputes

A number of complaints have been submitted to various parties alleging miscalculation of bills by C&W FI. In particular, I understand that a number of individuals are disputing the measurement of data usage on their broadband accounts. The Attorney General, following my suggestion, has received other advice on this issue from another consultant.

¹¹ RPI-X in practice means inflation minus a productivity offset factor. The X factor can be calculated in various ways, for example by benchmarking or by reference to total factor productivity.

4. Modernising the law

In section 2.6 above I referred to the Chief Executive's 'Review of Government – major outcomes' published on 18 December 2008. Sections 8.18-22 of the Review deal with regulation matters.

The Chief Executive proposes in Recommendation 7 of the Review the establishment of a new executive agency REA independent of government that would be charged with the responsibility of overseeing a number of areas of the Falkland Islands economy.

While the TOR set out the need to draft a new law on telecommunications, it is clear Recommendation 7 could have a substantial bearing on such a law if formally accepted.

As I made clear in the December 2004 Report, the law as it stands in respect of telecommunications is inadequate. The law requires substantial modernisation to reflect the many changes that have occurred since 1989, the year the current law was enacted. This I believe is now known to everyone. What is also known to everyone is the fact the same view was expressed in 2004.

The Chief Executive's Review affords an opportunity therefore to finally address the modernisation of the law.

However, I have been advised that the formation of a REA is unlikely in the near term. Therefore the immediate requirement is to modernise the law on telecommunications.

A substantial part of the new law would be devoted to 'electronic communications' (including telecommunications, spectrum management, domain name management, numbering, customer protection, competition issues, etc).

The new law should not change materially the nature of licence obligations arising from the current legislation and enshrined in the current operating licence held by C&W FI. However a new law may lead to new obligations and rights. C&W FI and other stakeholders should have an opportunity to comment on the new law through a public consultation process.

An indicative structure for the new law is presented in Annex 5.

5. Recommendations

This report recommends the following:

1. Modernising the law:
 - a. The completion of a detailed outline of a new electronic communications law to be completed by 31 January 2010. This shall be submitted to FIG. *Responsible: Attorney General*
 - b. Comments on the detailed outline of a new electronic communications law should be provided by FIG to its consultants by end February 2010.
 - c. The completion of a full draft law dealing with electronic communications to be completed by end March 2010 and made available for public consultation by end April 2010. *Responsible: Attorney General*
 - d. The public consultation process should last six weeks and end by mid-May 2010. Responses to the consultation should be made public.
 - e. A revised law on electronic communications to be submitted to the FIG Legislative Assembly incorporating responses to the public consultation by end June 2010. *Responsible: Attorney General*
2. Regulation of C&W's prices and quality of service:
 - a. FIG should apply a retail price cap on C&W FI with a view to starting the price cap in the current C&W FI financial year 2009/10 and to apply in the first instance over three years
 - b. The price cap shall set $X=2$
 - c. There shall be a sub-cap applied to monthly line rentals where $X=5$. *Responsible: FIG Policy Unit with Chris Doyle*
3. Licence exclusivity:
 - a. C&W currently has an exclusive licence to provide public telecommunications in the Falkland Islands until the end of 2019
 - b. There is no need to revisit the question of exclusivity over this period – **unless service provision is regarded by the FIG to be unsatisfactory**
 - c. Notwithstanding FIG should review the status of electronic communications during 2012 and make a statement in 2013 on the future direction of telecommunications services in the Islands
 - d. If licence exclusivity is unaffected up until 2014, FIG should write to C&W in 2014 providing five years notice that its exclusive licence will expire at the end of 2019

- e. It should be made clear in the statement due in 2013 what terms would be applied in the award of new public telecommunications licences from 2019 onwards *Responsible: FIG*

Annex 1 Terms of Reference (TOR)

Table of Contents

Foreword.....	23
1. Introduction	24
2. Telecommunications legislation	25
2.1 Comparisons with Ascension and Saint Helena	25
3. Telecommunications regulations.....	28
3.1 Regulating C&W FI tariffs	28
4. Consulting services	29

Foreword

Dr. Chris Doyle, Apex Economics has been invited by the Falkland Islands Government to scope out services with regard to:

- (i) Telecommunications tariffs
- (ii) Telecommunications law

This ToR was completed following correspondence with executive officers of the Falkland Islands Government.

Dr. Chris Doyle
16 March 2009

1. Introduction

The Falkland Islands is supplied with public telecommunications services by Cable & Wireless Falkland Islands, part of C&W South Atlantic Limited, a wholly owned subsidiary of C&W plc.

Over the last five years, the Falkland Islands Government (FIG) has regulated C&W FI on an ad hoc basis. This has proven satisfactory in the short term but is unsatisfactory on an ongoing basis.

FIG is seeking to establish a systematic regulatory framework that takes due account of the size of the market. While regulatory oversight is needed, there is no sense and no resources available to apply the type of regulation seen in larger countries.

C&W FI recently had its exclusive operating licence extended until end December 2019. This occurred within the context of negotiations over the provision of service to Camp.

FIG is seeking advice on a regulatory framework that builds in greater certainty for both government and C&W and moves away from the current ad hoc approach. This would be in line with a recommendation I made in a report submitted to FIG in 2004.

FIG is also seeking to modernise the legislation, which dates back many years and pre-dates the emergence of the Internet and public mobile cellular telecommunications. The modernised legislation is required to ensure that the regulatory oversight of exclusive providers is 'fit for purpose' and privacy concerns arising from the Internet are adequately addressed.

Clearly there will not be a need to consider multi-licence competition on the Falkland Islands within the law, as this is not economically desirable. Nevertheless, there may be a benefit from including some high level generic elements to the law to allow for some competition – if this proves desirable at some point.

The remainder of this document is structured as follows. In section 2 the legislation is discussed. Section 3 looks at regulatory powers. Section 4 details the consulting services proposed and terms for engagement.

2. Telecommunications legislation

The applicable law governing telecommunications in the FI dates back to 1988. The law has been amended in recent years to accommodate new services – such as broadband internet and mobile.

The Ordinance has nine parts:

1. Preliminary
2. Licences
3. Telecommunications Utilities
4. Certain works not to be carried out without Governor's consent
5. Telegrams
6. Telephone, Telex, etc.
7. Revocation of Licences
8. Compensation for assets of former licensee
9. General

The Ordinance has changed little since 1989. As a result the Ordinance is not fit for purpose and there is a need for a new law that would better reflect the very different circumstances prevailing in the twenty first century. For example, the existing law pre-dates the Internet and public digital telecommunications.

2.1 Comparisons with Ascension and Saint Helena

Tables 1 and 2 provide a summary of the main legislative powers and makes comparisons with legislation in Ascension Island and Saint Helena. The legislation in all three countries is in need of modernisation, to take account, among other things, of the Internet. There may also be a benefit from harmonising the legislation across the islands, particularly in light of C&W's integrated operations.

Table 1: Telecommunications legislation in Ascension, the Falkland Islands and St. Helena

	Ascension Island	Falkland Islands	St. Helena
Title and effective date	Telecommunications (Ascension) Ordinance 2000, effective 1 January 1998	The Telecommunications Ordinance 1988, 23 December 1988	Telecommunications Ordinance cap 106 (latest revision January 2007), effective 17 August 1989
Scope	1. Licensing 2. Telecommunications apparatus 3. Telecommunications offences 4. Revocation of licenses	1. Licensing (includes broadcasting) 2. Telecommunications utilities 3. Sea bed, submarine cables 4. Telegrams 5. Telephone, Telex, Facsimile, Data 6. Revocation 7. Compensation Tariff Regulations	1. Licensing (includes broadcasting) 2. Telecommunications utilities 3. Sea bed, submarine cables 4. Telegrams 5. Telephone, Telex, Facsimile, Data 6. Revocation 7. Compensation Tariff Regulations
Exempt from Ordinance	The Crown, Telecommunications “resulting from or associated with activities authorised or funded by the UK government”, telecommunications system used by the US government for operational purposes in connection with the Long Range Proving Ground	The Crown, HM Armed Forces and British Antarctic Survey	The Crown, HM Armed Forces and agents of the Crown

Table 2: Regulatory powers in Ascension, the Falkland Islands and St. Helena

	Ascension Island	Falkland Islands	St. Helena
Exclusivity	No	Section 3(4): Provides for exclusivity	Section 3(4): Provides for exclusivity
Imposition of obligations	Section 7(5)a, 7(7) universal service	Section 5: Governor may in agreement with a licensee impose obligations	Section 5: Governor may in agreement with a licensee impose obligations
Tariff regulation	Via obligations	Section 10(2): Price ceiling	Section 10(5): Price ceiling
Information	Section 7(5)c “to furnish to the Governor...accounts, estimates, returns or other information”	Section 11(1): After receiving a written request from Government supply to Government in writing “all such particulars of the traffic passing over its system”	Section 11(1): After receiving a written request from the Governor supply to the Governor in writing “all such particulars ... of the traffic passing over its system of telecommunications and originating in or destined for St. Helena, and otherwise as to the Utility’s business in St. Helena, as the Governor may from time to time reasonably require.”
Arbitration tariffs		Section 46: deals with arbitration regarding tariffs, and notes that with regard to tariff regulations “time to time reviewed...to enable [the licensee] a reasonable return on its investment”	

3. Telecommunications regulations

The applicable law governing telecommunications in FI allows the Governor to make regulations that place a price ceiling on C&W FI for particular services. In addition, reference is made within the law to permitting a “reasonable return”.

The problems with the current regulatory powers are:

- (i) Not well defined (e.g. reasonable is open to wide interpretation and is proving unworkable in this context;
- (ii) Focus on established products and do not take sufficient account of quality;
- (iii) Privacy issues are not adequately addressed;
- (iv) Operational framework for regulatory oversight is largely missing and relies too much on regulation by the Governor rather than execution by the FIG.

3.1 Regulating C&W FI tariffs

Over the last few years the procedures for regulating the tariffs set by C&W FI has gone along the following lines:

- (i) C&W FI request a tariff change, often motivated by cost changes (e.g. satellite costs) and/or usage changes (e.g. VoIP);
- (ii) FIG receives the request, discusses it internally and where appropriate solicits external opinion;
- (iii) If the proposals are accepted without challenge, these are then implemented;
- (iv) If the proposals are queried (as is often the case), the debate proceeds on a rather informal basis with exchange of correspondence on the matter.

The above should change to allow for a structured, coherent approach that sits with the principles of transparency and accountability on the part of government.

4. Consulting services

It is proposed that the following is performed by Apex Economics, in collaboration and for and on behalf of the FIG:

1. Letter: C&W FI is sent a letter informing it of the FIG review focussing on tariff regulation and the law. In the same letter specific requests for information shall be submitted. These shall deal with costs and elicit opinion from C&W regarding the modernisation of the law. Letter to be issued Monday 24 March, 2009 with a reply date of no later than 9 April, 2009.
 - a. Resources: Half day
2. Draft new law: A new law is drafted for circulation within FIG and C&W FI – ready by 30 March, 2009.
 - a. Resources: 4 days
3. Visit: Field visit to discuss the above in either the week starting 13 April or 20 April, 2009. The visit would involve meetings with C&W FI, FIG, Councillors, the Telecommunications Consultative Committee and other interested stakeholders. Discussion of the draft law with the Attorney General. Meeting with the Governor.
 - a. Resources: 5 days on site plus 1 day to cover travel time; flight; accommodation; subsistence
4. Post-visit: liaise with the Attorney General over completing the law. Finalise regulations to implement new regulatory framework compatible with the new law.
 - a. Resources: Up to 5 days.

Fee rate charge would be [REDACTED] per day (VAT nil rate). The services rendered would amount to up [REDACTED] in fees plus expenses.

It is proposed that the services are offered at a fixed fee of £15,000 plus expenses. Expenses shall include reimbursement of a discounted business fare from the UK.

This proposal is valid for a period of 30 days from date of issue.

Work shall commence upon formal agreement with FIG.

Conflict of Interest

Apex Economics and Dr. Chris Doyle does not have any current conflicts of interest in performing the assignment as set out in this proposal.

Payment for the assignment will be phased as follows:

After completion of all deliverables an invoice shall be submitted and will be payable 30 days from date of invoice.

End

Annex 2 A Non-Confidential Assessment of C&W's Financial Accounts up to March 2008

This annex comments on the C&W FI accounts for the year ending 31 March 2008, as presented to the Falkland Islands Government (FIG). The annex is a non-confidential summary of a note that I prepared at the request of the Government Secretary in 2008.

I was instructed by the Government Secretary of the FIG Secretariat on 5 November 2008 to comment on the then most recent accounting data provided to the FIG by C&W FI.

Below I summarise the main comments and main recommendations I presented in my note submitted to the FIG on 26 November 2008.

Comments

1. The revenue performance in 2007/08 was striking and impressive. Gross revenue was up by around 16% compared with the previous year. This reflects growth in the business (number of subscriptions, both fixed and mobile up) and a shift towards higher expenditure on broadband by consumers.
2. The cost of sales performance in 2007/08 was striking and worrying. There was an apparent marked increase in cost of sales, up 34% from the previous year.
3. Operating expenditure (opex) for 2007/08 was below my expectations. This was presumably due to cost savings implemented by the company.
4. My estimate of the EBITDA margin for 2007/08 was ■■■■, up from my estimate of ■■■■ for the year 2006/07. C&W has indicated that shareholders should be delivered an EBITDA margin of at least 35%. C&W FI in the financial year under consideration would appear to have exceeded central targets.

Recommendations

1. FIG request from C&W FI sight of the service sector breakdown for 2007/08 in terms of revenues and costs.
2. FIG request from C&W FI sight of the cost of sales breakdown for 2007/08.
3. FIG request sight of the contractual terms between C&W FI and the provider of satellite bandwidth services, and the invoices submitted by the satellite provider for the supply of the bandwidth.
4. FIG request explanation from C&W FI about its EBITDA margin.

I concluded that the performance of C&W FI over the relevant time period 2007/08 indicated tariffs were relatively high. I suggested that unless C&W FI provided additional evidence to the contrary, I would expect future average tariffs over the near future to be no higher than those observed during 2007/08.

Annex 3 Telecommunications in the Falkland Islands

Presentation to the Chamber of Commerce

Dr. Chris Doyle

28 April 2009

Telecommunications in the Falkland Islands

Presentation to the Chamber of Commerce

Dr. Chris Doyle
28 April 2009

First visit 2004, Review published December 2004

- Prices too high
 - Quality of services too low and inconsistent
 - Profitability of C&W business unit too high
 - Broadband DSL service unavailable
 - Mobile cellular service unavailable
 - Advanced business internet services inadequate
- Prices too high, possibly
 - Quality of services not subject to independent review
 - Profitability of C&W business unit too high, possibly
 - Advanced business internet services inadequate, possibly



2009: The good, the bad, and the ugly



Wider range of services

Better internet service

Improved customer care

C&W more responsive to concerns of customers



Many of the recommendations from 2004 not implemented



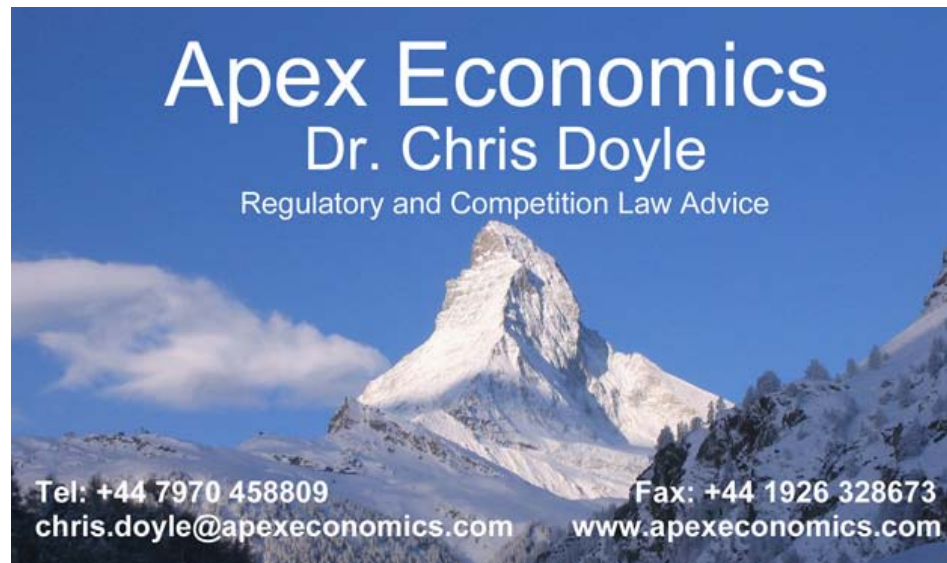
High level of distrust persists

Subsequent Developments

- Visit in September 2005 to discuss tariffs for new mobile service, broadband, NGN soft switch and Camp replacement
- January 2007 to assist in preparations for negotiations on Camp replacement
 - June 2007 negotiations on Camp
 - April 2009

Current Visit

- Modernise the law
- Review tariffs and mechanism for regulating quality of service and tariffs
- Acceptance of Camp
- Spectrum management



Thank you

Annex 4 Falkland Islands Chamber of Commerce

Statement



FALKLAND ISLANDS CHAMBER OF COMMERCE

PO BOX 378

WEST HILLSIDE, STANLEY, FALKLAND ISLANDS

TEL: +500 22264 FAX: +500 22265

e-mail address: commerce@horizon.co.fk



Statement re FIG Telecommunications User Group release

The Chamber of Commerce is disappointed with the Falkland Island Government's press release this morning regarding the Telecommunications Users Group. Whilst the Chamber welcomes FIG's admission that telecommunications are in need of considerable examination, it views some of the content of the release as unwarranted and disingenuous. The Chamber has been a significant force in promoting action by FIG to improve performance of the telecommunications monopoly. This was necessary as FIG had failed to include performance criteria in its contract with the provider, a shortcoming which the Chamber believes has affected all users not just the business community.

The Chamber and its representatives were not going to stand idly by and participate in a user group which allowed the service provider to walk all over the consumer, we demanded greater regulatory transparency, valid service level statistics, timely improvements etc. and we were not seeing any of this in the User group meetings, or in any actions resulting from them.

The Chamber is more than happy to meet with Dr Doyle to discuss how telecommunications can be improved to all users benefit and trusts that his recommendations for improvements will be followed up with action rather than being consigned to the filing cabinet. It does not believe that the Users Group was developing as an effective forum to drive service improvements forward.

Chamber Council

18/3/2009



FALKLAND ISLANDS CHAMBER OF COMMERCE

PO BOX 378

WEST HILLSIDE, STANLEY, FALKLAND ISLANDS

TEL: +500 22264 FAX: +500 22265

e-mail address: commerce@horizon.co.fk



David Pickup

Attorney General

Stanley

23 April 2009

Dear David,

The Chamber believes FIG's Terms of Reference for Chris Doyle should include the items listed below. It would appear that this is probably the last opportunity to deal with these matters before expiry of the current licence. The Chamber further believes that these items should have been addressed at the time that the licence was renewed.

The aim of these ToR should be to produce a Strategic Telecommunications Plan containing a balance of return on investment for the licence holders comparable with that which would exist in a free market, with the need to develop the islands communications in line with future changes and trends in technology.

We refer to licence holders. The proposed Terms of Reference include the statement "Clearly there will not be a need to consider multi-licence competition on the Falkland Islands within the law as this is not economically desirable". We have not seen any analysis that shows that multi-licence competition is not economically desirable. Indeed the current ToR weakens its own argument somewhat by acknowledging that competition may become desirable at some point. We believe that the starting point should be to question the existence of a single license, thus the analysis referred to should be carried out as part of this exercise.

There is no openness in the current arrangements between the licence holder and FIG. It is not unusual for the terms of the contract with a monopoly holder to be in the public domain in exchange for the security of the monopoly and this should be dealt with at this time. If the return is reasonable then the licence holder should have no problems with this arrangement.

Actions under the ToR should include: -

1. Advise on present major issues in international communications.
2. Advise on telecommunications trends and directions including VOIP, streaming video and IP TV
3. Revisit the assertion that FI cannot support competition in all or part of telecommunications. It may be, for instance, that the analysis shows that only specific elements need be protected by monopoly.
4. In the event that the assertion in 1 above is confirmed make proposals for openness, particularly financial and accounts, on the part of the licence holder in exchange for the security of the monopoly. Consider removal of the preferential arrangement for the Crown in the ordinance. The Chamber acknowledges such provisions in other laws however cannot see the need for this particular provision in this case. Indeed there is a strong argument that removal of this privilege would focus FIG's mind on the service problems encountered by other subscribers.
5. Consider the technology currently employed and confirm that it is appropriate and if not make recommendations as to the action to be taken. The purpose of this action is to ensure that if the current licence holder made an erroneous assessment of the technology required in the past subscribers are not condemned to endure a sub-standard system for an undefined period.
6. Consider the technical competence of staff employed by the licence holder and the company's training arrangements.
7. Carry out an in depth analysis of C&W's FI business / accounts including costs, MOD income and asset valuations, contracts with external providers (incl. other C&W) e.g. satellite link to verify value for money.
8. Make recommendations as to how regulation of the monopoly can be fulfilled in absence of OFCOM or similar. Advise on representation / structure of a regulatory body.
9. Make a detailed comparison of service provision with other remote territories including cost/service/speed. This comparison should not be confined to St Helena & Ascension both of which are served by C&W.

10. Provide proposals for an exit strategy. This should include a timetable for action prior to existing licence expiry, adequacy of provisions for non-performance, termination of contract value and ownership of assets
11. Annual review and quarterly in last 2 years of current licence
12. Make recommendations for a tariff structure.
13. Revisit the recommendations made in the first report.
14. Review the range of complaints received and recorded by the Chamber of Commerce as part of this exercise.
15. Analyse C&W's complaints system. Identify particular issues and make recommendations for resolution – examples are inability to phone in from various external countries and problems with sending faxes to some countries.
16. fk domain. Currently this is overall with FIDC sub-contacted to C&W. Make recommendations for change.

Yours Sincerely

Roger Spink

President

Cc M Rendell

Annex 5 Suggested structure of a new telecommunications law in the Falkland Islands

Part 1

Functions of the Falkland Islands Government as regulator

1. Functions and general powers of Falkland Islands Government as regulator
2. General duties in carrying out functions
3. Functions for the protection of consumers
4. General information functions

Part 2

Networks, services and the radio spectrum

Chapter 1

Electronic communications networks and services

Preliminary

5. Meaning of electronic communications networks and services

Notification by providers

6. Advance notification to the Falkland Islands Government
7. Designations and requirements for the purposes of s. 6
8. Notification of contraventions of s. 6
9. Enforcement notification for contravention of s. 6
10. Penalties for contravention of s. 6

Administrative charges imposed on providers

11. Fixing of charges
12. Notification of non-payment of charges

13. Penalties for non-payment of charges
14. Suspending service provision for non-payment
15. Enforcement of directions under s. 14

Register of providers required to notify or to pay charges

16. Duty of the Falkland Islands Government to keep publicly accessible register

Conditions of entitlement to provide network or service etc.

17. Power of the Falkland Islands Government to set conditions
18. Persons to whom conditions may apply
19. Test for setting or modifying conditions
20. Procedure for setting, modifying and revoking conditions
21. Directions and approvals for the purposes of a s. 17 condition
22. Delivery of copies of notifications etc.

General conditions: subject-matter

23. Matters to which general conditions may relate

General conditions: customer interests

24. Conditions relating to customer interests
25. Approval of codes of practice for the purposes of s. 24
26. Approval of dispute procedures for the purposes of s. 24
27. Orders by the Falkland Islands Government in the absence of conditions under s. 24

General conditions: telephone numbers

28. The National Telephone Numbering Plan
29. Conditions to secure access to telephone numbers
30. Conditions about allocation and adoption of numbers
31. Telephone numbering conditions binding non-providers
32. Modification of documents referred to in numbering conditions
33. Withdrawal of telephone number allocations
34. Numbering reorganisations
35. General duty as to telephone numbering functions

General conditions: must-carry obligations

- 36. Must-carry obligations

Universal service conditions

- 37. Obligations to be secured by universal service conditions
- 38. Designation of universal service providers
- 39. Subject-matter of universal service conditions
- 40. Tariffs etc. for universal services
- 41. Directories and directory enquiry facilities
- 42. Review of compliance costs
- 43. Sharing of burden of universal service obligations
- 44. Report on sharing mechanism

Access-related conditions

- 45. Permitted subject-matter of access-related conditions
- 46. Specific types of access-related conditions

Privileged supplier conditions

- 47. Imposition of privileged supplier conditions

Significant Market Power conditions: procedure

- 48. Circumstances required for the setting of SMP conditions
- 49. Market power determinations
- 50. Proposals for identifying markets and for market power determinations

SMP services conditions: subject-matter

- 51. Conditions about regulation of services etc. for end-users

Enforcement of Conditions

- 52. Notification of contravention of conditions
- 53. Enforcement notification for contravention of conditions
- 54. Penalties for contravention of conditions
- 55. Amount of penalty under s. 54
- 56. Power to deal with urgent cases
- 57. Confirmation of directions under s. 56
- 58. Suspending service provision for contraventions of conditions

- 59. Procedure for directions under s. 58
- 60. Enforcement of directions under ss. 56 and 58
- 61. Civil liability for breach of conditions or enforcement notification

The Falkland Islands Government's duty to intervene on network access issues

- 62. Consideration and determination of network access questions

Electronic communications code

- 63. Application of the electronic communications code
- 64. Procedure for directions applying code
- 65. Register of persons in whose case code applies
- 66. Restrictions and conditions subject to which code applies
- 67. Enforcement of restrictions and conditions
- 68. Enforcement notification for contravention of code restrictions
- 69. Penalties for contravention of code restrictions
- 70. Suspension of application of code
- 71. Procedure for directions under s. 70
- 72. Modification and revocation of application of code
- 73. Notification of cessation by person to whom code applies
- 74. Transitional schemes on cessation of application of code
- 75. Compulsory acquisition of land etc.
- 76. Power to give assistance in relation to certain proceedings

Regulation of premium rate services

- 77. Conditions regulating premium rate services
- 78. Approval of code for premium rate services
- 79. Orders by the Falkland Islands Government in the absence of a code under s. 78
- 80. Enforcement of s. 77 conditions
- 81. Suspending service provision for contraventions of s. 77 conditions

Offences relating to networks and services

- 82. Dishonestly obtaining electronic communications services
- 83. Possession or supply of apparatus etc. for contravening s. 82
- 84. Improper use of public electronic communications network

Persistent misuse of network or service

- 85. Notification of misuse of networks and services
- 86. Enforcement notifications for stopping persistent misuse
- 87. Penalties for persistent misuse
- 88. Statement of policy on persistent misuse

Powers to deal with emergencies

- 89. Powers to require suspension or restriction of a provider's entitlement
- 90. Enforcement of directions under s. 89

Restrictions in leases and licences

- 91. Restrictions in leases and licences

Information provisions

- 92. Information required for purposes of Chapter 1 functions
- 93. Information required for related purposes
- 94. Restrictions on imposing information requirements
- 95. Notification of contravention of information requirements
- 96. Penalties for contravention of information requirements
- 97. Suspending service provision for information contraventions
- 98. Suspending apparatus supply for information contraventions
- 99. Procedure for directions under ss. 97 and 98
- 100. Enforcement of directions under ss. 97 and 98
- 101. Offences in connection with information requirements
- 102. Statement of policy on information gathering
- 103. Provision of information by the Falkland Islands Government

Abolition of telecommunications licensing etc.

- 104. Repeal of provisions of Telecommunications Ordinance 1988

Chapter 2

Spectrum use

General functions relating to spectrum use

- 105. General functions of OFCOM in relation to radio spectrum

106. Falkland Islands Plan for Frequency Authorisation
107. Duties of the Falkland Islands Government when carrying out spectrum functions
108. Advisory service in relation to interference
109. Directions with respect to the radio spectrum
110. Procedure for directions under s. 109

Crown use of the radio spectrum

111. Payments for use of radio spectrum by the Crown

Limitations and exemptions applied to spectrum use

112. Limitations on authorised spectrum use
113. Terms etc. of wireless telegraphy licences
114. Exemption from need for wireless telegraphy licence

Award and transfer of licences

115. Wireless telegraphy licences
116. Transferring wireless telegraphy licenses

Variation and revocation of licences

117. Variation and revocation of wireless telegraphy licences

Wireless telegraphy register

118. Wireless telegraphy register

Information requirements

119. Information requirements in relation to wireless telegraphy licences

Criminal proceedings etc.

120. Contraventions of conditions for use of wireless telegraphy
121. Meaning of “repeated contravention” in s. 120
122. Procedure for prosecutions of wireless telegraphy offences
123. Proceedings for an offence relating to apparatus use
124. Modification of penalties for certain wireless telegraphy offences
125. Fixed penalties for certain wireless telegraphy offences
126. Power of arrest

127. Forfeiture etc. of restricted apparatus

Chapter 3

Disputes and appeals

Disputes

128. Reference of disputes to the Falkland Islands Government
129. Action by Falkland islands Government on dispute reference
130. Legal proceedings about referred disputes
131. Procedure for resolving disputes
132. Resolution of referred disputes
133. The Falkland Islands Government's power to require information in connection with dispute

Appeals

134. Appeals against decisions by the Falkland Islands Government, the Governor etc.

Annex 6 Summary Curriculum Vitae

Chris Doyle, B.Sc., (Wales), MA, Ph.D. Warwick, MA (Cantab)

Chris Doyle, **Apex Economics**, provides consulting services to clients in the electronic communications sector. He has a Ph.D. in economics (industrial organization and game theory) from the University of Warwick and has held senior positions at Cambridge University, London Business School and Warwick Business School. His written work has been published widely and he has presented seminars and lectures at numerous universities and major industry conferences. He is a joint author of the book *Essentials of modern spectrum management* published by Cambridge University Press, 2007. He is an associate of the Centre for Management under Regulation, Warwick Business School, and of the Department of Economics, University of Warwick where he presents a course on competition economics and policy. He has been providing consulting services since 1990 to a broad range of private and public sector clients. Recent engagements have included a focus on: market liberalization, licensing, interconnection, spectrum management policy, spectrum auctions, next generation access policy, and competition policy. He has provided advice to telecoms companies, broadcasters, SMS aggregators, logistics companies, ecommerce operators, gaming companies, among others. He has also advised the European Commission, the OECD, the ITU, World Bank, the UK Competition Commission and a number of governments and national regulatory authorities across the globe. Further information can be obtained at: www.apexeconomics.com Email: chris.doyle@apexeconomics.com

Recent Papers, Publications and Presentations

The 2GHz MSS bands, CGC and AIP: A Critique of Ofcom's Proposals and an Alternative Policy Proposal, 1 December 2008, available at www.ofcom.org.uk

Structural separation and investment in the National Broadband Network environment
A paper for Optus Australia, June 2008, available at www.optus.com.au

Contracting across separated networks: lessons from theory and practice
Communications and Strategies No 4, 2007 (with Martin Cave).

Essentials of Modern Spectrum Management [book]
Cambridge University Press, August 2007 (with William Webb and Martin Cave).

Market prices boost efficiency

Policy Tracker, Spectrum, pp. 10-12, March 2007

Collective Dominance, Market Analysis and the 2002 EU Framework Directive:

The case of mobile access and call origination in Ireland

Digital Economic Dynamics: Innovations, Networks and Regulations, edited by Paul J.J.

Welfens and Mathias Weske, chapter 7 pp. 141-170, Springer Press 2007.

Where are we going? Technologies, markets and long-range policy issues in European communications

Information Economics and Policy, pp. 242-255, 2006

With Martin Cave and Luigi Prosperetti.

Convergence and Spectrum Licensing

Trends in Telecommunications Regulation, chapter 6, ITU Geneva, December 2004.

Digital Dividend Review and Switchover – Where are we now?

Keynote presentation to Westminster eForum “After Whitehaven – Next Steps for the Digital Dividend Review” conference, London, 30 January 2008

Vertical separation and value

Presentation to Telecom Separation – Regulatory & Financial Implications conference, Le Châtelain All Suite Hotel, Brussels, 17 October, 2007

The Liberalisation of Spectrum Management: What needs to be done?

Presentation to GSM Association, 19 June 2007

Spectrum Policy changes in the UK and lessons for the Netherlands

Presentation to Trends en ontwikkelingen in de ether WTC Rotterdam, 6 June 2007

Pricing Radio Spectrum

Presentation to ARICEA meeting in Cairo for COMESA, Cairo, 22 May 2007

The Price of Radio Spectrum: Using Incentive Mechanisms to Achieve Efficiency

Presentation to ITU Workshop Market Mechanisms for Spectrum Management, Geneva, 22-23 January 2007

Review of EU Spectrum Policy

Presentation at Improving the Regulatory Framework for Electronic Communications: Challenges for the Next Decade, conference of CBKE (University of Wrocław), CIL (Hungarian Academy of Sciences), WIK, under auspices the Polish regulator UKE, University of Wrocław, Wrocław, 18-20 October 2006

Joint Dominance and the Electronic Communications Regulatory Framework in the EU

Presentation to JUS Forum Telecom (Norwegian Lawyers), Oslo, 5 November 2005

“Competition regulation in the Hong Kong telecommunications sector—Challenges and reforms” by Richard W.S. Wu and Grace L.K. Leung Telecommunications Policy Volume 32, Issues 9-10, October-November 2008, Pages 652-661