

Abstract

On March 30, 2000, Cable & Wireless Jamaica Limited, the incumbent provider of telecommunications services in Jamaica submitted to the Office its initial Reference Interconnection Offer (RIO). The RIO sets out a list of services, charges and general terms and conditions under which Cable & Wireless Jamaica proposes to interconnect with other public voice carriers.

The Telecommunications Act, 2000, as well as Jamaica's commitment to the World Trade Organisation's Basic Agreement on Trade in Telecommunication Services requires that interconnection arrangements involving a carrier that is dominant should be on terms and conditions that are non-discriminatory and that charges should be cost oriented. This consultative document outlines the Office's position with regard to interconnect charges and services, points of interconnection, duration and modification of RIOs, and technical and operational issues associated with the proposed Interconnect Offer.

Interconnection arrangements affect all providers of telecom services, therefore, the Office actively seeks comments from interested parties on the positions taken in this document. It is expected that respondents will bring to the attention of the Office information relevant to the issues, indicate areas of disagreements and set out reasons for any such disagreements and point out relevant issues that the Office may have failed to include or consider. Only written comments will be considered and these should be sent to the address below no later than December 31, 2000.

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CHAPTER 1: INTRODUCTION

- 1.0 The ability and freedom of networks to interconnect, apart from being critical to the efficient delivery of telecommunications traffic, is critical to promoting competition in the telecommunications sector. The importance of interconnection is underscored by the fact that Part V of the Telecommunications Act, 2000 is dedicated solely to the principles, conditions, and regulatory activities that are required in respect of interconnection.

Reference Interconnect Offer (RIO)

- 1.1 A RIO is defined in the Act as an offer document setting out the matters relating to the price and terms and conditions under which a public voice carrier will permit interconnection to its public voice network. The RIO provides the preliminary basis for arriving at an agreement on the terms and conditions of interconnection. It should contain sufficient information about cost; technical specification and configuration of the offerer's network as to allow interconnection seekers to make informed business decisions. Such information would also provide the Office with a basis for determining whether interconnection is provided on a non-discriminatory basis and whether charges are cost oriented. The Offer should be sufficiently standardised and disaggregated to provide interconnection seekers with a reasonable idea of the main components of an interconnection offer and the range of available services.
- 1.2 The Telecommunications Act, 2000 (The Act) requires Cable & Wireless Jamaica (C&WJ) to submit a RIO within thirty (30) days from the appointed date (the date on which the Act takes effect). This requirement was complied with on March 30, 2000.

Timetable for RIO Approval

- 1.3 For the purposes of Phase I, the Office proposes to adopt the following course in establishing an effective interconnection regime. A major objective of the current exercise is to have a regime in place to facilitate the speedy commencement and conclusion of interconnection agreements between public voice carriers. Following the publication of this document and the receipt of written responses within the time schedule set out below, the Office will proceed to publish its final position on a range of relevant interconnection issues. C&WJ will then be asked to re-issue the RIO, which will be expected to conform fully with the Office's stated position on the issues. Where the Office considers that the re-issued RIO deviates from the final position set out by the Office it will issue prescribed terms as per Section 32 (3) of the Act.
- 1.4 The Office proposes to publish its determination on the RIO by January 31, 2001.

- All written responses to this consultative document should be submitted to the Office no later than December 31, 2000.
- The Office will analyze responses and consult with respondents over a two week period ending January 15, 2001; and
- The Office will issue its paper setting out its final position by January 31, 2001.
- Thereafter, C&WJ will be requested to issue a new RIO, which should reflect the positions set out in the determination document issued by the Office.
- The deadline for the submission of the revised RIO is February 14, 2001.

Purpose of this Document

1.5 This documents sets out the Office's positions on the various provisions of the RIO dated March 31, 2000 and its subsequent amendments (dated July 2000). These positions are informed by, inter alia:-

- the objects of the Telecommunications Act, 2000 and the regulatory provisions contained therein;
- existing Government of Jamaica's (GOJ) public policy commitments to the World Trade Organization's (WTO) Basic Agreement on Trade in Telecommunication Services;
- Consultancy advice provided to the Office by Strategic Policy Research, Inc (SPR) and Charles River Associates (CRA);
- written comments and discussions between the OUR staff and C&WJ and other interested parties, Mossel Jamaica Limited (MJL) and Centennial Digital Jamaica (CDJ); and
- Information available to the Office on arrangements for interconnection in other jurisdictions.

Structure of this Document

1.6 The remainder of the document is set out as follows:-

- regulatory framework for interconnection (Chapter 2);
- duration and modifications of RIOs and interconnect agreements (Chapter 3);
- interconnect switch locations (Chapter 4);
- interconnect services (Chapter 5);
- interconnect charges (Chapter 6); and
- other interconnect issues, including the provisions of the Joint Working Manual (JWM) and the legal framework in the RIO, etc. (Chapter 7).

1.7 Annex A contains a glossary of terms used throughout the document.

CHAPTER 2: REGULATORY FRAMEWORK FOR INTERCONNECTION

Introduction

2.0 Part XVII of the Telecommunications Act, 2000 sets out the phased arrangements to a fully liberalised telecommunications sector in Jamaica. Phase I commences on the day the Act comes into operation, i.e, March 1, 2000, and will last for 18 months thereafter. During this period the following markets are to be opened to competition:-

- domestic mobile services;
- data services, such as internet service provision;
- provision of single line and multi-line customer premises equipment; and
- wholesaling of C&WJ's international switched voice minutes.

2.1 Carrier and service provider licences may also be granted for the provision of telecom services solely for the purposes of free trade zone operations.

2.2 Phase II commences immediately after the ending of Phase I and will also last for eighteen (18) months. During this phase the Minister may grant licences for the following additional facilities and services:-

- domestic voice facilities and services, eg wireless in the local loop;
- resale of C&WJ's switched domestic voice minutes; and
- internet access over facilities of subscriber television (STV) operators.

2.3 Phase III commences three years after the commencement date of the Act. During this Phase all market segments may be open to competition including international voice and data facilities.

Interconnection

2.4 Interconnection is a necessary condition for effective competition since it enables consumers of one network to be able to successfully complete a call to another consumer or service irrespective of whose network the originator of the call is using or to whose network the call recipient is connected to. This is referred to as the *any-to-any* principle of interconnection.

2.5 The Act at Section 29 (1)) makes it obligatory for each public voice carrier to provide interconnection with its network on request by another public voice carrier. Additionally, connection between public voice networks for the purpose of the wholesaling or retailing of service is not considered to be interconnection.

- 2.6 New entrants will be dependent upon the incumbent's networks as they require essential non-competitive inputs from the incumbent telephone operator. In many instances charges for these non-competitive inputs constitute a substantial portion of the cost of providing the service. A frequently cited figure is that it is at least 40% of the new entrant's total service costs. At the same time, a new entrant will also be competing directly with the incumbent operator for customers and market share. Therefore, the incumbent usually regards the entrant as a threat to its business, and thus may have little incentive to allow quick and efficient access to its facilities by the new entrant.
- 2.7 Earlier this year, carriers and service provider licences were issued to two new operators of mobile services, namely Mossel (Jamaica) Limited, and Paradise Wireless Jamaica Limited. Both companies have been granted licences for use of the spectrum. Mossel will be rolling out a Global System of Mobile (GSM) communications network, while Centennial is to employ Code Digital Multi-Access (CDMA) technology.
- 2.8 The vertically integrated incumbent operates two distinct networks: a fixed network and a mobile network. The fixed network is 100% digital and has islandwide coverage. It includes domestic and international facilities and will supply critical inputs to competing firms operating in downstream retail markets. C&WJ commenced the provision of mobile services in 1991 and operates a Time Digital Multi-Access (TDMA) network.

Interconnection Principles

- 2.9 Interconnection is defined in the Act as the physical or logical connection of public voice networks of different carriers. Section 29(2) of the Act stipulates that interconnection between public voice networks must be provided in accordance with the following principles: *any-to-any* (customer of a network are able to make and receive calls to/from subscribers on different networks); *end-to-end operability* (communication should be seamless across networks); and *equality of responsibility* (carriers are equally responsible for establishing interconnection and doing so as speedily as is reasonably practicable).
- 2.10 In addition to the above principles, a dominant public voice carrier is required to provide interconnection on terms and conditions that are:-
- non-discriminatory;
 - reasonable and transparent;
- 2.11 Additionally, interconnect charges should be cost oriented and there should be no unfair arrangements for cross subsidies. Finally, where technically and economically reasonable interconnection services should

be sufficiently unbundled so that an interconnect seeker is not forced to pay for network components or facilities that it does not require.

- 2.12 Section 3(c) of the Act further provides that the objects of the Act should be carried out in a manner consistent with Jamaica's international commitments in relation to the liberalization of telecommunications; and

“to promote the telecommunications industry in Jamaica by encouraging economically efficient investment in, and use of, infrastructure to provide specified services in Jamaica”[Section 3(d)].

- 2.13 Section 30 (2) requires each dominant public voice carrier to keep separate accounts in such a form and containing such particulars as will enable the Office to assess if interconnection is being provided on the basis of the required principles.

Role of the OUR in Interconnection

- 2.14 Paragraph 4.2 of the OUR consultative document *“Interconnection in Telecommunications”*, March 1999 sets out the Office's view on the basic objectives of interconnection. These are reproduced below, as, within the ambit of the Act, they will serve as guiding objectives in the assessment of C&WJ's RIO:-

- the widest range of telecommunication services are available to the population at a reasonable cost;
- telecommunication services are provided in the most economically efficient manner
- the benefits of liberalisation are distributed as quickly as possible and to the largest section of the community as possible, with telecom users able to access the full range of services on the market not just those offered by the incumbent from which they rent their exchange line connection;
- wasteful and uneconomic duplication of network facilities is minimised;
- conditions for attracting investment are structured so as to stimulate infrastructure growth and innovation; and
- conditions exist for fair competition between the incumbent and new entrants.

- 2.15 Section 29(4) and (5) provides the legal framework for the Office with regard to call termination:

(4) “either on its own initiative in assessing an interconnection agreement, or in resolving a dispute between operators, make a determination of the terms and conditions of call termination, including charges” and

- (5) “When making a determination of an operator’s call termination charges, the Office shall have regard to the principle of cost orientation, so, however, that if the operator is non-dominant then the Office may also consider reciprocity and other approaches.”
- 2.16 The Act at Section 32 (3) provides that a RIO shall contain such particulars as may be prescribed. It also provides (Section 34 (4)) that a RIO or part thereof, shall take effect on approval by the Office and that agreements for interconnection must be consistent with a RIO or part thereof that is in effect. In negotiating an interconnection agreement either party may request the Office to arbitrate any matter on which they cannot agree. Arbitration of disputes must be within the framework of rules established by the Office but subject to affirmative resolution by Parliament.
- 2.17 In responding to the RIO submitted by C&WJ the Office has three options:
- approve the RIO in totality;
 - reject the RIO in totality; and
 - accept the RIO in part.
- 2.18 The Office takes the view that approving the most critical elements of the RIO is preferable as this will engender greater certainty and will speed up the process for arriving at interconnection agreements. It is anticipated that the ongoing consultation with the various interests involved with interconnection will result in the publication by C&WJ of a revised RIO that the Office can substantially approve. Failing this, the Office intends to prescribe those elements of the RIO which it considers to be critical to securing a quick, fair and competitive interconnection regime.

Conclusion

- 2.19 The role of the Office in facilitating interconnection between public voice carriers involves:-
- possible prescription of what shall be contained in an interconnect offer;
 - approval of RIOs in whole or in part thereof; and
 - arbitration of pre-contract disputes.

CHAPTER 3: DURATION AND MODIFICATION OF RIOs

Introduction

3.0 A distinction can be drawn between the RIO and the interconnection agreements. The RIO is an offer by the dominant network operator of proposed terms and conditions of interconnection. The interconnection agreement represents specific contractual agreements arrived at between carriers for interconnection. The process for securing interconnection agreements contemplates commercial negotiation between both parties (and, if necessary, arbitration by the Office). Notably, there could be matters addressed in interconnection agreements, which are not covered by RIOs.

Duration of RIO

3.1 The initial RIO produced by C&WJ is couched entirely in terms of interconnection with domestic mobile carriers. This is appropriate for Phase I, but not for Phases II or III. Phase II offers the prospect of further new network entrants with domestic fixed networks. Full liberalisation can occur in Phase III, in particular with the opening up of international facilities to competition. This means that by the time Phase III is arrived at, there will be the need for at least five types of interconnection, viz.

- Fixed local network to mobile network;
- Mobile network to mobile network;
- Fixed local network to fixed local network;
- Fixed local network to international network; and
- Mobile to international network.

3.2 C&WJ has not set out a specific duration for its initial RIO. In a clarification to the Office it stated that “the core provisions of the RIO would remain in effect as long as they remain relevant”. The Office is of the view that the Phases provide natural points for the production of RIOs dealing with the interconnection of fixed to fixed networks, fixed to international networks, and mobile to international networks. C&WJ would be required to produce a RIO for fixed to fixed interconnection at least ninety days in advance of the commencement date of Phase II, i.e. by June 1, 2001 or thereabout. For Phase III it would also need to produce a different RIO dealing with interconnection of fixed and mobile networks to its international network.

3.3 The Office is also of the view that RIOs should provide for review and modifications upon the request of either party.

Duration and Modification of Interconnect Agreements

3.4 The duration and the terms of termination of the proposed interconnection agreement are set out by C&WJ in the Legal Framework section of the RIO:-

“24.1 This Agreement takes effect on the Effective Date and continues in full force and effect unless terminated in accordance with this Clause and Clause 25 [Severability and Termination for Default].

24.2 Either Party may terminate this Agreement:

- a) by at least nine months notice in writing to the other Party, to expire at the end of any such initial or subsequent five year period or on the date of expiry of the Licence; or
- b) immediately on notice in writing to the other Party, in the event that its Licence is at any time revoked by the Minister of Industry, Commerce and Technology in accordance with the laws of Jamaica.”

3.5 C&WJ proposes no automatic date of termination for interconnection agreements. Unless terminated on notice in writing by one of the parties, the agreement would continue in perpetuity. Even when exercising the right to give notice, the agreement may only be terminated at five-year intervals (except in case of default or licence expiry or licence revocation). If one of the mobile entrants was to terminate the agreement at points other than at the end of the five year periods, it would be required to make a financial payment:-

“If Mobile Telco terminates the contract other than for cause pursuant to Clause 25.1, it agrees to pay an early termination charge equal to the average total monthly recurring charges paid during the twelve months immediately preceding the termination multiplied by the number of months remaining on the term of the agreement...”

[Extract from 24.3 of the Legal Framework]

3.6 C&WJ's justification for the five-year interval and financial penalty for early termination is that the interconnection charges were formulated to recover certain investments and one-time expenses, over a five-year period. It argues that the early termination charge is not a penalty, but a mechanism to provide full compensation to C&WJ for its costs of providing interconnection services.

3.7 The Act only provides for the Office to arbitrate *pre-contract* interconnection disputes. Section 31 of the Legal Framework in the RIO allows for post-contract disputes to be resolved through private, binding

arbitration. The Office recognises that it would not always be the most appropriate organisation to resolve disputes, such as routine or detailed commercial issues. However, a potential difficulty with C&WJ's proposals is that once initial interconnection agreements are arrived at and unless a termination clause is triggered there would be no further role of the Office in settling interconnection disputes.

3.8 In the RIO, C&WJ proposes that it may amend the agreement at any time:

“Subject to the provisions of the Telecommunications Act, CWJ reserves the right to amend the terms of this Agreement at any time.” [Extract from 23.1 of Legal Framework]

The interconnection agreement proposed in the RIO relates to the services to be provided by the mobile entrants to C&WJ as well as vice versa (e.g. reciprocal arrangements are proposed for mobile call termination). However, nowhere in the proposed agreement is there provision for modifications to be made to the terms of the agreement by the mobile entrants. The Office considers the proposed asymmetry in the ability to modify the agreement to be unreasonable.

3.9 The Office's position is that interconnect agreements should allow for appropriate modification and review of interconnection arrangements in light of both experience and the prospect of materially changed circumstances. For example some proposals in the current RIO may be reasonable for Phase I but not over a longer period. As regards charges, the quality and robustness of the cost information on which they are based will improve over time as costing systems are refined and made more reliable.

3.10 The Office's view is that interconnect agreements should provide for modifications, because much will be learned from experience about the most effective and efficient interconnection arrangements.

3.11 The Office welcomes the opinion of interested parties on its position that separate RIOs should be produced in keeping with the changing nature of interconnection as well as the proposal that RIOs should allow for modifications. It is also seeking the views of interested parties as to the duration of agreements and modifications of such agreements.

Conclusion

- The RIO presented by C&WJ contemplates only the requirements of Phase I, i.e. fixed to mobile interconnection.
- The Office is of the view that separate RIOs should be produced for fixed to fixed networks and fixed and mobile networks to international networks.

- RIOs should provide for modification upon request of either party to the Office.
- Interconnect agreements should allow for appropriate modification and review in light of both experience and changed circumstances.

CHAPTER 4: INTERCONNECT SWITCH LOCATIONS

Introduction

4.0 This Chapter examines the proposed Interconnect Switch Locations (ISLs) set out in the RIO. The objective is to ascertain whether the proposed arrangements for the interconnection of public voice networks provides for effective competition among carriers.

4.1 It should be noted that part of the GOJ's commitments to the World Trade Organization's (WTO) Agreement on Basic Services in Telecommunications is that:-

“Interconnection with a major supplier will be ensured at any technically feasible point in the network.”¹

4.2 The attached Reference Paper to the WTO Agreement also stipulates that interconnection provided by a major supplier be:-

(a) “under non-discriminatory terms, conditions (including technical standards and specifications) and rates and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates.”

4.3 The requirement on dominant public voice carriers in the Telecommunications Act is that:-

“(a) the terms and conditions under which interconnection is provided shall be -

(ii) reasonable and transparent, including such terms and conditions as relate to technical specifications and the number and location of points of interconnection;”²

Fixed Network Points of Interconnection

4.4 C&WJ has divided Jamaica into four Interconnect Access Areas (IAAs): Kingston, St Ann's Bay, Mandeville and Montego Bay. In each IAA it is offering each mobile entrant connection to exactly two C&WJ tandem switches. The justification given in the RIO for this is that two physical routes to different switches is required “for resilience and load sharing” (1.4.5 of RIO Service Descriptions). As shown in Table 4.1 C&WJ is offering points of interconnection at eight tandem switches, two in each (IAA).

¹ Extract from paragraph 2.2 of Reference Paper.

² Extract from section 30(1) of the Act.

Table 4.1: Points of Interconnection

<i>Interconnect Access Area(IAA)</i>	<i>Interconnect Switch Locations (ISL)</i>
Kingston	(a) Central (b) Carlton
St Ann's Bay	(a) St Ann's Bay (b) Ocho Rios
Mandeville	(a) Mandeville (b) May Pen
Montego Bay	(a) Montego Bay (b) Rosehall

Source: Service Schedule of the RIO, July 2000

- 4.5 C&WJ is not proposing to offer physical interconnection at any of its local switches. This is not unusual for initial interconnection arrangements. However, in a more mature interconnection environment it would be typical for interconnection at local switches to be offered. This was the case, for example, for nearly all of the sixteen (16) countries included in the comparison of interconnection charges, which was reported in Annex D of the OUR's consultative document, *Interconnection in Telecommunications, March 1999*.
- 4.6 C&WJ is also not proposing to offer mobile entrants direct connection to its international switches. In addition, all interconnecting trunks are to be unidirectional as opposed to bi-directional. The company argued that "The use of bi-directional routes complicates the identification of call direction, point of origination and point of termination so that accurate billing is not always possible." Interconnecting carriers are allowed to have only a single Point of Interface in each IAA.

Mobile Network Points of Interconnection

- 4.7 C&WJ is not offering physical interconnection with its mobile network. New entrants would be logically interconnected via C&WJ's fixed network, using the fixed network transit service. C&WJ's justification for the absence of physical interconnection is that in the initial stages relatively small and perhaps volatile traffic volumes could pass between a new entrant mobile network and C&WJ's mobile network, which could make the establishment of a dedicated interconnection circuit between the mobile networks uneconomic. The implication of this proposal is that calls between mobile operators must traverse the terrestrial switched network.
- 4.8 Below the Office sets out its position with regard to the proposals contained in the RIO:

□ **Need to connect to two C&WJ Switches in each Region**

4.9 The proposal that competing mobile carriers interconnect to both the C&WJ tandems in each region would inhibit efficient competition. C&WJ's justification for this policy is that such redundancy is necessary to maintain adequate reliability levels. In the opinion of the Office, although service quality is important, and this provision would undoubtedly enhance it, the decision as to whether such redundancy is necessary should be made by the interconnection seeker whose service will be affected. The requirement to provide dual connections may prove to be a severe hardship, particularly for new mobile carriers. Such carriers may, for example, have only a single switch in Kingston, but Points of Interconnection (POIs) in other regions. Carriers would be obliged to maintain two separate trunk groups to each region rather than just one. The policy adopted by C&WJ will not only cause inefficiencies associated with small trunk groups, but the requirement would significantly complicate forecasts. It would no longer suffice for a carrier to estimate the total traffic to and from a region. It would now have to subdivide it according to the routing patterns associated with the C&WJ tandems.

4.10 Furthermore, much of the service-quality benefit, if desired, could be obtained by diverse routing of the physical transmission facilities between the interconnecting carrier's POI and the C&WJ switch. Generally, outside plant facilities, such as fiber cables, are far more fragile than central office switches, and by far the greatest number of service interruptions are associated with these facilities. The Office is proposing that interconnecting seekers be allowed to decide whether to connect to one or both tandems in each region.

□ **Only a single connecting carrier switch in each region can be connected to the C&WJ network**

4.11 The Office considers that as a general rule, interconnecting carriers that have more than one switch in a region should be allowed to connect any number of them directly to the C&WJ network. This is a more efficient arrangement, since it eliminates the need for calls to traverse multiple switches within the connecting carrier's network. It does, of course, complicate routing and forecasting for the connecting carrier, but that carrier should be allowed to decide how its switches are to be connected to the C&WJ terrestrial network. As a practical matter, during Phase I of the interconnection regime, it is most unlikely that any carrier will have more than one switch in a region. The Office considers that this provision is harmless for the present but should not be allowed to continue past the commencement of Phase II.

□ **No connection to C&WJ End Offices is allowed**

4.12 This proposal is satisfactory for Phase 1. However, it is not satisfactory for Phases II and III. During the Phase I mobile carriers are unlikely to have a

pressing need to interconnect at end offices and usually do not do so. Long-distance carriers often interconnect at end offices to save costs and provide better quality of service. If there are substantial volumes of traffic between connecting carriers and certain C&WJ end offices, direct connections become important because these calls need not incur the costs of traversing a tandem switch. Implementation of this policy change, however, could be quite complex, involving modification of end-office software, and much more detailed traffic forecasts. Again, as a practical matter, the connecting carriers are currently in no position to estimate traffic flows in such detail, and, therefore, could not effectively utilize direct end-office connections. Also, their volumes of traffic will probably be small enough to make such dispersed trunk groups uneconomically small.

- 4.13 The position of the Office is that direct connection to end-offices should be provided no later than the beginning of Phase II of the telecommunications regime. Indeed, entrants should be allowed to connect directly to any C&WJ switch in Jamaica (with the exception of remote switches).

□ **No Connection to the International Gateway**

- 4.14 One of the mobile entrants has raised a concern that if the C&WJ tandem switches need to be transited to reach the international gateways, there may be added congestion that would interfere with their international traffic. There does not appear to be any technical or economic barrier to prevent C&WJ from allowing direct connection to its international gateway. In the opinion of the Office the RIO should provide for direct connection of mobile carriers to C&WJ's international gateway beginning in Phase I.

□ **All Interconnecting Trunks must be Unidirectional**

- 4.15 The requirement for all trunks in the In-Span Joining Service links to be unidirectional is supported by the claims that measurement of traffic and identification of the connecting carriers associated with each trunk group is simpler if this is so. That may be true but the policy imposes significant costs on competitors and is likely to inhibit efficient competition. In particular, it may cause undue hardship to small or beginning interconnecting carriers. The need to subdivide their already small trunk groups, particularly if they are used to reach distant regions, can lead to a significant cost increase. In any event, it is unlikely that the modern digital switches being used as tandems cannot perform the appropriate identification and measurement functions on bothway circuits. The Office, therefore, is of the opinion that interconnecting trunks should be bi-directional, if the total trunk group size of a bi-directional trunk group is less than four (4) T1s. If at least four (4) T1s are required to meet the traffic demand, then the inefficiencies of small trunk groups are much diminished.

□ **Point of Termination of the In-span Joining Service**

- 4.16 The RIO specifies that the In-Span Joining Service, when provided by the Service Provider (C&WJ), should terminate at a “footway box” close to the Service Taker’s premises. However, entrants may prefer that the service terminate at a frame in their building. This appears to be a simpler and more economical arrangement. In this regard, the Office takes the view that the “footway box” arrangement should remain in the RIO as an option, in the event that the Service Taker does not want to terminate the service within its building, but that the Service Taker should have the option of terminating the service in its building, where it would be responsible for making the necessary interconnecting frames available.
- 4.17 Additionally, the RIO should also specify that Joining Service may be provided by the Service Taker, in which case C&WJ should provide a “footway box” or other facility near its own premises to terminate the Service Taker’s line.

□ **No Connections Between Mobile Networks**

- 4.18 The Office takes the position that not allowing physical connections between C&WJ’s mobile and the mobile networks of entrants is not a necessity during Phase I, since the volume of traffic on such routes is likely to be small, and the interconnecting trunk groups could be uneconomical. By Phase II, however, direct connections between wireless switching offices should be provided for, just as are connections to all of C&WJ’s terrestrial switches. It is anticipated that this will not cause any serious technical problems, and it would eliminate the need to use the terrestrial network and incur the associated costs.

Conclusion

- 4.19 The Office is of the view that the provisions in the RIO related to switch location are unduly restrictive. The RIO should be modified to provide for the following in Phase I:-
- Mobile entrants should be allowed to connect directly to C&WJ’s international gateway.
 - All interconnecting trunks groups less than four (4) T-1s in size shall be bi-directional.
 - Interconnection seekers should be allowed to decide whether to connect to one or both tandem switches in each IAA.
 - The “footway box” arrangement should remain in the RIO as an option, in the event that the Service Taker does not want to terminate the service within its building, but the Service Taker should be allowed to interconnect in its building.

- 4.20 The RIO should provide for the following during Phase II:-
- Mobile entrants should be able to connect directly to C&WJ's mobile network.
 - Mobile entrants should be allowed to interconnect directly to C&WJ's End-offices.
 - Entrants should be allowed to have multiple Points of Interconnection in each Interconnect Access Area (IAA).

CHAPTER 5: INTERCONNECTION SERVICES

Introduction

5.0 The discussion in this Chapter centers on the main interconnection services offered on C&WJ's fixed network. Thereafter, some issues related to interconnection circuits, ancillary services, international calls, and new services are discussed.

5.1 The RIO sets out eight services, grouped into four categories, as shown in Table 5.1 below. The Office considers that there are some additional services that are needed specifically by mobile operators and they ought to be provided for in the RIO.

Table 5.1: Services in the RIO

<i>Category in RIO</i>	<i>Service Name</i>	<i>Discussed under heading below</i>
Joining Service	In-Span Joining	Interconnection circuits
Termination Services	a) PSTN ³ Terminating Access Service b) PLMN ⁴ Terminating Access Service c) Incoming International PLMN Terminating Access Service	(a) Fixed network interconnection services (b) Mobile network interconnection services (c) Mobile network interconnection services
Special Access	a) Emergency Services b) National DQ Services	(a) Ancillary services (b) Ancillary services
Wholesale	a) PSTN Transit service b) PSTN Outgoing International Service	(a) Fixed network interconnection services (b) International switched minutes

Source: OUR from the Service Descriptions in the RIO

5.2 The services set out in the above Table contain three basic components, which may be combined in whatever way chosen by the party seeking to interconnect with C&WJ. These are:-

- In-Span Joining Service, i.e. the line connecting entrants' networks to C&WJ's network.

³ Public Switched Telephone Network

⁴ Public Land Mobile Network

- Network Carriage – includes various originating and terminating service classes. It is the function that transports traffic across C&WJ's network regardless of where calls originate or terminate.
- Ancillary Services, ie services to retail customers such as directory assistance that can be reached using the above services.

Interconnection Circuits

- 5.3 In general, there are two types of interconnect links. Each operator may build out a circuit from its switch and the circuits are linked somewhere in between (in-span interconnect) or one operator might provide the whole circuit to the other's switch building (customer sited interconnect).
- 5.4 C&WJ is offering only offering in-span interconnection circuits. It is proposed that each party would provide its own end of the links and C&WJ is offering to supply the connecting fibres. The In-Span Joining Service would provide uni-directional 1.544 Mbps links within a point-to-point transmission facility ("Carrier System") operating at 45 or 155 Mbps. In span interconnection avoids the need for a carrier to have to enter the premises of the other. In-Span interconnect is used in a number of countries, including the USA, the UK and France.
- 5.5 Several reasons may be advanced for not including CSI in the RIO. There might be significant issues associated with access to and responsibility for equipment situated on a third party's site. These would be met in part only by housing the equipment in a separate secure room with separate access, assuming this option is available. In some circumstances, for example where premises are leased, the interconnection seeker may not be able to provide satisfactory arrangements for the housing of C&WJ equipment. Security is another major concern. In addition, the siting of C&WJ equipment in locations where power cannot be guaranteed on a continuous basis is undesirable and may result in equipment warranty issues.
- 5.6 Additionally, if C&WJ offered a CSI product to a new mobile entrant, it must offer it on a non-discriminatory basis to all parties seeking interconnection. The number of sites on which it could have equipment would be significant and thus significantly increase its exposure to all types of risks. For the reasons cited above the Office is of the view that CSI need not be provided for at this early stage in the liberalization process.
- 5.7 It is not clear from the RIO whether capacity in the In-Span Joining Service can be purchased in T-1 sizes, or whether the minimum size offered is OC-1. If OC-1 is the minimum size offered, this may require new operators to pay for far more capacity than they require, with

significant economic penalties. The Office is of the view that entrants should be able to purchase services in multiples of T-1 and that this should be provided for in the RIO.

Fixed Network Interconnection Services

- 5.8 As shown in Table 5.1, C&WJ is offering both call termination and transit services on its fixed network. There are two versions of each service, each having separate charges. 'Regional' call termination is used where the terminating subscriber is located in the same Interconnect Access Area (IAA) as the ISL where the call is handed over by the mobile entrant to C&WJ for termination. 'National' call termination is used where the terminating subscriber and the ISL are in different IAAs.
- 5.9 One of the principles stipulated by the Act [30(1)(c)] for interconnection with a dominant public voice carrier is that:
- “where technically and economically reasonable interconnection services shall be so diversified as to render it unnecessary for an interconnection seeker to pay unreasonably for network components or facilities that it does not require”
- 5.10 This principle is consistent with the commitments made by the GOJ to the WTO which requires that interconnection be “sufficiently unbundled” so that entrants are not required to pay for network components or facilities they do not require for service to be provided.
- 5.11 The rationale for distinguishing between termination and transit services is to provide better reflection of the costs incurred. This distinction also gives interconnecting carriers improved signals for their 'make or buy' decisions.

Mobile Network Interconnection Services

- 5.12 As indicated in the previous Chapter, C&WJ is not offering physical interconnection with its mobile network which means that new entrants will be logically interconnected via its terrestrial network, using the fixed network transit service. This means that for Mossel and/or Centennial Digital Jamaica to terminate a call from one of their subscribers to a subscriber of C&WJ's mobile network, it would need to purchase two interconnection services: PSTN Transit and PLMN Terminating Access.

Domestic PLMN Terminating Access

- 5.13 C&WJ is offering in its RIO a single mobile call termination service for domestic calls. As discussed above, two different call termination services are available on the fixed network: regional and national. For termination on a mobile network the number of switching stages and distance of the termination service will vary depending on the location of the call recipient

at the time of the call (which the originating carrier does not know) and does not depend systematically on the location of the ISL. Internationally, it is common practice for a single mobile call termination service to be offered. Other than call termination, C&WJ is offering no other interconnection services on its mobile network.

Incoming International PLMN Terminating Access

- 5.14 C&WJ defines as a separate service, the termination of incoming international calls on the mobile networks of the new entrants - the service is named Service Supplier Incoming International PLMN Terminating Access Service. It is a service provided by C&WJ to the mobile entrant, i.e. conveyance over C&WJ's international and domestic networks to the mobile entrant. Indeed, C&WJ, in its response dated May 3, 2000, claims that incoming international PLMN terminating access service is a version of transit service. According to the Company, overseas carriers terminate calls on its network since no direct connection between a Mobile Telco and foreign carriers is permitted until Phase III. Another argument put forward by C&WJ is that if the service was offered by a Mobile Telco, C&WJ would be unable to differentiate traffic originating internationally and therefore could not bill the service correctly.
- 5.15 In the Office's view however, the above is a misleading description. It is C&WJ and not the mobile entrant which receives a settlement rate payment from the foreign operator for the incoming call. In return for receipt of the settlement rate, C&WJ sells the originating carrier, transit to, and call termination in, Jamaica. The latter component (call termination) is purchased by C&WJ from mobile operators. In this regard, for an incoming call of this type, the interconnection service provided should be considered a call termination service sold by the mobile operators to C&WJ (as the international carrier).

Ancillary Services

- 5.16 The mobile entrants, in common with all providers of public voice services, have obligations under the Act to provide to their retail customers access to emergency services and directory assistance. The relevant section states:-

“48.-(1) Every service provider shall take such steps as are necessary to ensure that, in relation to its retail public voice services-

- (a) each customer of that service can reasonably and reliably reach-
- (i) emergency services by dialling the numbers specified for use in connection with such services; and

(ii) subject to subsection (2), a directory assistance service;

(b) no charge is imposed for calls to emergency services.

(2) A service provider may charge a fee for the provision of directory assistance.”

Directory Assistance Services

5.17 C&WJ treats access to directory assistance services as interconnection services. The current RIO provides for conveyance services to the relevant operator centre and use of an operator. Under this arrangement entrants will be able to fulfil their obligations at the retail level by purchasing such services from C&WJ.

Emergency Services

5.18 Entrants will also be able to fulfill the obligations of the Act with regard to emergency services by buying such services from C&WJ. C&WJ is offering access to emergency services as interconnection services. The service provided for in the RIO includes conveyance to the relevant operator centre and the use of an operator.

Other Services

5.19 The service list set out in the RIO includes some of the principal services required for voicegrade services. The Office considers, however, that some additional services are needed specifically by mobile operators and they should be provided for in the RIO.

Roaming Services

5.20 The RIO specifically excludes roaming services. Roaming would allow a wireless customer travelling in Jamaica from a country with GSM and CDMA services to make and receive calls and is an important feature of GSM wireless services. The Office is of the view that the RIO should be modified to offer domestic and international roaming services to all mobile operators. This is a standard feature of terrestrial networks in jurisdictions where GSM technology is employed by entrants. The provision of roaming services should not pose any technical or any other difficulties for C&WJ.

Calling Party Pays

5.21 The Office is aware that entrants may want to operate in a “calling party pays” (CPP) mode. It should be recognised that this arrangement is already provided for in the RIO: “The PLMN terminating service envisages that the Service Taker will pay the Service Supplier for call termination.” Under the CPP mode of operation, where calls are made by a fixed line subscribers to a mobile customer, the fixed network operator should pay the mobile terminating operator a terminating fee. The termination fee is

only applicable where the call initiator is on a retail tariff which requires it to pay the full costs of making the call to the mobile subscriber.

Digital Services

- 5.23 As digital services of various kinds are introduced into the PSTN, it will be necessary to make terminating access services available in digital modes at appropriate data rates. The details of these services are best left to negotiations among the carriers with the Office being involved only if no agreement is reached. During Phase I entrants may wish to purchase 64 Kb/sec service and data services that can avoid compression devices and echo suppressors. These services should certainly be made available to competitors to the extent that they are available to C&WJ's customers. The Office have no objection to the inclusion of such services in the current RIO if it does *not* offer them to its own customers.

Private Lines

- 5.24 The Office has considered whether private line services need to be included in the RIO, under special wholesale rates. C&WJ argues that such services can be provided under ordinary retail tariffs. The Office is aware that the mobile entrants have been granted spectrum that they can use to build their own microwave facilities and believes that this should provide them with the incentive to construct their own infrastructure facilities in Jamaica. The advantage of this approach is that it extends the scope of competition and makes the competitive process less reliant on regulation. Based on the above arguments the Office is not minded to insist on the inclusion of private-line services in the RIO. This is so long as adequate spectrum is available for self-provision. To the extent however, that C&WJ makes private line services available to interconnecting carriers they should be provided under the same terms and conditions at which it offers such services to its mobile and large retail customers.

Operator Services

- 5.25 Another possible type of ancillary service, which is offered by incumbents in some countries, is access to operator assistance services. It is, however, generally considered easier for new entrants to self-provide operator assistance than either emergency services or directory assistance. Operator services are not offered, although they can easily be made available in the same manner as DQ services. The Office believes that all operator services which are offered to customers of C&WJ's competitive services should be part of the RIO.

Facility Sharing

- 5.26 Item 6.1 of the Legal Framework provides that: "Unless otherwise specified in the Joint Working Manual, C&WJ will **not** permit equipment

owned by Mobile Telco, for the purpose of providing interconnection service (or otherwise) to be installed in or on the C&WJ's switch sites or other locations. The in-span Joining Service avoids the need for equipment collocation.”

- 5.27 There are two instances in which C&WJ should share its facilities with entrants. First, where the duplication of facilities amounts to inefficiency in the use of resources. Second, the need to minimize disruption to the environment. An example of the latter is the opening up of very busy public roadways to construct ducts for the laying of fibre optic cables, etc. In this regard the construction of additional ducts to host the entrant will inflict a negative externality (undue hardship and dislocation) on the motoring public, including delays. In this instance local authorities may reject requests for the construction of such a facility. Under this condition the existing facility of the C&WJ would then constitute a "bottleneck" facility and the inability of the new entrant to share that facility amounts to a barrier to entry. Other examples of the negative externality are damage to other utility service providers (electricity, etc) and harm to the visual surroundings by erecting radio masts and poles.
- 5.28 A particular aspect of facility sharing is the physical collocation or the installation of entrant's radio and cable equipment necessary for interconnection on the incumbent's premises. In return the entrant pays the incumbent a fee for allowing access to its building. One possible method is for the rented building segment to be enclosed in a cage. Only the entrant has access to this area. For technical, or safety reasons, or because of lack of space physical collocation might not be possible. The burden of proof is on the dominant provider to demonstrate that physical collocation is not practical. In this regard the incumbent would still be obligated to share facilities with an entrant using an alternate approach known as virtual collocation. With virtual collocation, unlike physical collocation, the entrant does not rent building space from the incumbent. Instead, the entrant leases equipment to the incumbent for a fee. It is the duty of the incumbent to operate and maintain the equipment. The entrant uses the incumbent's transmission facilities without physically having to enter the incumbent's premises.
- 5.29 Other bottleneck facilities might be wireless masts, ducts, and towers. Facility sharing like other interconnection services should be based on fair and non-discriminatory commercial practices. Facility sharing agreements are matters of commercial negotiations between the parties, but the global experience has been that incumbents lack the incentive to share their facilities. To this end the Office is of the view that C&WJ should make its facilities available to entrants as long as the following conditions are satisfied:-

- the facility is a bottleneck (ie a facility that cannot be technically or economically substituted and at the same time is essential to speedy provision of service by the entrant);
- where the facility cannot be reasonably duplicated or substituted in a reasonable time frame without imposing undue financial burden and time penalties or inconvenience on the entrant;
- the cost, time penalties and inconvenience to the licensees and the public of the alternatives to the shared provision and use of the facility are unreasonable or excessive; and
- where the facility has available capacity having regard to the current and reasonable future needs of the licensee to which the facility belongs.

5.30 Where there is a dispute in making the case for facility sharing, the party seeking to share must demonstrate to the Office that there is no feasible or economical alternative based on the criteria set out above. On the other hand, the party who is being requested to share the facility must prove to the Office that sharing will cause unreasonable or excessive constraints and adverse impact on its current and future operations.

Access to DQ Database

5.31 There are two ways in which new mobile entrants can provide directory assistance services to their customers: self-provision, or buy such services from C&WJ. The current RIO provides for entrants to acquire DQ services from C&WJ. Access to the DQ database on terms and conditions that are non-discriminatory is a must if entrants are to self-provide directory services.

5.32 The Office welcomes the suggestion by the incumbent that in the medium to long-term, direct access to the DQ database should be the objective. Indeed, one of the new mobile entrants would like access to the DQ database to be offered in the current RIO as an alternative to purchasing the service from C&WJ. It should be noted, however, that the process of liberalization is usually a lengthy exercise due to the need for wide public consultation regarding inter alia, intellectual property contained in directory databases. Such considerations as how the information is used and disclosed and how to avoid misuse are critical issues. There are also technical and operational issues associated with direct access to the DQ database: cost and charging, timing and availability of updates. The Office recognizes that these issues require careful consideration and the involvement of the players should be sought before any decision is made. The Office consequently intends to commence consultation on this matter prior to the beginning of Phase II. The current position of the Office, therefore, is that there is no need to require direct access to the DQ database in the current RIO.

- 5.33 The decision to delay the liberalization of directory services is not likely to prevent entrants from fulfilling their obligations under the Act. The Office is concerned, however, about the use of the database in a discriminatory manner. Stringent provisions need to be incorporated in the RIO to prevent the existing carrier and service provider from placing its competitors at a disadvantage. The Office therefore, requires that C&WJ make provisions in the next version of the RIO for safeguards to be put in place with regard to the following:-
- information supplied by interconnect seekers through the DQ interconnect service offered by C&WJ is not used to gain unfair competitive advantage over rivals.
 - directory assistance services offered by C&WJ comply with the principle of non-discrimination when handling DQ calls.

New Interconnection Services

- 5.34 Telecommunications is a dynamic and innovative industry and consumers benefit greatly from the provision of new services. It is important that the regulatory regime facilitate entry, innovation and competition among carriers and service providers. C&WJ proposes in the RIO that new interconnection services would be outside of the scope of the interconnection agreements and addressed in commercial negotiations:-

“This Agreement is only in respect of the Services set out in the Service Schedule. Other Services are subject to commercial negotiation between the Parties.” [8.1 of Legal Framework]

- 5.35 If, during commercial negotiations, a pre-contract dispute were to arise between the carriers, the matter could be referred by either carrier to the Office for resolution [34(1), Act]. However, rules for arbitrating pre-contract disputes are not yet in place.
- 5.36 The mobile entrants may often be reliant upon the provision of appropriate interconnection services by C&WJ in order to enable them to provide certain types of retail services. The mobile entrants could face two related problems which might impact on their ability to offer new services. First, they might be unable to launch a new retail service because an interconnection service, which is required by the mobile entrant for the provision of the new service, might not be available from C&WJ. Or second, they might be unable to compete effectively with a new retail service introduced by C&WJ because the corresponding new interconnection service might not be made available by C&WJ.
- 5.37 With regard to the first, the Office is of the view that any interconnection service provided to C&WJ mobile should be automatically made available to new entrants on request and on terms and conditions that are non-

discriminatory. This is the approach adopted in the UK.⁵ As to the second potential problem, in some countries incumbent carriers are required to offer new interconnection services corresponding to the new retail services that they are introducing, in order to enable other carriers to compete in the provision of the new retail service. The Office is of the view that the RIO should be modified to allow C&WJ to launch a new retail product only if it has either:-

- (a) declared to the Office and competitors that no new interconnection services are used to deliver the retail product; or
- (b) already amended its RIO to include appropriate new interconnection services (and the length of time between amendment of the RIO and launch of the retail product must be at least four weeks).⁶

Conclusion

5.38 The Office considers that the RIO should be modified to reflect the following:-

- International and domestic roaming services between CDMA and CDMA, TDMA and TDMA, and GSM and GSM networks should be provided.
- All operator services offered to customers of C&WJ's competitive services should be part of the RIO.
- Entrants should be able to purchase services in multiples of T1.
- Terminating access services should be available in digital modes at appropriate data rates if they are available for C&WJ's own competitive services.
- Any interconnection service provided to C&WJ's mobile should be automatically available to new entrants on reasonable request and on terms and conditions that are non-discriminatory.
- The RIO should specify that C&WJ will only launch a new retail product if it has satisfied one of the following:-
 - declared that no new interconnection services are used to deliver the retail product; or

⁵ Condition 45.1 of the licence of British Telecommunications requires it to offer to enter into an agreement: "(b) to provide such [...] telecommunications services [...] information and other services which, to the extent the parties do not agree [...], the Director may determine are reasonably required (but no more than are reasonably required) to secure that Points of Connection are established and maintained and to enable the Operator [requesting the service] to provide Connection Services which it provides or proposes to provide."

Further detail on the approach adopted in the UK regarding new services is set out in Guidelines on Interconnection and Interoperability, OFTEL, July 1999 (available at www.oftel.gov.uk).

⁶ See Chapter 6 of Telecom Eireann's Reference Interconnection Offer, Decision Notice D12/99, Office of the Director of Telecommunications Regulation (ODTR), September 1999 (available via www.analysys.com/atlas).

- already amended its RIO to include appropriate new interconnection services.
- Incoming PLMN should be considered a call termination service provided by mobile to C&WJ's fixed.
- Calling Party Pays service should be offered, with C&WJ's charges to be based on the cost of delivering the call plus cost oriented billing and collection charges.
- The RIO should provide for C&WJ to offer its bottleneck facilities to entrants.

CHAPTER 6: INTERCONNECTION CHARGES

Introduction

6.0 This Chapter focuses primarily on the issue of charges to be paid by public voice carriers for use of the incumbent's fixed network. A key feature of the Office's assessment of the RIO is a detailed examination of the charges set out in the RIO and their cost basis. The Chapter also discusses and sets out the Office's position on various important issues of principle including the proposal to apply a surcharge on interconnect charges.

Cost Orientation

6.1 The Tariff Schedule to the RIO sets out the charges proposed by C&WJ for interconnect services, namely:-

- In-Span Joining Service;
- PSTN Terminating Access- Regional and National;
- PSTN Transit - Regional and National;
- Emergency Services; and
- National DQ services

6.2 It is a requirement of the Act that C&WJ's interconnection charges be cost oriented. It further provides that where the Office is unable to obtain cost information that, "it is reasonably satisfied is relevant and reliable it may take into account comparable international benchmarks" [Section 33 (2)]. This is obviously not an option of first resort as the Office first has to establish that the costing approach in use is either irrelevant or yields unreliable charges.

6.3 For an approach to be cost oriented, it must follow in essence the principle of allocating cost according to causation. This has two important implications. First, charges should include the costs incurred by the incumbent in providing interconnection services to the interconnecting operators. There may, however, be a case for diverting from this aspect of cost causation or modifying its effect, because of the implications of some of the other principles relating to interconnection, for example the principle of equal responsibility. Secondly, costs that are unrelated to the provision of interconnection services should be excluded. Whether or not there should be a surcharge relating to 'access deficit' (the shortfall of revenues from line rentals and connections below costs of lines) is an issue discussed later in the Chapter.

6.4 Section 33 of the Telecommunications Act sets out the principles that must guide the Office in making a decision about interconnection charges:

- costs shall be borne by the carrier whose activities cause those costs to be incurred;
- non-recurring costs shall be recovered through non-recurring charges and recurring costs shall be recovered through recurring charges;
- costs that do not vary with usage shall be recovered through flat charges and costs that vary with usage shall be recovered through charges that are based on usage;
- costs shall include attributable operating expenditure and depreciation and an amount estimated to achieve a reasonable rate of return;
- prices for interconnection shall be established between the total long run incremental cost (TSLRIC) of providing the service and the stand alone cost (SAC) of providing the service, so, however that the prices shall be so calculated as to avoid placing the a disproportionate burden of recovery of common costs on interconnection services.

6.5 TSLRIC sets the minimum price for regulatory purposes. It is the cost that the operator would incur to provide the service in question, given that its other services are already provided and, as such, includes only costs causally related to the service in question. The rationale for using TSLRIC as the basis to set interconnection charges is that it is a measure of the economic cost incurred. Since TSLRIC is an economic concept, it should reflect an economic approach to costs, which means, for example, the use of Modern Equivalent Asset (MEA) for asset valuation. Under MEA the asset in place is valued at the cost of replacing it with the asset incorporating the cheapest proven technology that serves the same function. Where technology is rapidly changing, as in telecoms, the MEA would often embody a more up-to-date technology than the firm's existing asset.

6.6 When charges are calculated using TSLRIC there is no provision for overhead charges that are not directly the result of providing the service or other common costs (costs necessarily incurred to provide services, but not incremental to any individual service).

6.7 In all of the countries that have charges based on TSLRIC in place, with the exception of Hong Kong, the interconnection charge includes a mark-up added to the TSLRIC. The charges in Hong Kong are based on TSLRIC with no mark-up. In the other countries, the approach typically

used to determine the size of the mark-up has been the equal proportionate mark-up rule, under which the proportional mark-up over TSLRIC is the same for all services (and the size of the mark-up is set to allow the common costs just to be recovered). Although this mark-up rule lacks sound conceptual justification, it has practical advantages in that it is relatively easy to implement and is widely regarded as reasonable by interested parties.

- 6.8 Stand Alone Costs (SAC) represents the sum of TSLRIC and those common costs that the operator would continue to incur if it were to shut down all its other services. SAC is the cost that would be incurred if the operator were to provide a single service by itself and it sets the maximum price, because a price above SAC would not be sustainable in a competitive market. Indeed, a price above SAC could be undercut by new entrants, even those that did not benefit from the incumbent's economies of scope.
- 6.9 In deriving its charges, the cost information used by C&WJ is based on Fully Distributed Cost (FDC). This method calculates the cost of interconnection service by taking all direct cost associated with the service and adding to this a portion of the overheads costs based on some kind of allocation mechanism.
- 6.10 There is some evidence that FDC figures, derived using replacement cost asset valuation, can be similar to TSLRIC plus mark-up. The UK provides a useful source of information on this issue, because the incumbent, British Telecommunications (BT), has been required to produce regulatory accounting information on the costs of interconnection services according to three different costs standards: historical cost FDC, replacement (or current) cost FDC, and TSLRIC.

Table 6.1: BT's Fully Distributed and incremental costs in 1995/96

<i>Pence per minute</i>	<i>FDC, historical cost</i>	<i>FDC, current cost</i>	<i>TSLRIC plus equal proportionate mark-up</i>
Local exchange segment	0.46	0.37	0.35
Single tandem	0.69	0.56	0.53
Double tandem, short	0.94	0.78	0.73
Approximate percentage difference from LRIC plus mark-up	30%	5%	

Source: OUR from BT Regulatory Accounts and OFTEL

- 6.11 Equally, it needs to be noted that BT's regulatory accounting systems and allocation methods have been the subject of detailed investigation over many years by the regulator, OFTEL, and by interconnecting carriers. There is, therefore, a sound basis for confidence that BT's figures for the

costs of interconnection services, including the FDC data, are relevant and reliable.

6.12 Table 6.1 was included in the OUR's Consultative Document, *Interconnection in Telecommunications*, March 1999. It shows that in 1995/96 BT's FDC on a replacement cost basis was quite similar to TSLRIC plus mark-up.

6.13 The OUR has updated the comparison, using the most recently available information - see Table 6.2 . Figures for TSLRIC plus mark-up are not published (nor derivable from published information) - such information is not currently needed by OFTEL because BT's interconnection charges are regulated under price caps. The TSLRIC information available is without any mark-up, which constitutes the floor for interconnection charges. The FDC figures on a current cost basis are about 15%-20% higher than TSLRIC without mark-up. This suggests that, as in 1995/96, they are likely to be quite similar to the figures for TSLRIC plus equal proportionate mark-up, since the mark-up rate used by OFTEL (when setting the price caps in 1997) was 10.3%.

Table 6.2: BT's Fully Distributed and Incremental Costs in 1998/99

<i>Pence per minute</i>	<i>FDC, historical cost</i>	<i>FDC, current cost</i>	<i>TSLRIC without mark-up</i>
Local exchange segment	0.34	0.26	0.23
Single tandem	0.47	0.38	0.33
Double tandem, short	0.61	0.52	0.45
Double tandem, medium	0.67	0.59	0.51
Double tandem, long	0.78	0.72	0.60
Approximate percentage difference from LRIC without mark-up	30%-50%	15%-20%	

source: OUR from BT's Financial Statements 1999

6.14 In summary, FDC will serve as a reasonable proxy for TSLRIC plus equal mark-up if the value of assets reflect modern equivalent value and costs are appropriately allocated.

6.15 Although C&WJ's accounting system is based on current cost accounting, the question is whether its asset valuation methods are reasonable and provide a good estimate of the economic value of embedded plant. To inform its opinion on this matter, the Office commissioned an investigation into C&WJ's system of accounts and methods of asset valuation. The conclusion of that investigation is that C&WJ's net assets (i.e. gross asset minus accumulated depreciation) are overvalued due to a combination of low depreciation rates and deficiencies in the indices used for valuing assets. In short the evidence available to the Office is that C&WJ's assets are not reflective of modern equivalent assets.

- 6.16 C&WJ has invited discussions with the Office regarding measures to resolve the difficulties surrounding asset valuation and depreciation rates. The Office is of the view, however, that the issues are complex and is likely to require more detailed investigation and analysis over an extended period. In this regard, the Office takes the view that in the interim it may be reasonable and justifiable to resort to the use of appropriate international benchmarks in setting interconnection prices; at least, until the issues surrounding C&WJ's asset valuation are carefully worked out and their implications understood.

One-off Costs of Interconnection

- 6.17 With regard to C&WJ's cost allocation system it was found that the one-off costs of providing interconnection services have been allocated solely to interconnecting firms and not all C&WJ's customers. These one-off costs include expenses for interconnect billing and account management, the budget for C&WJ's Carrier Services Division, changes to C&WJ's network for interconnection, and work on the development of the RIO.
- 6.18 The goal of an interconnection regime is to promote efficient competition without encouraging wasteful arbitrage. Such a regime is possible if and only if interconnectors pay the variable costs of interconnection. Requiring interconnectors to pay variable costs sends the right price signal. C&WJ either incurs or saves variable costs, depending on whether a competitor chooses to operate (at a particular level). If interconnection is priced at variable cost, the competitor is given the incentive to choose efficiently (from the perspective of society) whether those costs should be incurred. If the competitor is efficient, it will be able to pay the interconnection costs and still operate profitably.
- 6.19 This argument does not, however, apply to the one-off costs of establishing the interconnection regime. Once the regime is established, the one-off costs are sunk. No portion of those costs can be saved if fewer competitors enter or if they operate at lower levels. Requiring entrants to pay such costs inhibits efficient competition. Efficient entrants may find it extremely difficult to compete if they alone are required to pay the one-off costs, especially if those costs are substantial.
- 6.20 In the opinion of the Office, C&WJ should recover the one-off costs of interconnection from all of C&WJ's customers not just from mobile competitors (customers of interconnection services). This would have the effect of promoting efficient competition. Another justification for this approach is that it is equitable, because the benefits of competition will accrue to the customers of all network operators. Indeed, C&WJ may offer lower prices and provide better service if it is subject to competitive

pressures. Those actions would benefit all of C&WJ's customers not just the customers of competitors.

- 6.21 An additional justification for this approach can be found in the Telecommunications Act. The Act provides that all carriers have equal responsibility for implementing interconnection. The sharing of interconnection costs among all C&WJ customers – including customers of interconnection services – seems consistent with this provision. Having interconnectors bear the full costs of establishing an interconnection regime seems inconsistent.
- 6.22 This approach also has an additional practical advantage. The per-minute costs of implementing the interconnection regime depend critically on forecasts of the number of interconnection minutes. In reality, no one can make a precise forecast of those minutes. Hence, the per-minute rate on any particular forecast may differ markedly from the rate that would result from an accurate forecast. If it does, either C&WJ or interconnectors would have large windfall gains or losses. The prospect of such an inequitable outcome can be avoided by treating the costs of establishing the interconnection regime as overhead costs to be borne by all ratepayers.
- 6.23 Within the context of C&WJ's accounting system, this public policy can be implemented by C&WJ treating the one-off costs of interconnection as Facility-Sustaining Costs. In that way, the costs would be attributed to all of C&WJ's services (including interconnection).

Other Costs Categories

- 6.24 The allocation of several other categories of costs in the RIO was also found to be excessive. Such cost categories include for example, Install and Implement, Billing, Information Services, Account Services, and Account Direct. In the opinion of the Office interconnection should bear only a proportional share of these costs. As such, they should be treated as Facility Sustaining Costs.

Cost of Capital

- 6.25 The cost of capital is the return necessary to attract investment. Because telecommunications and interconnection in particular is a capital-intensive business, the cost of capital is an important variable affecting charges. Since 1988 C&WJ has had a permitted rate of return of between 17.5% and 20% (after tax return on equity; effectively a real rate of return because assets are revalued each year).⁷ This arrangement expires in April 2001 at which time a new pricing regime is to commence.

⁷ See Section 26, All Island Telephone Licence 1988.

- 6.26 For assessing the cost of interconnection, the Office, using a study by Charles River Associates, assumed a nominal Weighted Average Cost of Capital in Jamaican dollars of 23.47%, with a nominal cost of equity of 24.9%. This is fairly similar to the WACC used by C&WJ if both are evaluated in the same way with regard to taxes.
- 6.27 In the federal jurisdiction and in most state jurisdictions of the U.S., assets of local exchange carriers are valued on an original-cost basis; i.e., there is no asset revaluation. The appropriate cost of capital under such circumstances is the nominal cost of capital. The nominal cost of capital includes a premium for expected inflation. That premium is necessary to attract investment because assets are not revalued to reflect inflation. It is only through the inflation premium that investors can be compensated for loss of purchasing power.
- 6.28 In some states of the U.S., however, assets of local exchange carriers are valued on a "fair-value basis." In those states, assets are periodically revalued to reflect inflation, among other things. The appropriate cost of capital in such states is less than the appropriate cost of capital in states that value assets on an original-cost basis.
- 6.29 If C&WJ's assets were reflective of Modern Equivalent Assets, the estimated cost of capital cited above would be appropriate for setting interconnection charges. In the context of C&WJ's method of asset valuation, however, this course of action cannot be taken. The WACC must, therefore, be adjusted for the effect of this revaluation or, alternatively, the assets must be appropriately valued.

Conclusion on C&WJ's Costing

- The charges set out in the Tariff Schedule of the RIO are based on FDC.
- There is some evidence that FDC is a useful proxy for TSLRIC plus mark-up but only if the value of assets reflect MEA and cost are appropriately allocated and apportioned.
- C&WJ's methods of asset valuation do not reflect Modern Equivalent Assets due to deficiencies with the indices used for valuing assets coupled with low rates of depreciation (high asset lives).
- The position of the Office is that C&WJ should be permitted to earn a return only on the economic value of its assets, valued in terms of MEAs.
- However, the rate of return that C&WJ is permitted to earn on capital should take account of the annual rate at which it revalues its assets upward.
- C&WJ has invited discussions with the Office about policies regarding asset valuation and depreciation. After the conclusion of those

discussions there might be need for changes to the appropriate return on capital.

- The one-off cost of establishing interconnection is allocated solely to interconnecting operators. In addition, there is excessive allocation of other cost categories to interconnecting services. The position of the Office is that these costs should be classified as Facility Sustaining Costs and allocated across all customers not just interconnectors.
- Using international benchmarks for interconnection prices is reasonable and justifiable until new methods of asset valuation are put into place and the Office determines the rate of return appropriate for those methods as well as the treatment of the one-off cost of interconnection and other elements of costs as Facility Sustaining Costs.

Access Deficit Charges (ADCs)

6.30 Charges for all services with the exception of PSTN transit include a surcharge to cover ADCs. Section 33(1)(f) of the Telecommunications Act allows for the possibility of an ADC:-

“where appropriate, interconnection costs shall include provision for a supplementary charge, being a contribution towards the access deficit of the interconnection provider”

6.31 Among the theoretical justifications used to determine where the ADC burden should lie is whether a service supplies its own access and is, therefore, a substitute for local exchange service, or is used in conjunction with local exchange service. By this criterion, since mobile service supplies its own access to the network, it is difficult to justify requiring a mobile operator to support the below-cost provision of the service with which it must compete. The RIO proposes to apply the ADC to all minutes of interconnecting traffic, whether from mobile services or, later on, from inter-exchange services. The position of the Office is that there is no justification for applying ADCs for mobile to fixed calls. Also, the mobile caller does not get below cost wireline access. Thus, there is no issue of C&WJ being unable to recover any access deficit incurred with respect to that customer.

Conclusion on ADCs

6.32 The Telecommunications Act makes provision for ADC to interconnecting charges. The justification for ADCs is to establish competitive neutrality in specific retail markets. The Office does not consider that mobile carriers should pay ADCs under current circumstances.

Emergency Services

6.33 The RIO provides that competitors will pay for emergency-service termination. Although one entrant has disputed this proposal the Office

considers it to be reasonable. C&WJ should be allowed to charge competitors the costs that it incurs in making emergency-terminations. If C&WJ allows its customers to make emergency calls without charge, it is absorbing the costs as part of its cost of business. If entrants elect to do the same for their customers C&WJ should not be made to bear the costs. In this regard, failure to allow such charges would reduce economic efficiency and result in a subsidy from wireline subscribers to wireless subscribers.

Mobile Call Termination

- 6.34 Under CPP payment for call termination are made by the service supplier to the service taker. CPP payments should only be made if the mobile carrier does not charge its own customers airtime for receiving calls. If the mobile carrier does charge its own customers airtime for receiving calls, the same interconnection charges that apply to wireline interconnection should apply. The Office is proposing to make CPP part of C&WJ's price cap plan as a separate basket. Given that CPP charge is paid by wireline customers C&WJ should pass on to mobile carriers all caller pays revenues that it collects less its costs which include billing and collection. The amount of the charges to be retained by C&WJ should be equal to the charge for terminating the same call under ordinary Service Supplier PSTN Terminating Access Service rates plus reasonable costs of billing and collection.
- 6.35 The Office further proposes that the termination charge for incoming international calls should be the same as that which is applicable for domestic calls.

Facility Sharing

- 6.36 The parties seeking to share the "bottleneck" facility will negotiate the terms and conditions of the arrangement, including prices. Charges must reflect the economic cost, including a reasonable return on capital, of providing the service. If they are set below cost then the incumbent is allowing the entrant to "free ride" as the entrant would be enjoying a subsidy. On the other hand if charges are above cost then the incumbent would be over-compensated for providing the service and the entrant's investment decision would be distorted. There is no incentive for the incumbent to set these charges below cost.
- 6.37 In some instances it may be possible to use market prices to evaluate the cost oriented charge. For example, the price for the facilities used to provide in-span joining services. In other cases the OUR proposes to adopt similar principles of cost orientation and cost measurement as for other interconnection services.

CHAPTER 7: OTHER INTERCONNECTION ISSUES

Adequacy of Protection of Information

- 7.0 In order to facilitate the provision of interconnection services by the incumbent, the entrant may be required to provide information that is confidential and commercially sensitive. For example, to permit the incumbent to undertake proper network planning, it may need detailed information from the entrant on current and expected traffic volumes, its time of day profile, its geographical pattern, etc. Some of this information will presumably be obtained by C&WJ's Carrier Services Division, and forwarded to the network implementation groups for provisioning. Others, such as actual traffic levels, will be collected in the network operations unit. In either case, it is important that this information does not "leak" back to the business units that are in competition with the entrant. The confidentiality of such information needs to be respected by the incumbent. It must not be disclosed to the entrants' competitors, including the incumbent's own retail and/or value-added businesses. Such disclosure could constitute a distortion of competition.
- 7.1 For the above reasons interconnection agreements should contain suitable confidentiality commitments, and where the incumbent passes confidential information to the entrant for interconnection purposes, the entrant should also undertake a similar commitment. In addition, since the incumbent will at least initially be dominant in both network and retail markets, it should demonstrate to the Office and interconnecting operators and service providers that it has put in place stringent procedures to ensure its compliance with the confidentiality commitment.
- 7.2 The only provision in the RIO dealing with potential misuse of information supplied for the purpose of facilitating interconnection is the Confidentiality section of the Legal Framework (22). In the opinion of the Office the general statements contained in that brief section do not suffice to ensure that information will not be misused.
- 7.3 To this end the Office has set out below the necessary organizational arrangements, information flows and responsibilities to be inserted in the RIO for handling proprietary information supplied by competing carriers. The objective is to ensure that confidential information supplied for interconnection is not used in an anti-competitive manner:-
- All communications between competitive carriers and C&WJ shall flow through a separate organization. This organization will be referred to herein as the Carrier Services Division, or CSD.

- “Customer Facing Divisions” of C&WJ are defined for purposes herein to include the units responsible for the wireless services operations of C&WJ, and the marketing and customer services units for all retail telecommunications services.
- The CSD shall be organizationally separate from other units in the company, and shall report directly to a corporate officer.
- The CSD unit shall not share offices with any customer-facing division of C&WJ. Separate buildings are not required, but the offices must be clearly separated from the others.
- All employees of the CSD shall receive training materials informing them of their responsibilities for the handling of confidential information, and shall certify that they understand and agree to meet these responsibilities. These materials shall be provided to the Office for review and its approval.
- The CSD shall not share employees with any other unit of C&WJ.
- No employee of the CSD shall be assigned to a customer-facing division of C&WJ within six months of leaving the CSD.
- All communications and information received from competitive carriers, including but not limited to customer identification and location, traffic forecasts, and service plans and parameters shall be received only by the CSD, shall be marked as “Confidential” and shall not be shared with any customer-facing division.
- Communications from operating divisions to customer-facing divisions, including, but not limited to, network traffic loads, service quality results and construction plans, shall not contain any confidential information originating from competitive carriers, except insofar as it is aggregated with other information and not separately identified.
- Internal audits of the handling of confidential information shall be performed by C&WJ within six months after the effective date of the RIO and no less frequently than annually thereafter. The results of the audits and plans for action in response to the results, if any, shall be reported to the Office at least two months after completion of the audit.

Insurance Coverage

7.4 The RIO at section 29 (Legal Framework) stipulates that Mobile Telco must maintain at its cost valid and enforceable public and product liability insurance policy providing for coverage to the tune of:-

- J\$200 million in respect of any one incident and unlimited in the aggregate for public liability; and
- J\$200 million in respect of any one incident and J\$400 million in the annual aggregate for product liability.

7.5 This Section also details the type of risk to be insured against and requires:-

- That C&WJ approves the insurer;
- That the insurance should be in the joint names of the Mobile Teleco and C&WJ; and
- That the Mobile Teleco provides C&WJ with details of such insurance and evidence of payment of premium and continuing validity of policy.

7.6 It may be argued that such insurance is necessary to protect the financial bargain that C&WJ makes pursuant to an interconnection agreement, particularly in the case of smaller interconnectors with unproven financial track record. The Office does not consider the above requirements to be justified. C&WJ is essentially asking the Mobile Teleco, to insure it against the types of risk which are a normal part of doing business. Such risks would normally be expected to be incorporated in the Company's cost of capital which is in turn reflected in the rates it charges its customers. In this regard, the Office considers that the above requirements should be removed from the RIO. In addition, this requirement if allowed to be part of the RIO will significantly increase the start-up cost of new entrant.

Forecasting Requirements and Ordering Intervals⁸

7.7 These issues are covered in various areas of the RIO, namely the legal framework, Chapter 2 of the Joint Working Manual (JWM), and Service Description.

I. Legal Framework

7.8 Section 2.12 (interconnection) specifies a six-month written advance notice and full justification for abandonment or reduction in capacity at any POI. Additionally, "the Party making the request for change shall pay the Other's direct costs reasonably incurred as a result of the change and the establishment of Capacity at an alternative Point of Connection or elsewhere." In the opinion of the Office this interval is too long. Penalties for abandonment or reduction in service requirements should be based on the average time it will take C&WJ to utilize the facilities for other services. Furthermore, the interconnecting carrier should not have to justify its decision. Its reasons may involve proprietary information that it need not share with C&WJ. In the opinion of the Office, however, there should be a charge for such changes. If there are costs involved, the cost causer should be responsible for them.

7.9 Sections 9.8 (Charges) and 24.3 (Duration) which appear to be virtually identical deal with the question of responsibility if a service is terminated

⁸ Mossel has also expressed concern about many of the ordering and forecasting provisions included in the RIO.

prior to the expiration of the service contract. These sections hold that the interconnecting carrier (referred to as Mobile Telco) is responsible for all recurring costs incurred to meet forecasted demand for the full duration of the contract, with an offset for operational costs that are no longer incurred.⁹ Section 4.1 similarly implies full responsibility for all costs incurred, without taking account of potential subsequent reuse.

- 7.10 This provision is unreasonable since it is very likely that some or all of the equipment made spare by the early termination of the interconnection contract will be used by other parties. This will certainly be the case for network equipment, which is common to virtually all network services. Indeed, if the Office's recommendation below is followed, there will be no five year contract for network Erlangs, and hence no penalty. The transmission facilities used for providing in-span Joining Service can probably be reused in whole or in part for the provision of private line or exchange access services to retail customers located in the vicinity of the interconnecting carrier's installation.
- 7.11 It is nevertheless reasonable to retain some penalty for early termination of a service. The view of the Office is that the penalty be calculated based on the average time it would take for the unutilized equipment to be absorbed in the course of ordinary network operations. Furthermore, the number of effective months of payment would presumably be different for different types of equipment, and may differ in different areas of the country.
- 7.12 This provision of the RIO, effectively insulates C&WJ from any risk whatever in the provision of these services, despite the fact that the cost of capital used to determine service costs includes a risk element. Indeed, if the provision is accepted it would have the effect of allowing C&WJ to recover costs for equipment twice – once from the interconnecting carrier that is no longer using it, and once from the new or larger customer for network services that is.

II. *Joint Working Manual*

- 7.13 The sections highlighted below refer to Chapter 2 of the revised Joint Working Manual (Operations and Maintenance) dated July 2000. At 7.19 the Office sets out some proposed amendments to these sections.

Section 2.4.2. Forecasting

- Section 2.4.2.4 specifies two-year forecasts by quarter, updated quarterly.

⁹ Section 4.1 of the Legal Framework similarly implies full responsibility for all costs incurred, without taking account of potential subsequent reuse.

- Section 2.4.13 discusses deviations from forecast, but the import is unclear.

Section 2.4.3 Initial Ordering of a Defined Service

- Section 2.4.3.1 (i) requires 10-months' lead time between an Order Plan and a Delivery Quarter.
- Section 2.4.3.2 (i) requires that the number of 1.544 Mbps Network links shall remain within agreed limits. For how long? What happens if more are required? What happens if fewer are needed?

Section 2.4.5 New Point of Connection

- Section 2.4.5.1 (i) requires 10-months' lead time.
- Section 2.3.5.2 (i) requires that the total number of 1.544 Mbps Network Links and traffic forecasted per Access Area/Point of Connection shall remain within agreed bandwidth limits. For how long? What happens if more are required? What happens if fewer Links than forecasted materializes?

Section 2.4.8 Trunk Group Reconfiguration

- It is not clear exactly what is meant here. This is apparently not trunk group traffic administration, since the number of trunks cannot be changed.

Section 2.4.9 Forecast Content

- This section requires eight quarters of forecasts for Network Links and total traffic, broken down by Access Area, defined destinations, and busy hour. This is a virtually impossible requirement for a firm entering the market. Even C&WJ would have difficulty making an accurate detailed forecast for such a period in such detail.

Section 24.11 Deviations Between Forecast and Delivery

- This section states that traffic realised in the Delivery Quarter shall not exceed the Final Q1 forecast, and that traffic can only fall 10 percent below forecast before penalties are imposed. It also states that the Service Supplier need not provide links or

carry traffic in excess of forecasts. Section 2.4.11.2 states that Service Supplier shall be reimbursed for all costs incurred, without specifying how these costs are determined.

Section 2.4.12 Ordering

- Section 2.4.12.1 specifies 7-months' lead-time for Order Plans, presumably for both new services and augments.
- Section 2.4.12.4 specifies 8-months' lead-time for Procurement Requirements, presumably for both new services and augments.

III. Service Descriptions

7.14 Each of the individual Service Descriptions has a Responsibilities section that requires the Service Taker to reimburse the Service Supplier for all costs incurred if forecasts are missed or there are other deviations from plans (e.g., Section 1.2.3). The RIO should set out the detailed method by which these costs are calculated, including the justification for the charge as well as the amount. Additionally the responsibilities shall be reciprocal. At least one of the new entrants has objected to such charges. However, the Office disagrees. If costs can be demonstrated to have been incurred, the cost causer should be responsible. The methods by which these costs should be determined are outlined below.

Conclusion

7.15 It is essential for a service supplier such as C&WJ to obtain forecasts from those who wish to purchase its services, be they interconnecting carriers or retail customers. It is also true that larger customers, such as carriers, will have more effect on the supplier's networks, and therefore may need to make more specific forecasts than smaller retail customers.

7.16 Despite these general concerns, C&WJ's forecasting guidelines, ordering intervals and charging practices in the event that forecasts are inaccurate are so self-protective and punitive that it may be difficult for competitors to operate. Generally, C&WJ requires forecast commitments seven to eight months in advance of service, and payments for all costs incurred in preparing to provide the forecasted service, regardless of the amount of service that is actually delivered. The RIO is silent on the method by which these costs will be determined. C&WJ also appears to have applied the same penalty provisions for dedicated services, such as In-Span Joining Service, which cannot readily be re-used by another customer, and common services such as network usage, which are, of course, entirely fungible.

- 7.17 Generally, service lead times should be as short as possible, and clearly commensurate with the type of activity required. Thus an interval for adding a new cable can be longer than that for providing a new 1.544 Mbps channel on an existing carrier system. C&WJ should provide support for its ordering and servicing lead times, based on practices used to provide its own network services as well as international practices.
- 7.18 Similarly, cost penalties for underrunning forecasts should be well specified depending upon the nature of the service and the type of equipment involved. Conversely, the RIO states that service requirements above forecast levels need not be met. This is not acceptable. The service supplier should have an obligation to make a good faith effort to meet overruns in demand, even if it cannot always be done immediately.

Proposed Changes

- 7.19 In an effort to resolve the concerns cited above the Office is recommending that the forecasting and provisioning processes be revised to reflect the following:-
- The two-year rolling forecasts by Service Takers for joining services, ancillary services and network Erlangs is appropriate, but it should be recognized that forecasts at that distance are generally advisory, to be used by the Service Supplier for planning purposes.
 - The forecasts for joining services should include locations of interconnection and numbers of 1.544 Kbps lines.
 - The forecasts for network carriage (Erlangs) should include points of origin (interconnection), and terminating service areas.
 - The forecasts for ancillary services should include estimated number of calls.
 - Joining Service firm orders should have the same ordering interval as large retail customers and C7WJ's mobile. If a service is ordered and then reduced or cancelled, penalties can be applied to cover actual unrecovered costs. These can include:
 - One-off operating costs, such as installation, establishment of billing records, preparation of premises, *etc.*
 - Carrying charges, including capital charges and depreciation, for capital equipment that has been installed and cannot easily be redeployed, for the expected period until it will be reused. C&WJ should demonstrate the average interval for reuse of such plant, based on the type of plant and their normal growth rates.

- Network Erlangs should not be ordered as such. They should be charged for as they occur. The Service Supplier can readily estimate the total amount of network Erlangs from the amount of joining capacity that is ordered, which will not only indicate but also limit the amount of traffic that can be delivered from the network. The Service Taker must specify which service areas are to be accessed from each Joining Service, and the Service Supplier can distribute the traffic in the same manner that it distributes all other traffic on its network. Changes in traffic demand, up or down, will be correlated with changes in the amount and locations of Joining Services. Since network capacity is provided in common for a large variety of users, network engineering and administration processes will normally adjust for such changes in demand on an ongoing basis. Thus there is no need for penalties for overrunning or underrunning, or specification of bounding intervals for, forecasts.
- Ancillary Services also need not be ordered as such. They should be forecasted by the Service Taker, and charged for as they occur. The Service Supplier can readily monitor the trend of such usage which, combined with the forecasts by the Service Taker and demands from other sources, can be used to determine total demand for these services.
- Although the forecasting and provisioning sections of the RIO are very detailed, it is not clear whether they are referring only to terminating service, for which there is a tariff, or to two way traffic. It should be made clear that dimensioning of both the Joining Services and the switched network requires estimates of both directions of traffic.

Other Technical Issues

7.20 The RIO contains a number of detailed technical provisions, some of which may cause difficulties for interconnecting carriers, and for which there appears to be little justification. Others appear to be reasonable, but have been disputed by mobile entrant. These are listed and discussed below.

Joint Working Manual.

7.21 Section 1.711 specifies 99.9 percent network link availability. Mossel complains that this is too low, suggesting 99.98 percent is a network figure that is usually exceeded. It seems likely that the difference is that between network links and networks. If Mossel has more than one interconnecting link, its overall availability will be much greater. For example, two independent links to different switches, both operating at 99.9 percent, will give an overall availability of approximately 99.99 percent.

- 7.22 Section 1.8.5.2 specifies a call completion probability of 99 percent. Mossel asks for 99.995 percent, without any apparent justification. 99 percent has long been an international standard in almost all circumstances. The Office sees no reason why it is inadequate here.
- 7.23 Section 1.2.1.4 specifies that C&WJ uses the Nortel family of SONET equipment, and inter-operability with equipment of other vendors can only be guaranteed after system-system tests. System-system testing is generally useful when establishing service regardless of the equipment type, but equipment of other vendors designed with the same interface specifications as NORTEL equipment should not be subjected to additional tests because of the identity of the manufacturer.¹⁰
- 7.24 Section 1.8.3.5 states that the number of pairs of signaling links is equal to the amount of traffic in Erlangs divided by 2500. The signaling links should be engineered based on the number of call attempts rather than the total usage, since signaling messages are sent to set up calls. Longer calls occupy no more signaling network capacity than shorter ones. This formula could seriously underestimate the number of signaling links required if, for example, holding times become much shorter, or would seriously overestimate if calls got longer.
- 7.25 Section 2.3.14.5 requires that, in the event of a delay by the Service Taker, the Service Supplier (C&WJ) shall be reimbursed for all costs incurred. The inverse, when there is a delay by the Service Supplier, is covered in Section 2.3.14.3, and merely requires that the Service Taker be notified. As agreed to by C&WJ in their memorandum of 5 June 2000, these provisions should be symmetrical. However, Section 4.1A in the Legal Framework does specify reciprocity. The JWM and the Legal Framework should be brought into agreement on this point. Mossel comments that the limitation in Section 4.1A of the Legal Framework to no more than one-quarter's rental should be removed. The Office is in agreement with this proposal. If either party should be guilty of such an extensive delay, it should not then be forgiven further penalties.

¹⁰ Mossel has also expressed concern over this provision.

Legal Framework

- 7.26 Section 3.1 states that “the Service Supplier Joining Service, as defined in the Service Schedule “is ... the *only* method for the connecting ...C&WJ and Mobile Telco.” This clearly implies that C&WJ will be the Service Supplier. C&WJ’s response of 5 June 2000 to additional OUR question number 9, however, states, “In the case of the Joining Link Service, the Service Supplier could be either C&WJ or the new entrant.” This should be clarified, here and in other sections of the RIO, such as Section 1.2.1.1 of the JWM.
- 7.27 Section 4.2 deals with notification of interconnecting carriers (here referred to as “Mobile Telco”) of changes in the C&WJ network that will affect the interconnecting carriers. The words “reasonable endeavors to provide ...reasonable prior notice” seems far too vague. We recommend that notification be made immediately upon the finalizing of a decision to make such changes.
- 7.28 Section 5.1 prohibits the installation of interconnecting carrier equipment in C&WJ buildings. This section includes a statement that the in-span Joining Service avoids the need for equipment collocation. If, however, the interconnecting carrier provides this service, as discussed above, then provision must be made for making the connection, either within or close to the C&WJ building.

ANNEX D: GLOSSARY OF TERMS

ABC	Activity Base Costing
ACCC	Australian Competition and Consumer Commission
ADC	Access Deficit Charge
BT	British Telecom
CCA	Current Cost Accounting
CDJ	Centennial Digital Jamaica
CDMA	Code Digital Multi-Access
CPE	Customer Premises Equipment
CRA	Charles River Associates
CSI	Customer Sited Interconnect, an interconnection circuit provided end-to-end by one carrier including equipment located on the premises of the other carrier.
C&WJ	Cable & Wireless Jamaica
CPP	Calling Party Pays
DQ	Directory Enquiries
FDC	Fully Distributed Cost
GOJ	Government of Jamaica
GSM	Global System of Mobile communications
IAA	Interconnect Access Area, the 4 areas into which Jamaica has been divided by C&WJ for interconnection purposes.
IECs	Interconnection Extension Circuits
IMF	International Monetary Fund
ISL	Interconnect Switch Location, a designated switch at which physical interconnection may occur. CWJ is offering two ISLs in each IAA.

JWM	Joint Working Manual
Kb/sec	Kilo bits per second
LRIC	Long Run Incremental Cost (same as TSLRIC)
Mbps	Mega bits per second
MEA	Modern Equivalent Assets
MJL	Mossel Jamaica Limited
NSM	Network Services Model
OFTA	Office of the Telecommunication Authority, telecoms regulator in Hong Kong
OECD	Organisation for Economic Cooperation and Development
OUR	Office of Utilities Regulation
PBXs	Private Branch Exchanges
PLMN	Public Land Mobile Network, which refers to a domestic mobile network.
POI	Point of interconnection
PSTN	Public Switched Telephone Network, which refers to the fixed network.
RIO	Reference Interconnection Offer
SAC	Stand Alone Cost
STV	Subscriber TV
SPR	Strategic Policy Research
TDMA	Time Digital Multi-Access
TSLRIC	Total Service Long Run Incremental Cost
VSAT	Very Small Aperture Terminal

WTO World Trade Organisation