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ORDER No. 1 of 2007
Reference Access Offer Order

Reference Access Offer Order

Order issued by the Telecommunications Regulatory Authority on the Reference Access Offer of the Bahrain Telecommunications Company B.S.C. dated
4 December 2006

23 May 2007

Note: This is the non-confidential version of the order issued to Batelco on 23 May 2007. Parts of this text have been edited to ensure that confidential information is not disclosed; those parts are enclosed in square brackets and marked with an asterisk.



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1. Introduction

The Access Regulation issued on 30 April 2005 provides that a telecommunications network operator with dominance in relevant markets must make available a reference access offer. Batelco was found to be dominant in certain relevant markets in the Dominance Determination, which, together with the conditions in the Access Regulation, meant Batelco had three (3) months to produce a Reference Access Offer that complied with the terms of the Dominance Determination and Access Regulation. Batelco produced a reference access offer on 22 March 2006. As the Authority, did not consider the reference access offer dated 22 March 2006 to be fair and reasonable, it published an Order to determine the terms and conditions of the first Reference Access Offer issued on 12 July 2006.

Batelco submitted its second Reference Access Offer on 4 December 2006. Since that date the Authority and Batelco have exchanged correspondence on the content of the Reference Access Offer, particularly the tariffs and charges contained in it and the cost information to justify how Batelco came up with those tariffs and charges. As a result of the exchange and as it appeared to the Authority that the Reference Access Offer as submitted was neither fair nor reasonable, the Authority has decided in the exercise of its powers described below to issue Batelco with an Order concerning the Reference Access Offer submitted to it on 4 December 2006. This Order gives Batelco a detailed explanation of the concerns of the Authority, where it does not consider the 4 December 2006 Reference Access Offer to be fair and reasonable.

2. Legal Basis

Whereas:

- 2.1 Batelco provides services pursuant to section 80 of the Telecommunications Law and the Authority granted various licenses to Batelco on 21 June 2003, which were re-issued with corrections required to ensure the licenses complied with the provisions of section 80 of the Telecommunications Law, on 14 June 2005, including a national fixed services license;
- 2.2 although Batelco has a legitimate expectation that the terms of its licenses as re-issued on 14 June 2005 be reviewed to consider appropriate amendments to take into account the reliance it placed

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- between 21 June 2003 and 14 June 2005 on the form of licenses issued to it on 21 June 2003, the Authority considers that no determination included in this Order relies upon license conditions in the correct licenses so as to prejudice Batelco's interests;
- 2.3 section 3(c)(1) of the Telecommunications Law grants the Authority the power to make such regulations, orders and determinations as may be necessary for the implementation of the Telecommunications Law, including determinations in connection with, amongst other things, interconnection, access to the network and its facilities, services tariffs, access to real property and promotion of competition;
- 2.4 section 3(c)(13) of the Telecommunications Law grants the Authority the power to encourage, regulate and facilitate adequate access and interconnection arrangements, including, where necessary, enforcing the sharing by public telecommunications operators of the benefits of facilities and property;
- 2.5 pursuant to its powers under section 57(e) of the Telecommunications Law, which provides, amongst other things, that the Authority may publish regulations in connection with access, including regulations regarding a reference access offer similar to a reference interconnection offer, the Authority published the Access Regulation;
- 2.6 pursuant to the requirement set out at Article 2.1 of the Access Regulation, the Authority found Batelco dominant in certain wholesale markets, as set out in the Dominance Determination;
- 2.7 having been found to be in a dominant position, as set out in the Dominance Determination, Batelco was required by Articles 3.3 and 4 of the Access Regulation to make available a reference access offer;
- 2.8 Batelco submitted its second Reference Access Offer to the Authority for approval, in accordance with Article 5.1 of the Access Regulations on 4 December 2007;
- 2.9 Batelco has submitted further information on its costs and charging principles to enable the Authority to understand the basis for the tariffs included in the Reference Access Offer, as detailed in this Order;

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- 2.10 other than as detailed in this Order, the Authority has used costs as set out in the 2005 Accounts for tariffs determined in this Order by the Authority;
- 2.11 pursuant to Article 5.3 of the Access Regulation, which provides that where the Authority determines that any of the terms and conditions or tariffs contained in a Reference Access Offer submitted to it are not fair, reasonable and non-discriminatory, it will issue an order specifying the terms and conditions that it does not approve and shall state the terms and conditions that shall apply in a notice stating in writing the order to be issued, the Authority issues this Notice, which includes an order;
- 2.12 in deciding whether tariffs are fair and reasonable, what the Authority is required to do is to decide whether it considers (قدرت) (الهيئة) (being the relevant verb set out in section 57(e) of the Telecommunications Law) or determines (قررت) (being the relevant verb set out in Article 5.3 of the Access Regulation) that any tariffs or terms are unreasonable, unfair or discriminatory. When doing so, the Authority must:
- (a) pursuant to its obligations under section 3(a) of the Telecommunications Law, act reasonably and in a non-discriminatory manner and fully explain its consideration or determination that any tariffs or terms are unreasonable, unfair or discriminatory in order to comply with its obligation under the same provision to exercise its powers in a transparent manner; and
 - (b) pursuant to its obligations under section 3(b) of the Telecommunications Law, ensure that in considering or determining that any terms or tariffs are unreasonable, unfair or discriminatory, its consideration or determination is best calculated to:
 - (i) protect the interests of subscribers or users as set out in section 3(b)1; and
 - (ii) promote effective and fair competition as set out in section 3(b)2;
- 2.13 the Authority considers that in carrying out its duties and exercising its powers under the Telecommunications Law and the Access Regulation, its consideration or determination that any

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tariffs or terms are unreasonable, unfair or discriminatory as set out in this Order:

- (a) are made in a reasonable and in a non-discriminatory manner in compliance with section 3(a) of the Telecommunications Law, as demonstrated by the reasoning and explanations included in this Order;
- (b) are fully explained and reasoned in this Order in compliance with the requirements for transparency set out in section 3(a) of the Telecommunications Law;
- (c) are made in the knowledge or with the understanding that tariffs or terms that it considers or determines are unreasonable, unfair or discriminatory would prejudice the interests of subscribers or users in that:
 - (i) tariffs that it considers or determines are unreasonable, unfair or discriminatory would, if approved by the Authority, lead to subscribers or users being charged higher tariffs than the Authority is satisfied would be fair or reasonable for the relevant service;
 - (ii) tariffs or terms that it considers or determines are unreasonable, unfair or discriminatory would, if approved by the Authority, result in a low or no take up of access services by Licensed Operators, with the result that:
 - (A) there would be a reduced availability and provision of alternative services to Batelco's own retail services, prejudicing subscribers' or users' interests in there being wide availability and provision of alternative services;
 - (B) there would be less competition to Batelco in the provision of retail services to subscribers or users, or, where other Licensed Operators accepted terms and tariffs that were unreasonable, unfair or discriminatory, Batelco would be in a position to compete with such Licensed Operators unfairly; and

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- (C) prices to end customers would not get close to costs; and
- (iii) quality of service related terms that it considers or determines are unreasonable, unfair or discriminatory would, if approved by the Authority, result in an access regime that would be prejudicial to subscribers' or users' interests in having reasonable quality of services, so that its actions in considering or determining any tariffs or terms are unreasonable, unfair or discriminatory are in compliance with its obligations under section 3(b) of the Telecommunications Law;
- 2.14 in approving cost information or cost-based pricing for tariffs the Authority implicitly accepts that Batelco's tariffs included in the Reference Access Offer can take into account any asymmetric risks as these are taken into account in the determination of Batelco's WACC, which the Authority accepts can be included in any cost information or cost-based pricing and that in particular the determination setting the 2005 WACC stated that:
- (a) "the [Authority] has taken into account the current situation facing Batelco with regard to tariffs for call origination services, which appear not to fully reflect costs"; and
- (b) "The [Authority is mindful of the importance of [asymmetric risk] in setting the cost of capital, and considers that the determined cost of capital adequately deals with the concerns that have been raised";
- 2.15 the Authority considers that the fact that tariffs and terms included in the Reference Access Offer:
- 2.16 have been accepted by other Licensed Operators prior to any approval of the Reference Access Offer by the Authority; or
- (a) may provide an ability for other Licensed Operators to make a margin on the tariffs included in the Reference Access Offer and retail tariffs offered by Batelco to subscribers or users for the relevant equivalent retail services;
- is not conclusive evidence that such tariffs and terms are fair and reasonable, given that the dynamics of a market in which such tariffs and terms are offered by a dominant services provider in the

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- relevant market or markets mean that such Licensed Operators may accept terms and tariffs that are unfair and unreasonable for valid commercial reasons, even though such acceptance may impact those Licensed Operators' ability to provide effective competition in the longer term;
- 2.17 no provision of the Telecommunications Law or the Access Regulation requires the Authority to take into account any purported access deficit in the determination of tariffs for access services included in the Reference Access Offer and the Authority is not aware of any other regulatory authority that has addressed any purported access deficit by way of a surcharge on access services;
- 2.18 the Authority is not satisfied that a fair and reasonable tariff should contain a Batelco purported 'access deficit component' as has been included in some charges by Batelco. Despite various submissions from Batelco relating to the difference between line rental charges and line rental costs (operating and maintenance costs, depreciation and capital costs), the Authority is currently of the view that because various revenue generating services share a customer's line (national telephony, international telephony, internet services, data services) then the revenues (and costs) of these services should be included when calculating the existence of an access deficit or not and not simply the line rental revenue. This is an internationally recognised approach by national regulatory authorities to determining the existence of an access deficit. Here the Authority refers Batelco to its report from Frontier Economics submitted in December 2006 as part of the Authority's defence against the current Arbitration on the Order dated 12 July 2006. As a conservative estimate this report finds that when all services that use the fixed line are taken into account Batelco is achieving a rate of return on their investments (return on capital employed) of between [*] and [*] percent. This should be compared to Batelco's November 2005 approved weighted average cost of capital of 12.2 percent. In this context, the Authority is not satisfied that it is appropriate for Batelco to be defining, measuring and funding an unproven access deficit through a surcharge on access tariffs;
- 2.19 the Authority considers that in considering or determining the reasonableness or otherwise of tariffs in the Reference Access Offer, it has taken into account the increased infrastructure

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- competition provided by the other Licensed Operators to Batelco, to the extent that this is relevant, and notes that as the Authority holds gross annual turnover information supplied to the Authority pursuant to its determination of annual license fees under section 18(a) of the Telecommunications Law and other regulatory information obtained by the Authority from Licensed Operators, the Authority is able to assess accurately the relevant financial strength and market shares of Batelco and the Licensed Operators;
- 2.20 in assessing a retail minus approach to bitstream and other access pricing as has been suggested by Batelco, the Authority notes that where this has occurred the relevant incumbent dominant network operators are subject to significant competition from carrier pre-selection and DSL access operators as well as competition from other national telecommunications network operators including cable companies, which is not the case in the Bahrain market, so that it is fair and reasonable for regulatory decisions that adopt retail minus access pricing made by, for example, Oftel/Ofcom or the New Zealand Commerce Commission not to be followed by the Authority, given the different state of the Bahrain telecommunications market; and
- 2.21 having reviewed the various documentation submitted by Batelco to support these charges and having met with Batelco on a number of occasions and having taken into account Batelco's responses, which was submitted in writing to the Authority in response to the Authority's Preliminary Findings of 25 February and Draft Order of 5 April;

the Authority has decided to issue this Order to determine those tariffs and charges of the Reference Access Offer which it considers are not fair, reasonable or non-discriminatory¹.

¹ As required by Article 5.3 of the Access Regulation, Batelco is hereby notified "...that its license may be revoked pursuant to Section 35 of the Telecommunications Law if it fails to comply with this Order, as such a failure would be a material breach of its license."

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3. Ordered Charges

The Authority hereby orders that the following charges should apply:

2-1: Transit Service

Item	Chargeable Activity	Effective Date	Charge	Charge Basis
2-1.1	Per Transit Call-Fixed (as set out in the service description)		2.03 Fils	Per minute
2-1.x	Per Transit Call - Mobile (as set out in the service description)		2.14 Fils	Per minute

2-4: Dial-Up Internet Access Service

Item	Chargeable Activity	Effective Date	Charge	Charge Basis
2-4.1	Carriage of Internet Dial-up Call from a Batelco mobile telephone		8.56 Fils per minute	Per second
2-4.2	Carriage of Internet Dial-up Call from a Batelco fixed PSTN Telephone		2.49 Fils per minutes	Per second
2-4.3	Carriage of Internet Dial-up Call from a directly connected customer of another operator		Current rate for relevant operator's origination of call plus 2.09 (average of fixed and mobile) Fils per minute	Per second

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Item	Chargeable Activity	Effective Date	Charge	Charge Basis
2-4.4	Charges for Link installation	12 July 2006	175	Per event
2-4.5	Link Rental	12 July 2006	75	Per month/per Link
2-4.6	Fault handling where no fault lies in the Batelco network	12 July 2006	BD 3.983	Per event

2-5: Local Lease Circuit for OLO (LLCO)

Monthly recurring tariffs per LLCO (including loan of CPE):

Speed (kbps)	Monthly Tariff (BD) Open Period	Monthly Tariff (BD) Fixed Period > 2 years
64	BD 77 per month	BD 75 per month
256	BD 103 per month	BD 100 per month
512	BD 138 per month	BD 134 per month
2048	BD 386 per month	BD 371 per month

2-6: Customer Access Tail (CAT) Service

Monthly recurring tariffs per circuit

Speed (kbps)	Monthly Charge (BD)
64	77 per month
256	103 per month
2048	386 per month

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2-9: Inter-Operator Transit Access Service

Item	Chargeable Activity	Effective Date	Charge	Charge Basis
2-9.X	Fixed: Per Transit Call as set out in Service Description, payable by the Access Seeker		2.03 Fils plus charges as set out below	Per minute, chargeable per second
2-9.1	Mobile: Per Transit Call as set out in Service Description, payable by the Access Seeker		2.14 Fils plus charges as set out below	Per minute, chargeable per second
2-9.2	Per Transit Call as set out in Service Description, payable by the Access Seeker	6 August 2006	The applicable rate for termination of calls (or origination of calls in the case of freephone/ reverse charge scenarios) on the other Licensed Operator's Network	Same charging basis as applied by the terminating operator (or originating operator in the case of freephone/ reverse charge scenarios) which is usually per min, chargeable per second

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2-10: International Private Leased Circuit (IPLC)

Monthly recurring charges for half-circuit (BD):

Monthly Price BD (ZONE 1)			
Speed	Open Service Period or 1 Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	626	548	470
512	914	800	686
1M	1,469	1,285	1,102
2M	2,009	1,758	1,507

Monthly Price BD (ZONE 2)			
Speed	Open Service Period or One Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	1,044	914	783
512	1,570	1,373	1,177
1M	2,426	2,123	1,972
2M	3,974	3,825	3,726

Monthly Price BD (ZONE 3)			
Speed	Open Service Period or One Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	1,591	1,392	1,193
512	2,218	1,940	1,663
1M	3,240	2,835	2,430
2M	5,076	4,442	3,807

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2-11: Wholesale DSL Service

Item	Chargeable Activity	Effective Date	Charge	Charge Basis
DSL.1	Fee to establish Wholesale DSL Service relationship		5,216	Once off
DSL.2	Agreement Processing Fee		1,903	Once off
DSL.3	Fee for processing DSL Transfer Request and completion	12 July 2006	8	Per event (additional tariff if installation required)
DSL.4	Charges for rejects, reversals, and withdrawals associated with DSL Transfer, Invalid Transfer	12 July 2006	5	Per event
DSL.5	Fee for a change of speed associated with DSL Transfer if applicable	12 July 2006	5	Per event
DSL.6	External Removal or Change Number	12 July 2006	Equivalent to retail tariff	Per event
DSL.7	Monthly End User port tariffs		Residential: (256kbps): 7 (512 kbps): 18 (1 Mbps): 28 (2Mbps): 42	BD Per port/per month

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DSL.7	Monthly End User port tariffs		Business: (Threshold) (256kbps[*]): 19 (256kbps[*]): 31 (512 kbps): 44 (1Mbps): 58 (2 Mbps): 77	BD Per port/per month
DSL.7	Monthly End User port tariffs		Business: (Flat rate) (256kbps): 46 (512 kbps): 56 (1Mbps): 82 (2 Mbps): 99	BD Per port/per month
DSL.8	Usage tariffs		2.09 Fils	Per Increment above threshold
DSL.9	Fee for a call out for a technician at Access Seeker request	12 July 2006	Time and materials in accordance with Schedule 3 Annex 1	Per event
DSL.10	Fee for suspension of ADSL Service at Access Seeker request	12 July 2006	5	Per act of suspension and per act of reactivation

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2-12: Bitstream Service

Item	Chargeable Activity	Effective Date	Charge	Charge Basis
BS.1	Fee to establish Bitstream Service relationship		50,701	Once off
BS.2	Agreement Processing fee		1,449	Once off
BS.3	Maintaining relationship charge		1,076	Per month
BD.4	Port connection	12 July 2006	20	Per event
BS.5	Charges for rejects, reversals, and withdrawals associated with Bitstream Order	12 July 2006	5	Per event
BS.6	Charges for Change of Speed	12 July 2006	5	Per event
BS .7	External removal charge	12 July 2006	5	Per vent
BS.8	Port Rental		Residential: 256kbps: 10.11 512kbps: 12.13 1Mbps: 16.17 2Mbps: 24.25	BD Per port/per month
BS.8	Port Rental		Business: 256kbps: 10.88 512kbps: 14.67 1Mbps: 22.24 2Mbps: 37.39	BD Per port/per month
BS.9	Port Cessation Charge	12 July 2006	5	Per event

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BS.10	Charges for a call out for a technician at Access Seeker's request	12 July 2006	Time and Materials in accordance with Annex 3 of Schedule 3	Per event
BS.11	Charges for suspension of Bitstream service at Access Seeker's request	12 July 2006	5	Per act of suspension and per act of connection
BS 12	INET Helpdesk premium rate call		250 Fils	Per minute

2-13: Carrier Pre-Select (CPS) Service

Item	Chargeable Activity	Effective Date	Charge	Charge Basis
2-13.1	Carrier Pre-Selection General Set-up	8 November 2004	BD 10,000	Per event, on receipt of Request for Carrier Pre-Selection Service
2-13.2	Operator Specific Set-Up Costs	8 November 2004	BD 2,275	Per event, on establishing or re-establishing any interconnection in respect of Carrier Pre-Selection Service
2-13.3	Operator Support Costs	8 November 2004	BD 169	Per month, from establishment of any interconnection in respect of Carrier Pre-Selection Service
2-13.4	For Customer Transfer and/or Line Set-Up as set out in Service Description	8 November 2004	BD 2.536	Per event
2-13.5	For Incomplete Customer Transfer and Line Set-Up as set out in Service Description	8 November 2004	BD 1.27	Per attempt
2-	For Inter-carrier	8 November	BD 0.418	Per attempt

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Item	Chargeable Activity	Effective Date	Charge	Charge Basis
13.6A	swapping, per attempt, payable by carrier A	2004		
2-13.6B	For Inter-carrier swapping, per attempt, payable by carrier B	8 November 2004	BD 2.536	Per attempt
2-13.7	For CPS Call Origination as set out in Service Description	8 November 2004	3.6 Fils	Per min, calculated per second, subject to a surcharge as identified below
2-13.8	Cost recovery surcharge, in addition to charges payable under item 2-X.7	8 November 2004	4.2 Fils	Per min, calculated per second
2-13.9	Fault Handling as set out in the Service Description	8 November 2004	BD 3.983	Per event
2-13.10	Other Services	8 November 2004	Time and Materials as set out in Annex 1 to Schedule 3 of the Reference Offer	Per event

3-5: Wholesale International Switched Service

Item	Chargeable Activity	Effective date	Charge	Charge Basis
3-5.1	Conveyance of International Switched Call as set out in Service Description	9 April 2007	As set out in Annex 4	Per min with any applicable minimum charge
3-5.2	Delivery to tone or announcement as set out in Service Description	8 November 2003	2 Fils	Per event

The rest of this Order is set out as Annex 1 (Detailed Findings).

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ANNEX – DETAILED FINDINGS

- 1. Definitions**
- 2. Reference Access Offer – Authority Approach**
- 3. Reference Access Offer – Authority Rationale**

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1. Definitions

Unless otherwise defined in this Order, any word, phrase or expression shall, unless the context so requires, have the meaning given to it in the Telecommunications Law or the Reference Access Offer and the terms below shall have the following meaning:

“2005 Accounts” means Batelco’s audited regulatory accounts for 2005 submitted to the Authority pursuant to the Accounting Separation Regulation and the Accounting Separation Determination;

“2005 WACC” means the nominal WACC for Batelco set out in the determination “Determination of Batelco’s Cost of Capital” dated 20 November 2005 (Determination No. 3 of 2005);

“Access Provider” means in relation to a wholesale access service, a Licensed Operator that has been requested to provide an access service to another Licensed Operator;

“Access Regulation” means the access regulation issued by the Authority on 30 April 2005 (Regulation No. 1 of 2005);

“Access Seeker” means a Licensed Operator seeking access from a Licensed Operator holding a Dominant position;

“Accounting Separation Determination” means the accounting separation determination to Batelco published by the Authority on 5 February 2005 (Determination No. 2 of 2005);

“Accounting Separation Regulation” means the accounting separation regulation issued by the Authority on 2 August 2004 (Regulation No. 2 of 2004);

“Batelco” means the Bahrain Telecommunications Company B.S.C.;

“Draft Order” means Reference Access Offer Draft Order dated 5 April 2007;

“Dominance Determination” means the determination ‘Dominance in Wholesale Markets by Batelco’ published by the Authority on 22 January 2006 (Determination No. 1 of 2006);

“DSLAM” means Digital Subscriber Loop Access Multiplexor;

“FAC” means Fully Allocated Costs;

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“January Letter” means the letter from Batelco to the Authority dated 8 January 2007 (Ref CL/06/07);

“LRAIC” means Long Run Average Incremental Costs;

“Licensed Operator/Other Licensed Operator (OLO)” means any Person other than Batelco that has been licensed by the Authority under the Telecommunications Law;

“Order” means this Reference Access Offer Order;

“Preliminary Findings” means the Authority’s initial findings on Batelco’s Reference Access Offer, sent to Batelco on 25 February 2007;

“PPP” means Purchasing Power Parity;

“Reference Access Offer” means the reference access offer of Batelco dated 4 December 2006;

“Response” means the Batelco’s Response dated 10 May 2007 made by Batelco in response to the Draft Order dated 5 April;

“Telecommunications Law” means the law promulgated by Legislative Decree No. 48 of 2002;

“TPR” means a Batelco tariff proposal request (followed by the Batelco reference number for the request); and

“WACC” means weighted average cost of capital.

2. Reference Access Offer – Authority Approach

The following paragraphs give the Authority’s general reasoning on its approach to determining the Reference Access Offer tariffs and as a form of reply to the representations made in Batelco’s Response.

The Authority considers that a fair and reasonable tariff should be one where an Access Provider should be able to recover its costs and make a return on investment which is appropriate to the level of risk in the market. In assessing whether access charges are fair and reasonable, the Authority has to take into account all relevant costs that are efficiently incurred. The Authority considers legitimate and efficiently-incurred costs are fair and reasonable for the following reasons:

- 2.1 they reflect the principles of cost causation – cost of the service reflects as closely as possible the cost of the individual elements that are used by the service;

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- 2.2 they are transparent – cost of the service is related as closely as possible to those network elements that make up the service; and
- 2.3 they are objective - costs are based on observable elements that constitute the service.

The Authority does not consider that a fair and reasonable tariff contains any of the following elements:

- (a) an access deficit component – the Authority’s argument against the inclusion of an access deficit has been outlined above. In this context, the Authority is not satisfied that it is appropriate for Batelco to be defining, measuring and funding an unproven access deficit through a surcharge on access tariffs;
- (b) a level of risk beyond that included in the weighted average cost of capital (WACC) – the Authority notes Batelco’s description of access charges as proposed by the Authority being based on ‘direct accounting costs’. The Authority considers that access charges are actually based on ‘economic costs’ as they include a regulated return on capital in the form of a WACC. As such, the WACC includes a level of risk that the Authority is satisfied is appropriate to Batelco’s network and services; and
- (c) incentives for investment beyond WACC – the Authority considers that the appropriate incentives for investment for regulated services are cost based tariffs as these tariffs allow operators to make informed decisions based on transparent pricing mechanisms. In addition, cost-based tariffs provide efficient signals to operators regarding investment decisions.

The Authority considers that access tariffs that are not cost based may violate the principle of non-discrimination. The Authority considers that Batelco cannot discriminate between the access charges that it charges or accounts for in relation to its own retail business or operation and those that it charges other Licensed Operators for access to its network. Including a wholesale margin above costs to incorporate any of the above may result in tariffs that discriminate against Access Seekers.

The Authority notes that in almost every case, Batelco’s proposed tariffs were substantially above costs, including a return on capital employed, as supplied by Batelco. This difference between proposed tariff and

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supporting costs is not supported by any cost analysis or supporting documentation supplied by Batelco, other than documentation from Batelco arguing for the existence of an access deficit, which the Authority is satisfied should not be included in access service tariffs, as explained elsewhere in this Order. Therefore the Authority cannot accept assertions without any documentation that the tariffs are fair and reasonable and it is not in a position even to assess if the tariffs have any basis whatsoever.

3. Reference Access Offer – Authority Rationale

The Authority's reasons for ordering changes to the tariffs of the Reference Access Offer are as follows:

3.1 Overall Assessment of the Reference Access Offer

For those tariffs for which supporting documentation was supplied by Batelco, the Authority has established that some of the tariffs contain additional costs which result in the Reference Access Offer including unfair and unreasonable tariffs.

The Authority therefore considers that for those tariffs in the Reference Access Offer that do not reflect their underlying costs, and as a consequence of some tariffs adopting incorrect cost concepts, a number of tariffs over-recover their costs.

In addition, the Authority considers that insufficient supporting documentation was supplied by Batelco for some of the tariffs included in the Reference Access Offer to enable the Authority to assess whether the tariffs were fair, reasonable and non-discriminatory.

3.2 A summary of Documentation requested by the Authority

Adequate information is required by the Authority in order to make an informed assessment of the tariff concerned, including on each of the steps involved in the tariff-setting process. Where adequate information was not supplied, the Authority could not be satisfied that the end tariff is fair, reasonable and non-discriminatory.

The Authority received a list of applicable charges from Batelco on 4 December 2006 as part of the Batelco Reference Access Offer submission. This list of charges did not have any accompanying supporting documentation. The Authority wrote to Batelco on 11 December 2006 (Ref: ERU/1206/198) inviting Batelco to submit all

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supporting documentation for the Reference Access Offer by 8 January 2007.

Supporting documentation was included with the January Letter for the following set of charges:

- Customer Access Tails;
- Dial-Up Internet Access Service;
- Inter-operator Transit Access Service;
- PSTN Transit Service;
- Local Leased Circuits for Other Operators;
- Wholesale DSL Service;
- Bitstream Service; and
- Wholesale International Switched Service;

Further Batelco stated for International Private Leased Circuits (IPLCs) “Batelco does not have a cost stack based on the 2005 regulatory accounts, but in light of the time involved to carry out such an exercise can provide the TRA with such information by Thursday 15 February 2007”. Accompanying the letter Batelco also provided in a spreadsheet form supporting documentation for the above charges.

Following a meeting between Batelco and the Authority on 5 February 2007 to discuss the Batelco’s proposed charges and the supporting documentation Batelco submitted on 8 February 2007 a further updated spreadsheet to support the wholesale DSL product.

On 11 February 2007 the Authority sent a list of questions relating to the meeting of 5 February and the spreadsheet of 8 February 2007. On 12 February 2007 Batelco sent a fax to the Authority as a response to these questions and on 13 February 2007 Batelco and the Authority met to discuss the spreadsheet of 8 February 2007. In the meeting the Authority made it clear to Batelco that it did not consider the 8 February 2007 spreadsheet as accurately reflecting DSL wholesale costs and asked Batelco to submit another updated spreadsheet that considered a greater number of variables. For example, the Authority noted that the 8 February spreadsheet did not calculate above and below threshold

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transmission costs correctly. Batelco submitted this updated spreadsheet approximately one month later on 12 March 2007.

On 25 February 2007 the Authority sent its detailed Preliminary Findings (70 pages) to Batelco (Ref: ERU/0207/019) inviting Batelco to respond by 18 March 2007. On 12 March 2007 the Authority sent an email to Batelco allowing a 3 day extension of the invitation to submit to 21 March 2007. On 25 March 2007 Batelco provided a 4-page "position note" as a response to the Authority's Preliminary Findings. The Authority and Batelco had one further meeting to discuss the Preliminary Findings on 26 March 2007.

On 5 April 2007 the Authority sent Batelco its Draft Offer and gave Batelco until 10 May 2007 to respond. During the response period the Authority and Batelco had a number of meetings mainly relating to Bitstream charges. In these meetings, the establishment of relationship fee, the maintaining of relationship fee, bitstream port charges, additional local loop and DSLAM charges and wholesale charges were discussed. New costs were submitted by Batelco in relation to a number of Bitstream cost categories.

On 10th May 2007 the Authority Received Batelco's Response to the Draft Order.

3.3 Assessment of Reference Access Offer Tariffs

In the majority, the supporting documentation for tariffs and charges in the Reference Access Offer allows the network charge of these services to be reconciled with the 2005 Accounts.

From this assessment, it appears to the Authority that for those charges that have changed between the TRA's Orders of 12 July 2006 and 6 August 2006 and the Reference Access Offer submitted by Batelco of 4 December 2006, the following charges apply:

Item	Chargeable Activity	TRA RAO Order - July 2006	Batelco RAO - Dec 2006	TRA RAO Order - May 2007
2.1-X	PSTN Transit (fixed)	NA	NA	2.03 Fils/min
2-1.1	PSTN Transit (mobile)	4.03 Fils/min	3.74 Fils/min	2.14 Fils/min

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Item	Chargeable Activity	TRA RAO Order - July 2006	Batelco RAO - Dec 2006	TRA RAO Order - May 2007
2-4.1	Dial-Up Internet Mobile	8.64 Fils/min	4.81Fils/min	8.56 Fils/min
2-4.2	Dial-Up Internet Terminating Access	NA	NA	2.49 Fils/min
2-5	LLCO 64 kbps	BD 23 per month	BD 112 per month	BD 77 per month
2-5	LLCO 256 kbps	BD 52 per month	BD 150 per month	BD 103 per month
2-5	LLCO 512 kbps	BD 89 per month	BD 195 per month	BD 138 per month
2-5	LLCO 2048 kbps	BD 315 per month	BD 533 per month	BD 386 per month
2-6	CAT 64 kbps	BD 52 per month	BD 116 per month	BD 77 per month
2-6	CAT 256 kbps	BD 81 per month	BD 155 per month	BD 103 per month
2-6	CAT 2048 kbps	BD 359 per month	BD 554 per month	BD 386 per month
2-9-X	Inter-operator Transit access (fixed)	2.68 Fils/min	3.06 Fils/min	2.03 Fils/min
2-9-1	Inter-operator Transit access (mobile)	2.68 Fils/min	3.74 Fils/min	2.14 Fils/min
2-10	International Private Leased Circuit - 256Kbps	BD 696 per month	BD 696 per month	BD 626 per month
2-10	International Private Leased Circuit - 512Kbps	BD 1,016 per month	BD 1,016 per month	BD 914 per month
2-10	International Private Leased Circuit -1Mbps	BD 1,632 per month	BD 1,632 per month	BD 1,469 per month
2-10	International Private Leased Circuit -2Mbps	BD 2,232 per month	BD 2,232 per month	BD 2,009 per month
2.11	DSL.1 Fee to establish Wholesale DSL Service relationship	BD 5,000 Once off	BD 12,500 Once off	BD 5,216 Once off

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Item	Chargeable Activity	TRA RAO Order - July 2006	Batelco RAO - Dec 2006	TRA RAO Order - May 2007
2.11	DSL.2 Agreement Processing Fee	BD 1,750 Once off	BD 1,903 Once off	BD 1,903 Once off
2.11	DSL.7 Monthly End User port tariffs Per port/per month (BD)	Residential: 256kbps (5GB): BD 14.70 512 kbps (8GB): BD 19.18 1 Mbps (15GB): BD 32.02 2Mbps (20GB): BD 41.90	Residential: 256kbps (2GB): BD 9.00 512 kbps (8GB): BD 26.00 1 Mbps (15GB): BD 34.00 2Mbps (20 GB): BD 51.00	Residential: 256kbps (2GB): BD 7.00 512 kbps (8GB): BD 18.00 1 Mbps (15GB): BD 28.00 2Mbps (25GB): BD 42.00
2.11	DSL.7 Monthly End User port tariffs Per port/per month (BD)	Business: (Threshold) 256kbps (2.5 GB): BD 14.38 256kbps (5GB): BD 17.34 512 kbps (10GB): BD 30.48 1Mbps (15GB): BD 46.17 2 Mbps (20GB): BD 69.88	Business: (Threshold) 256kbps (2.5GB): BD 34.00 256kbps (5GB): BD 68.00 512 kbps (10GB): BD 85.00 1Mbps (15GB): BD 128.00 2 Mbps (20GB): BD 170.00	Business: (Threshold) 256kbps (2.5GB): BD 19.00 256kbps (5GB): BD 31.00 512 kbps (10GB): BD 44.00 1Mbps (15GB): BD 58.00 2 Mbps (20GB): BD 77.00
2.11	DSL.7 Monthly End User port tariffs Per port/per month (BD)	Business: (Flat rate) 256kbps: BD 38.45 512 kbps: BD 56.52 1Mbps: BD 77.74 2 Mbps: BD 118.27	Business: (Flat rate) 256kbps: BD 119.00 512 kbps: BD 170.00 1Mbps: BD 213.00 2 Mbps: BD 298.00	Business: (Flat rate) 256kbps: BD 46.00 512 kbps: BD 56.00 1Mbps: BD 82.00 2 Mbps: BD 99.00

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Item	Chargeable Activity	TRA RAO Order - July 2006	Batelco RAO - Dec 2006	TRA RAO Order - May 2007
2.11	DSL.8 Usage tariffs	2.26 Fils Per MB above threshold	6.5 Fils Per MB above threshold	2.09 Fils Per MB above threshold
2.12	BS.1 Fee to establish Bitstream Service relationship	BD 50,497 Once off	BD 77,227 Once off	BD 50,701 Once off
2.12	BS.2 Agreement Processing fee	BD 1,406 Once off	BD 1,449 Once Off	BD 1,449 Once Off
2.12	BS.3 Maintain Relationship Charge	BD 878 per month	BD 870 per month	BD 1, 076 per month
2.12	BS.8 Monthly End User port tariffs Per port/per month (BD)	Residential: 256kbps: BD 10.49 512kbps: BD 14.73 1Mbps: BD 23.18 2Mbps: BD 40.10	Residential: 256kbps: BD 23.1 512kbps: BD 25.8 1Mbps: BD 31.2 2Mbps: BD 42.2	Residential: 256kbps: BD 10.11 512kbps: BD 12.13 1Mbps: BD 16.17 2Mbps: BD 24.25
2.12	BS.8 Monthly End User port tariffs Per port/per month (BD)	Business: 256kbps: BD 12.13 512kbps: BD 17.43 1Mbps: BD 27.99 2Mbps: BD 49.13	Business: 256kbps: BD 25.20 512kbps: BD 30.30 1Mbps: BD 40.60 2Mbps: BD 61.00	Business: 256kbps: BD 10.88 512kbps: BD 14.67 1Mbps: BD 22.24 2Mbps: BD 37.39
2.13	Inet Help Desk Charge	NA	250 Fils/min	250 Fils/min

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The costing methodology and reasons behind the use of the methodology for each of the charges above is explained in a summary table below:

Chargeable Activity	Cost Method	Reason
PSTN Transit	Cost based	Includes fair and reasonable WACC of 12.2 percent
Dial-Up Internet	Cost based	Includes fair and reasonable WACC of 12.2 percent
CATs	Cost based	Includes fair and reasonable WACC of 12.2 percent Benchmarking also undertaken
LLCO	Cost based	Includes fair and reasonable WACC of 12.2 percent Benchmarking also undertaken
Inter-operator Transit access	Cost based	Includes fair and reasonable WACC of 12.2 percent
International Private Leased Circuit	Retail minus	No costing data provided Benchmarking undertaken Retail minus 30 percent applied
Fee to establish Wholesale DSL Service relationship	Fair and reasonable	Fair and reasonable assessment of Batelco charges and supporting documentation
Wholesale DSL Agreement Processing Fee	Fair and reasonable	Fair and reasonable assessment of Batelco charges and supporting documentation
Wholesale DSL Monthly End User port tariffs Residential	Retail minus	Costing data - wholesale cost greater than retail costs Benchmarking undertaken Retail minus 30 percent applied
Wholesale DSL Monthly End User port tariffs Business	Cost based	Includes fair and reasonable WACC of 12.2 percent. Benchmarking also undertaken Retail Prices are very high
Wholesale DSL Usage tariffs	Cost based	Includes fair and reasonable WACC of 12.2 percent

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Chargeable Activity	Cost Method	Reason
Fee to establish Bitstream Service relationship	Fair and reasonable	Fair and reasonable assessment of Batelco charges and limited supporting documentation.
Bitstream Service Agreement Processing fee	Fair and reasonable	Fair and reasonable assessment of Batelco charges and supporting documentation
Bitstream Service Maintain Relationship Charge	Fair and reasonable	Fair and reasonable assessment of Batelco charges and supporting documentation
Bitstream Service Monthly End User port tariffs Residential and Business	Cost based	Includes fair and reasonable WACC of 12.2 percent Benchmarking also undertaken

Each of the charges is explained in more detail below:

(a) **PSTN Transit Service**

The Authority has been able to reconcile the network components of this charge with Batelco's 2005 Accounts. The tables below show the network charges that appear to the Authority to be fair and reasonable:

(i) **PSTN Transit Service (fixed) – FAC based**

Network charge for PSTN Transit Service (fixed) Access charge of 1.03 Fils/minute, calculated as set out in the table below:

Network Component	Charge Component	Route Factor
TX – TX	[*] Fils	1.00
TX	[*] Fils	2.00
Total Network Charge	1.03 Fils	NA

The Authority considers that to this network charge no more than 1 Fil/min could be added to represent the

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cost of interconnection-specific services (see discussion of interconnection specific charge below).

(ii) **PSTN Transit Service (mobile) – FAC based**

Network charge for PSTN Transit Service (mobile) Access charge of 1.14 Fils/minute, calculated as set out in the table below:

Network Component	Charge Component	Route Factor
TX	[*] Fils	1.00
TX – GMSC	[*] Fils	1.00
GMSC	[*] Fils	1.00
Total Network Charge	1.14 Fils	NA

The Authority considers that to this network charge no more than 1 Fil/min could be added to represent the cost of interconnection-specific services (see discussion of interconnection specific charge below).

(b) **Narrowband Dial-Up Facilities**

(i) **Internet Dial-up Terminating Access - LRAIC based**

The Authority has determined that the fixed tariff for this service which is a traffic based tariff per minute should be equal to the current rate for Batelco's PSTN Terminating Access Service as outlined in Service Description 1-3. These charges are shown below.

(A) **Single Tandem Internet Dial-up Terminating Access - LRAIC based**

Network charge for Single Tandem Internet Dial-up Terminating Access charge of 1.48 Fils/minute, calculated as set out in the table below:

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Network Component	Component Charge	Route Factor
RLU	[*] Fils	1.00
LX	[*] Fils	1.00
TX	[*] Fils	1.00
RLU-LX	[*] Fils	1.00
LX-TX	[*] Fils	1.00
Total Network Charge	1.48 Fils	N/A

(B) **Double Tandem Internet Dial-up Terminating Access - LRAIC based**

Network charge for Double Tandem Internet Dial-up Terminating Access of 2.09 Fils/min, calculated as shown in the table below:

Network Component	Component Charge	Route Factor
RLU	[*] Fils	1.00
LX	[*] Fils	1.00
TX	[*] Fils	2.00
RLU-LX	[*] Fils	1.00
LX-TX	[*] Fils	2.00
Total Network Charge	2.09 Fils	N/A

In an email to the Authority from Batelco dated 1 February 2007 Batelco state "In respect of the weighting between Single and Double Tandem for PSTN Termination Service, Batelco's best estimate is that 2% of the traffic utilises both Transit Switches (Double Tandem) and 98% uses a Single Tandem Switch". In light of this the Authority had decided to include only an Internet Dial-up Terminating Access charge which is a calculated weighted average of single tandem and double tandem:

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Internet Dial-up Terminating Access: $(1.48 \times 0.98) + (2.09 \times 0.02) = 1.49$ Fils per minute

The Authority considers that to this network charge no more than 1 Fil/min could be added to represent the cost of interconnection-specific services (see discussion of interconnection specific charge below).

The Authority considers that the network elements used for Internet Dial-up Terminating Access do not differ from those used for PSTN Terminating Access, therefore the Authority considers that Internet Dial-up Terminating Access is an interconnection product and not an access product and should be costed on a LRAIC and not a FAC basis.

(ii) **Mobile Internet Dial-up Terminating Access (weighted average) - LRAIC Based**

The Authority has determined that the mobile tariff for this service which is a traffic based tariff per minute should be equal to the current rate for Batelco's Mobile Terminating Access Service as outlined in Service Description 1-4. These charges are shown below.

(A) **Mobile Internet Dial-up Terminating Access (prepaid) - LRAIC Based**

Network charge for Mobile Internet Dial-up Terminating Access (prepaid) of 7.73 Fils/min, calculated as shown in the table below:

Network Component	Component Charge	Route Factor
TX	[*] Fils	1.00
TX-GMSC	[*] Fils	1.00
BTS	[*] Fils	1.00
BSC	[*] Fils	1.00
MSC	[*] Fils	1.00
GMSC	[*] Fils	1.00
HLR/VLR	[*] Fils	1.00
BTS-BSC	[*] Fils	1.00

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Network Component	Component Charge	Route Factor
BSC-MSC	[*] Fils	1.00
MSC-GMSC	[*] Fils	1.00
GMSC-HLR	[*] Fils	2.00
Prepaid Platform	[*] Fils	1.00
Total Network Charge	7.73 Fils	N/A

(B) **Mobile Internet Dial-up Terminating Access (postpaid) - LRAIC Based**

Network charge for Mobile Internet Dial-up Terminating Access (postpaid) of 6.83 Fils/min, calculated as shown in the table below:

Network Component	Component Charge	Route Factor
TX	[*] Fils	1.00
TX-GMSC	[*] Fils	1.00
BTS	[*] Fils	1.00
BSC	[*] Fils	1.00
MSC	[*] Fils	1.00
GMSC	[*] Fils	1.00
HLR/VLR	[*] Fils	1.00
BTS-BSC	[*] Fils	1.00
BSC-MSC	[*] Fils	1.00
MSC-GMSC	[*] Fils	1.00
GMSC-HLR	[*] Fils	2.00
Total Network Charge	6.83 Fils	N/A

Network charge for Mobile Internet Dial-up Terminating Access (weighted average of postpaid and prepaid) of 7.56 Fils/min, calculated as shown below:

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- Mobile Terminating Access (prepaid) = 81 percent
- Mobile Terminating Access (postpaid) = 19 percent²

Weighted average final Internet Dial-up network charge:

$$(7.73 \times 0.81) + (6.83 \times 0.19) = 7.56 \text{ fils minute.}$$

The Authority considers that to this network charge no more than 1 Fil/min could be added to represent the cost of interconnection-specific services (see discussion of interconnection specific charge below).

The Authority notes that Batelco has proposed a charge of 4.81Fils/min for Mobile Internet Dial-up Terminating Access. In documentation supplied to the Authority to calculate this charge the Authority considers that Batelco have not included a number of network elements that should be used in mobile termination and as such Batelco have calculated the charge incorrectly.

The Authority considers that the network elements used for Mobile Internet Dial-up Terminating Access do not differ from those used for Mobile Terminating Access, therefore the Authority considers that Mobile Internet Dial-up Terminating Access is an interconnection product and not a access product and should be costed on a LRAIC and not a FAC basis.

(c) **Inter-Operator Transit Access Services**

The Authority has been able to reconcile the network components of this charge with Batelco's 2005 Accounts. The tables below show the network charges that appear to the Authority to be fair and reasonable:

(i) **Inter-Operator Transit Access Services (Fixed) - FAC based**

Network charge for Inter-Operator Transit Access Services (Fixed) charge of 1.03 Fils/minute, calculated as set out in the table below:

² These weightings (81% prepaid and 19% postpaid) were supplied by Batelco.

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Network Component	Component Charge	Route Factor
TX	[*] Fils	2.00
TX-TX	[*] Fils	1.00
Total Network Charge	1.03 Fils	N/A

(ii) **Inter-Operator Transit Access Services (Mobile) – FAC based**

Network charge for Inter-Operator Transit Access Services (Mobile) charge of 1.14 Fils/minute, calculated as set out in the table below:

Network Component	Component Charge	Route Factor
TX	[*] Fils	1.00
TX – GMSC	[*] Fils	1.00
GMSC	[*] Fils	1.00
Total Network Charge	1.14 Fils	N/A

To these network charges the Authority considers that no more than 1 Fil/min could be added to represent the cost of interconnection-specific services (see discussion of interconnection specific charge below).

(d) **Interconnection Specific Costs (ISC)**

In its Response Batelco state that they believe the “correct method of calculating ISC is that set out in its letter to the TRA on 8 January 2007” (page 6). The Authority considers that the calculation of the ISC has become overly complex and as a result a number of different costs and minutes have been quoted and submitted by Batelco. For simplification purposes, the Authority will deal with the ISC as set out in the January Letter.

An ISC represents of the costs of those activities carried out because of the existence of wholesale markets. It accounts for a considerable proportion of Interconnection and Access charges. The ISC of 2.6 Fils per minute proposed by Batelco

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in its letter of 8 January 2007 is calculated by dividing the cost associated with providing interconnection services by the volume of interconnection traffic only. It consists of the following costs and minutes.

Year	Document	Allocated Cost	Traffic	ISC
2005	20061123 Final BTC RIO cost stack information	BD (*)	[*]	2.60 Fils/min

The Authority has not been able to validate any of Batelco's cost figures that comprise the ISC contained in its spreadsheet *20061123 Final BTC RIO Cost Stack Information* of 23 November 2006 with Batelco's 2005 Accounts or any other costing documentation supplied by Batelco to assess the Reference Access/Interconnection Offer.

Below is a breakdown of interconnection minutes also contained in the spreadsheet *20061123 Final BTC RIO Cost Stack Information* of 23 November 2006 and proposed by Batelco to calculate the ISC.

2005	Interconnect Traffic (mins)
Fixed	[*]
Mobile postpaid	[*]
Mobile prepaid	[*]
International	[*]
Total	[*]

It appears to the Authority that recovering the ISC solely on the basis of interconnection traffic would discriminate against interconnecting operators and put them at a cost disadvantage relative to Batelco (Retail).

In 2004 Ofcom issued a Consultative Document and Statement on BT's ISC (or PPP) charges (Review of BT's product management, policy and planning (PPP) charge – Statement, 30 July 2004, at http://www.ofcom.org.uk/consult/condocs/rev_bt_pm/state

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[ment/statement.pdf](#)) which concluded that, as BT Retail did not pay ISC to BT Network, this gave it a competitive advantage over its competitors who pay ISC charges. As a result, Ofcom directed BT that ISC should be pooled with equivalent ISC costs incurred by BT Wholesale in the provision of narrowband interconnection services to BT Retail and recovered across all call minutes that are conveyed or transit on BT's network.

It appears to the Authority that the principle of non-discrimination as outlined by Ofcom should apply in the calculation of ISC for Batelco, and that the total number of interconnection, on-net and off-net minutes should apply. Therefore using the traffic categories Batelco included in the calculation of its interconnection minutes and adding on-net and off-net traffic results in the non-discriminatory total ISC minutes as shown in the table below.

2005	Interconnect Traffic (mins)	Batelco On net and off net (mins) ⁽¹⁾	Total ISC ⁽⁶⁾ minutes
Fixed	[*]	[*]	[*]
Mobile postpaid	[*]	[*]	[*]
Mobile prepaid	[*]	[*]	[*]
International	[*]	[*]	[*]
Total	[*]	[*]	[*]

Notes:

- (1) All minutes as provided by Batelco in April 2007 in response to the Strategic Review request for information;
- (2) Includes fixed to fixed traffic of [*] mins and fixed to mobile traffic of [*] mins (does not include PPCC, payphone and ISDN);
- (3) Postpaid to fixed;
- (4) Prepaid to fixed;
- (5) International to fixed; and
- (6) Does not include mobile to mobile - the Authority is still considering whether it should be included.

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The table below presents a summary of cost and traffic information that was supplied and used by the Authority to calculate the ISC charges.

Year	Allocated Cost	Traffic	ISC
2005	[*]	[*]	0.88 Fils/min

The Authority therefore considers that the charge of 1 Fil per minute, which is currently applied by Batelco to interconnection charges, is sufficient to allow Batelco to recover its ISCs.

For illustrative purposes the table below shows the different ISC charges that have been proposed by the TRA and Batelco over this, and past assessments of reference offers:

Batelco/TRA	Date	Cost (BD 1,000s)	Minutes (million)	ISC (Fils per minute)	Comment
Batelco	3 December 2006	[*]	[*]	2.2	All Batelco costs and minutes No breakdown of costs or minutes provided Minutes could not be reconciled with any previous supplied minutes.
TRA	5 April 2007	[*]	[*]	3.24	<u>Presented as an illustrative example only</u> to show that TRA could not replicate minutes provided by Batelco with any previously provided minutes
Batelco	10 May 2007	[*]	[*]	3.12	Mistake made by TRA in total cost corrected by Batelco
Batelco	8 January 2007	[*]	[*]	2.6	Batelco original and preferred methodology Minutes represent interconnect traffic only

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TRA	5 April 2007	[*]	[*]	1	Minutes represent interconnect and on/off net traffic only (mobile not included). Minutes supplied 14 March 2006, differ from minutes supplied March 2007 as part of Strategic Review
TRA	17 May 2007	[*]	[*]	1	Minutes represent interconnect and on/off net traffic only (mobile not included). Minutes used as provided by Batelco in March 2007 TRA preferred methodology
Batelco	10 May 2007	[*]	[*]	2.46	Cost equals $[*]/2$ - no justification given No breakdown of costs Minutes supplied, differ from minutes supplied March 2007 as part of Strategic Review

From the table above the Authority considers that all Batelco's references to ISC which involve total costs and total minutes are not applicable. For example, Batelco's total cost of BD [*] set out in its 3 December 2006 submission includes BD [*] in billing costs. Unless provided with evidence to the contrary, the Authority's view is that these billing costs are primarily associated with retail billing activities, and as such should be recovered from retail revenues.

ISCs are those costs directly attributable to the provision of interconnection services only for the specific business (mobile, fixed international). The main point of difference

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between Batelco and the Authority is the treatment of minutes.

The Authority accepts Batelco's definition of total minutes comprising of interconnection minutes plus off-net and on-net minutes and uses this definition in its calculation of 1 Fil/minute for the ISC.

As mentioned in the table above Batelco have provided a number of different versions of its minutes (for example fixed to fixed minutes supplied by Batelco in the letter of 14 March 2006 was [*] minutes while fixed to fixed minutes provided by Batelco in the Authority's March 2007 data request for its Strategic Review was [*] minutes) for the avoidance of doubt the Authority has used the latest available version of Batelco's minutes (March 2007).

(e) **Customer Access Tails**

Customer Access Tail (CAT) circuits are described by Batelco as "...a wholesale dedicated private leased circuit service for carrying Access Seeker's traffic within Bahrain between an End User premises and an Access Seeker's [Point of Presence]." The Authority accepts this description and also Batelco's statement in its January Letter, "[t]he pricing for this product relates to one link between a customers premises and an OLO's point of presence as defined in the service description".

Batelco proposes to offer three CAT circuits with the following bandwidths:

- 64 kbit/s;
- 256 kbit/s; and
- 2048 kbit/s.

The Authority considers that a CAT service involves two Access and CPE components, one for each end of the circuit connecting an End User's premises to an Access Seeker's Point of Presence. It also involves core transmission within Batelco's Transmission Network.

On 8 January 2007 Batelco provided a summary cost spreadsheet (20070108 Annex B CAT and LLCO.xls) in

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support of its proposed CAT circuits. The results of the underlying cost of each CAT circuit per month as provided by Batelco are presented in the table below.

Cost Element	64 kbit/s	256 kbit/s	2048 kbit/s
Core Network	BD [*]	BD [*]	BD [*]
Access Network	BD [*]	BD [*]	BD [*]
CPE	BD [*]	BD [*]	BD [*]
Total Network Cost	BD [*]	BD [*]	BD [*]
Service Provision	BD [*]	BD [*]	BD [*]
Wholesale	BD [*]	BD [*]	BD [*]
Total Cost per month	BD [*]	BD [*]	BD [*]
Proposed wholesale tariff per month	BD 116	BD 156	BD 554
Wholesale margin	(*) %	(*) %	(*) %

In assessing Batelco's CAT Service tariffs, the Authority notes that:

1. For the network components above (Core Network, Access Network and CPE), the network components directly reconcile back to the FAC 2005 Accounts. This cost includes a return on capital employed of 12.2% as determined by the Authority in the cost of capital decision of 20 November 2005.
2. There is a difference of (*)% to (*)% between the total cost of each CAT circuit and its proposed wholesale tariff.

In relation to point (1) above, the Authority considers that Batelco has not allocated the Access Network, and to a lesser degree the CPE costs across these network elements correctly for CAT circuits. In allocating these costs Batelco has used the following cost categories and allocations:

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Network Element	Batelco- Percentage of element costs allocated to CATs (2004)	Batelco- Percentage of element costs allocated to CATs (2005)	TRA- Percentage of element costs allocated to CATs (2005)
CN52 TX Connection - Local Leased	100	100	100
AN09 CPE - Data Equipment	(*)	(*)	(*)
AN02 Local Loop Copper - Data	(*)	(*)	(*)
Number of Circuits	[*]	[*]	[*]

In calculating CAT charges using the 2004 regulatory accounts Batelco allocated approximately 69 percent of the total cost for the cost category AN02 to CATs. In contrast, in 2005 approximately 86 percent of the total cost for this category was allocated for CATs by Batelco. Batelco did not provide any explanation of the reasons behind this increase. Further, the increase has been implemented despite the total number of circuits falling by [*] percent from [*] to [*] over the same period.

The Authority does not consider the increase in allocation proposed by Batelco’s methodology to be correct given the number of circuits has fallen between 2004 and 2005. As a result, for the 2005 charges the Authority has instead allocated what it regards is the correct percentage of 65.76 percent based on [*] circuits. All else being equal, this equates to a [*]% reduction from the 2004 allocation of 69 percent of costs based on [*] circuits ((*)% x (1-[*]) = 65.76%). Therefore, 65.76 percent of the total cost of cost category ANO2 has been allocated to CATs.

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A similar adjustment between 2004 and 2005 has also been made for the cost category ANO9 and hence 19.1 percent of the total cost of cost category ANO9 has been allocated to CATs $((*)\% \times (1-[*]) = 19.1\%)$. The difference between percentages allocated to costs of CATs by the Authority and Batelco can be seen in the table above.

In relation to point (2), the Authority considers that an average wholesale margin over network costs for CAT services as proposed by Batelco of (*) percent is not fair and reasonable. Each of the network cost elements above includes a cost of capital of 12.2 percent based upon the regulated rate of return for the service.

The Authority notes that in its January Letter Batelco stated that for CATs:

“Batelco has added a wholesale margin of (*)% for each 64kbits/s circuit access tail and (*)% for the other speeds. This wholesale margin is considered by Batelco not just to be characterised as an access deficit contribution because of the historic treatment of access deficit contributions in other jurisdictions, but rather as a fair and reasonable price taking into account the transitional and relatively early state of liberalisation in Bahrain (one part of which includes the existence of a substantial access deficit) which Batelco believes can be addressed for the time being by a modest wholesale margin”.

Batelco have raised these arguments in previous submissions to the Authority. The Authority refers Batelco to its Order, which responds to each of Batelco’s concerns listed above.

Specifically in its Order the Authority stated that it is still of the opinion that in determining the existence of an access deficit in markets that are not yet fully competitive a holistic approach must be undertaken by including the costs and revenues of all services sharing common costs with the PSTN.

If the existence of an access deficit is established by the Authority, the Authority notes that the methodologies

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implemented by the majority of national regulatory authorities in the recovery of such a deficit has varied from placing an access deficit contribution on an incumbent's PSTN termination and origination charges to rebalancing of line rental and/or local call tariffs. Recovery methods have not involved the implementation of charges on Access products.

In its Response, Batelco state that "TRA has dismissed Batelco's claimed margin on the CAT service after conducting a benchmarking exercise." This is not the case. In the Draft Order the Authority only provided benchmarking for illustrative purposes.

In conclusion, the Authority considers that the tariffs for CAT Services that enable Batelco to recover its costs of providing the CAT Service should include the following network and wholesale charges. Each of the network charges contain a regulated return on capital of 12.2 per cent:

Cost Element	64 kbit/s	256 kbit/s	2048 kbit/s
Core Network	BD [*]	BD [*]	BD [*]
Access Network	BD [*]	BD [*]	BD [*]
CPE	BD [*]	BD [*]	BD [*]
Service Provision	BD [*]	BD [*]	BD [*]
Wholesale	BD [*]	BD [*]	BD [*]
Total cost per month	BD 77.10	BD 103.30	BD 386.27

Based on the table above, the Authority considers that the monthly tariff for CATs are outlined in the table below. These prices are compared to the current retail prices.

Service Description	Proposed wholesale tariff per month	Current Retail Charge Per month
64 kbit/s	BD 77	BD 140
256 kbit/s	BD 103	BD 260
2048 kbit/s	BD 386	BD 940

Note (1) These figures have been rounded to the nearest BD

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The Authority notes that CATs at speeds of 128 Kbps, 512Kbps, 1024Kbps and above 2048Kbps are not included by Batelco in the Reference Access Offer. The Authority is currently willing to accept the omission of these circuit speeds as long as other licensed operators who approach Batelco to obtain circuits at these speeds are quoted wholesale prices that are comparable on a like-by-like basis to those prices already published in the Reference Access Offer. If the Authority finds that this is not the case it will be minded to included mandated prices for these circuit speeds in all upcoming reference access offers.

(f) **Local Leased Circuit for OLO**

Local Leased Circuit for OLO (LLCO) circuits are described by Batelco as "...a wholesale dedicated private leased circuit service for carrying Access Seeker's traffic within Bahrain between two of the Access Seeker's Points of Presence."

Batelco proposes to offer four LLCO circuits with the following bandwidths:

- 64 kbit/s;
- 256 kbit/s;
- 512 kbit/s; and
- 2048 kbit/s.

On 8 January 2007 Batelco provided a summary cost spreadsheet (20070108 Annex B CAT and LLCO.xls) in support of its proposed LLCO Charges. The results of the underlying cost as provided by Batelco of each LLCO per month are presented in the table below.

Cost Element	64 kbit/s	256 kbit/s	512 kbit/s	2048 kbit/s
Core Network	BD [*]	BD [*]	BD [*]	BD [*]
Access Network	BD [*]	BD [*]	BD [*]	BD [*]
CPE	BD [*]	BD [*]	BD [*]	BD [*]

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Cost Element	64 kbit/s	256 kbit/s	512 kbit/s	2048 kbit/s
Total Network Cost	BD [*]	BD [*]	BD [*]	BD [*]
Service Provision	BD [*]	BD [*]	BD [*]	BD [*]
Wholesale	BD [*]	BD [*]	BD [*]	BD [*]
Total Cost per month	BD [*]	BD [*]	BD [*]	BD [*]
Proposed charge per month	BD 112	BD150	BD196	BD 533
Wholesale margin	(*) %	(*) %	(*) %	(*)%

In assessing Batelco's LLCO Service tariffs, the Authority notes that:

1. For the network components above (Core Network, Access Network and CPE), the network components directly reconcile back to the FAC 2005 Accounts. This cost includes a return on capital employed of 12.2% as determined by the Authority in the cost of capital decision of 20 November 2005.
2. There is a difference of [*]% to [*]% between the total cost of each LLCO circuit and its proposed wholesale tariff.

In relation to point (1) above, the Authority considers that Batelco's has not allocated Access Network, and to a lesser degree CPE costs across these network elements correctly for LLCO circuits. In allocating these costs Batelco has used the following cost categories and allocations:

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Network Element	Batelco-Percentage of element costs allocated to LLCOs (2004)	Batelco-Percentage of element costs allocated to LLCOs (2005)	TRA-Percentage of element costs allocated to LLCOs (2005)
CN52 TX Connection - Local Leased	100	100	100
AN09 CPE - Data Equipment	(*)	(*)	19.1
AN02 Local Loop Copper - Data	(*)	(*)	65.76
Number of Circuits	[*]	[*]	[*]

In the calculation of LLCO charges using the 2004 regulatory accounts Batelco allocated approximately 69 percent of the total cost for the cost category AN02 to LLCOs. In contrast, in 2005 approximately 86 percent of the total cost for this category has been allocated for LLCOs by Batelco. Batelco does not provide any explanation of the reasons behind this increase. Further, the increase has been implemented despite the total number of circuits falling by [*] percent from [*] to [*] over the same period.

The Authority does not consider the increase in allocation proposed by Batelco’s methodology to be correct given the number of circuits has fallen between 2004 and 2005. As a result, for the 2005 charges the Authority has instead allocated what it regards is the correct percentage of 65.76 percent based on [*] circuits. This equates to a [*]% reduction from the 2004 allocation of 69 percent of costs based on [*] circuits ((*)% x (1-[*]) = 65.76%). Therefore, 65.76 percent of the total cost of cost category ANO2 has been allocated to LLCOs.

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A similar adjustment between 2004 and 2005 has also been made for the cost category ANO9 and hence 19.1 percent of the total cost of cost category ANO9 has been allocated to LLCOs $((*)\% \times (1-[*]) = 19.1\%)$. The difference between percentages allocated to costs of LLCOs by the Authority and Batelco can be seen in the table above.

In relation to point (2), the Authority considers that an average wholesale margin over network costs for LLCOs services as proposed by Batelco of (*) percent is not fair and reasonable. Each of the network cost elements above includes a cost of capital calculation based upon the regulated rate of return for the service.

The Authority notes that in its January Letter Batelco argues for LLCOs that the wholesale margin has been added as an access deficit contribution:

“a fair and reasonable price taking into account the transitional and relatively early state of liberalisation in Bahrain (one part of which includes the existence of a substantial access deficit) which Batelco believes can be addressed for the time being by a modest wholesale margin”.

Batelco have raised these arguments in previous submissions to the Authority. The Authority refers Batelco to its Order, which responds to each of Batelco’s concerns listed above.

Specifically in its Order the Authority stated it is still of the opinion that in determining the existence of an access deficit in markets that are not yet fully competitive a holistic approach must be undertaken by including the costs and revenues of all services sharing common costs with the PSTN.

If the existence of an access deficit is established by the Authority, the Authority notes that the methodologies implemented by the majority of national regulatory authorities in the recovery of such a deficit has varied from placing an access deficit contribution on an incumbents PSTN termination and origination charges to rebalancing of line rental and/or local call tariffs. Recovery methods have

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not involved the implementation of charges on Access products.

It therefore appears to the Authority that it would not be fair and reasonable to allow Batelco to incorporate an access deficit charge in its wholesale prices for Access Services.

The Authority considers that the tariffs for LLCO Services that enable Batelco to recover its costs of providing the LLCO Service should include the following network and wholesale charges:

Cost Element	64 kbit/s	256 kbit/s	512 kbit/s	2048 kbit/s
Core Network	BD [*]	BD [*]	BD [*]	BD [*]
Access Network	BD [*]	BD [*]	BD [*]	BD [*]
CPE	BD [*]	BD [*]	BD [*]	BD [*]
Service Provision	BD [*]	BD [*]	BD [*]	BD [*]
Wholesale	BD [*]	BD [*]	BD [*]	BD [*]
Total cost per month	BD 77.10	BD 103.30	BD 138.24	BD 386.27

As such, the Authority considers that the monthly tariffs for LLCOs are outlined in the table below.

Service Description	Proposed wholesale tariff per month
64 kbit/s	BD 77
256 kbit/s	BD 103
512 kbit/s	BD 138
2048 kbit/s	BD 386

Note (1) These figure have been rounded to the nearest BD

The Authority notes that LLCOs at speeds of 128 Kbps, 1024Kbps and greater than 2048Kbps are not included by Batelco in the Reference Access Offer. The Authority is currently willing to accept the omission of these circuit speeds as long as other licensed operators who approach

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Batelco to obtain circuits at these speeds are quoted wholesale prices that are comparable on a like-by-like basis to those prices already published in the Reference Access Offer. If the Authority finds that this is not the case it will be minded to included mandated prices for these circuit speeds in all upcoming reference access offers.

(g) **International Private Leased Circuits**

Batelco has not provided up-to-date costing information relating to these products. The Authority notes that IPLC charges have not changed in the Reference Access Offer from the 22 March 2006 reference access offer. The Authority also notes that these charges have not changed since they were approved in June 2004 (Ref: TPR 31). Therefore the Authority considers that a full and proper review of the network cost components of these services will be undertaken in the reference access offer due in the second half of 2007.

Batelco proposes charges that are retail minus 20 percent as outlined in the tables below for IPLC half circuits. The Authority has concerns with the use of retail minus methods to set wholesale charges as when prices are high (which benchmarking below shows to be the case for IPLC in Bahrain), retail minus from a high retail price will not result in prices moving towards cost. Therefore, the Authority considers that in the majority of cases a cost based approach is preferable to retail minus approach.

The Authority considers that Batelco has had sufficient opportunity to provide up-to-date cost-based prices for IPLCs. In July 2004 Batelco submitted a tariff proposal to the Authority (TPR 31) which set retail prices for IPLCs. The Authority approved this TPR in September 2004. Despite retail prices being set on 2003 costs Batelco also submitted the same set of retail prices and used retail minus 20 percent to set wholesale IPLC charges for the reference access offer of 22 March 2006. To support these charges Batelco referred the Authority to TPR31. In the Order dated July 2006 the Authority decided not to adjust IPLC charges in the reference access offer of 22 March 2006. In this Reference Access Offer Batelco has again used retail minus

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20 percent approach on retail prices set in TPR31. It again referred the Authority to TPR 31 to support these charges.

Following a number of industry wide and individual operator meetings undertaken by the Authority in the beginning of 2007, as well as letters received by the Authority over the same period, it became clear to the Authority that a major impediment to the development of telecommunications in Bahrain was international capacity pricing by Batelco, who were reported to be effectively the monopoly provider of international capacity in Bahrain.

In consideration of the above the Authority considers that it is fair and reasonable to reduce Batelco's IPLC wholesale prices by a further 10 percent reduction on Batelco's IPLC retail price, thus resulting in a total of retail minus 30 percent to retail prices. A further 10 percent reduction in prices will still result in these prices being above costs based on costs submitted in TPR 31. The Authority did consider that prices should be set at TPR 31 costs but due to the large fall in prices that would result and the fact that these costs are out of date the Authority is of the view that the retail minus 30 percent approach is appropriate at present. In choosing this retail minus 30 percent approach Batelco is hereby notified that the Authority expects that in the Reference Access Offer of the second-half of 2007 Batelco must use a cost-based approach with costs based on 2006 costs for IPLC charges. Failure to do so will result in the Authority undertaking benchmarking and setting IPLC costs with reference to available benchmarked figures. A detailed assessment of IPLC charges follows.

An analysis of Batelco proposed IPLC charges are outlined in the tables below:

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Monthly Price BD (ZONE 1)			
Speed	Open Service Period or 1 Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	696	609	522
512	1,016	889	762
1M	1,632	1,428	1,224
2M	2,232	1,953	1,674

Monthly Price BD (ZONE 2)			
Speed	Open Service Period or One Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	1,160	1,015	870
512	1,744	1,526	1,308
1M	2,696	2,359	2,191
2M	4,416	4,250	4,140

Monthly Price BD (ZONE 3)			
Speed	Open Service Period or One Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	1,768	1,547	1,326
512	2,464	2,156	1,848
1M	3,600	3,150	2,700
2M	5,640	4,935	4,230

The Authority has undertaken preliminary benchmarking of these charges in 3 countries of similar size to Bahrain. The table below shows the monthly list price for an international leased line on major routes. Prices are list prices although typically substantial term discounts and volume based discounts are available.

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1. Singapore to the following destinations (monthly charge in BD).

Speed	One-off Connect fee	UK	US (West)	Japan	Hong Kong	Australia	France	Germany
64	615	263	211	164	160	263	263	263
256	615	412	330	234	234	412	412	412
512	615	562	449	320	320	562	562	562
2M	615	749	599	425	425	749	749	749

2. Jersey to the following destinations (monthly charge in BD).

Speed	One-off Connect fee	United Kingdom	Guernsey
64	256	140	93
256	737	467	295
512	934	560	369
2M	2,458	934	518

3. Luxemburg to the following destinations (monthly charge in BD).

Speed	One-off Connect fee	Germany France Belgium	Austria Netherlands, UK, Switzerland	US/Canada
64	278	137	161	275
256	927	427	487	830
512	1,113	739	837	1,438
2M	1,113	860	2,138	3,648

Notes: For Singapore the pricing is “node to node”, i.e. excludes the costs of local access tails at each end of the line.

For Jersey the pricing is for a “half circuit”, i.e. only includes the cost to a notional midway point on the route, including the Jersey end local tail.

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For Luxembourg the pricing is for a full circuit, i.e. includes the costs of local access tails at each end of the line.

All prices are shown before any applicable discounts (e.g. volume related discounts) and in Bahraini dinars, using PPP exchange rates.

Benchmarking was undertaken in July 2006.

Comparisons between Batelco proposed IPLC half prices in Bahrain and the benchmarked countries are as follows:

Zone 1 Bahrain to GCC countries (Oman, Kuwait etc.) – No Discounts (BD per month)

Speed	Bahrain (Zone 1)	Singapore to Hong Kong	Jersey to Guernsey	Luxembourg to Belgium
256	696	234	295	427
512	1,016	320	369	739
2M	2,232	425	518	860

Zone 2 Bahrain to Kenya, Pakistan Lebanon etc. – No Discounts (BD per month)

Speed	Bahrain (Zone 2)	Singapore to Australia	Jersey to UK	Luxembourg to Switzerland
256	1,160	412	467	487
512	1,744	562	560	837
2M	4,416	749	934	2,138

Zone 3 Bahrain to UK, USA, Singapore – No Discounts (BD per month)

Speed	Bahrain (Zone 3)	Singapore to US	Luxembourg to US
256	1,768	330	830
512	2,464	449	1,438
2M	5,640	599	3,648

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It can be seen from the table above that in no instances are the wholesale charges listed by Batelco comparable with the benchmarked charges. In the most significant case, the price of a half Zone 3 IPLC to the US at BD 5,640 per month including access tails at one end of the line is 35 percent higher than a full international leased line between Luxembourg and the US at BD 3,648 per month which also includes the costs of local access tails at each end of the line.

As outlined above the Authority proposes a wholesale price based upon a retail minus 30 percent. This further reduction has been implemented because:

- (i) retail (and wholesale) prices for IPLCs have not fallen since 2004;
- (ii) it has clearly become evident to the Authority that the high international capacity prices are constraining the ability of OLOs to offer lower retail prices given that Batelco is effectively a monopoly provider of international capacity in Bahrain; and
- (iii) this reduction can be construed as short-term 'relief' for OLOs until a full costing exercise is undertaken in the second-half of 2007.

The Authority considers that the following prices should apply for IPLC half circuits in Bahrain (retail minus 30 percent).

Monthly Price BD (ZONE 1)			
Speed	Open Service Period or 1 Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	626	548	470
512	914	800	686
1M	1,469	1,285	1,102
2M	2,009	1,758	1,507

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Monthly Price BD (ZONE 2)			
Speed	Open Service Period or One Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	1,044	914	783
512	1,570	1,373	1,177
1M	2,426	2,123	1,972
2M	3,974	3,825	3,726

Monthly Price BD (ZONE 3)			
Speed	Open Service Period or One Year Fixed Service Period	2 Year Fixed Service Period	3 Year Fixed Service Period
256	1,591	1,392	1,193
512	2,218	1,940	1,663
1M	3,240	2,835	2,430
2M	5,076	4,442	3,807

Comparisons between IPLC half prices in Bahrain with retail minus 30 percent approach and the benchmarked countries are as follows:

Zone 1 Bahrain to GCC countries (Oman, Kuwait etc.) – No Discounts (BD per month)

Speed	Bahrain (Zone 1)	Singapore to Hong Kong	Jersey to Guernsey	Luxembourg to Belgium
256	626	234	295	427
512	914	320	369	739
2M	2,009	425	518	860

Zone 2 Bahrain to Kenya, Pakistan Lebanon etc. – No Discounts (BD per month)

Speed	Bahrain (Zone 2)	Singapore to Australia	Jersey to UK	Luxembourg to Switzerland
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256	1,044	412	467	487
512	1,570	562	560	837
2M	3,974	749	934	2,138

Zone 3 Bahrain to UK, USA, Singapore – No Discounts (BD per month)

Speed	Bahrain (Zone 3)	Singapore to US	Luxembourg to US
256	1,591	330	830
512	2,218	449	1,438
2M	5,076	599	3,648

It can be seen from the comparison above that using the retail minus 30 percent approach, ILPC for Bahrain are still far above international benchmark comparisons. Further as the tables below show, using the retail minus 30 approach Batelco's wholesale charges are still considerably above its TPR 31 2004 costs for Zones 1 and 3.

Benchmarks of TRA retail minus 30 percent and Batelco TPR31 2004 Costs are shown in the following tables.

Zone 1 Bahrain to GCC countries (Oman, Kuwait etc.)

Speed	Bahrain (Zone 1) TRA 1 year	Bahrain (Zone 1) TRA 2 Year	Bahrain (Zone 1) TRA 3 year	Bahrain (Zone 1) Batelco Costs
256	626	548	470	BD [*]
512	914	800	686	BD [*]
1M	1,469	1,285	1,102	BD [*]
2M	2,009	1,758	1,507	BD [*]

Zone 2 Bahrain to Kenya, Pakistan Lebanon etc

Speed	Bahrain (Zone 2) TRA 1 year	Bahrain (Zone 2) TRA 2 Year	Bahrain (Zone 2) TRA 3 year	Bahrain (Zone 2) Batelco Costs
256	1,044	914	783	BD [*]
512	1,570	1,373	1,177	BD [*]

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1M	2,426	2,123	1,972	BD [*]
2M	3,974	3,825	3,726	BD [*]

Zone 3 Bahrain to UK, USA, Singapore

Speed	Bahrain (Zone 3) TRA 1 year	Bahrain (Zone 3) TRA 2 Year	Bahrain (Zone 3) TRA 3 year	Bahrain (Zone 3) Batelco Costs
256	1,591	1,392	1,193	BD [*]
512	2,218	1,940	1,663	BD [*]
1M	3,240	2,835	2,430	BD [*]
2M	5,076	4,442	3,807	BD [*]

For Zone 2, a retail minus 30 percent approach results in charges for some contract discounts being below TPR 31 costs. However, from the TPR 31 costs the Authority notes that they include 'retail costs' at BD BD [*] per circuit per year (or BD [*] per month) and which the Authority considers is, in the absence of explanation by Batelco, likely to be the retail cost of selling IPLCs to businesses and thus should not be included in the calculation of wholesale costs. The Authority considers that Zone 2 costs as proposed by Batelco and based on TPR 31 are the **maximum** likely cost of IPLCs and are very likely to be much higher than when compared to current-day costs. Consequently the Authority considers that its proposed Zone 2 charges, which are marginally below Batelco's TPR 31 costs using the retail minus 30 percent approach, should stand until a full and detailed costing exercise is undertaken in the near future.

Finally, Batelco does not provide a full range of IPLCs. In particular it does not include IPLCs at 64 Kbp/s and 128kbp/s. The Authority is currently willing to accept the omission of these circuit speeds as long as other licensed operators who approach Batelco to obtain circuits at these (or other) speeds are quoted wholesale prices that are comparable on a like-by-like basis to those prices already published in the Reference Access Offer. If the Authority finds that this is not the case it will be minded to include

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mandated prices for these circuit speeds in all upcoming Reference Access Offers.

(h) **Wholesale DSL Service**

Wholesale DSL services are described by Batelco as "...a service which enables the Access Seeker to resell to End Users the Access Provider's high speed internet access services...Under the Wholesale DSL service the internet access, network infrastructure platform, billing information, service provisioning and support are provided to the Access Seeker by Batelco and the Access Seeker markets and bills the Wholesale DSL services to the end user".

In the Reference Access Offer, Batelco proposes to offer 13 Wholesale DSL products. These wholesale packages are described in the table below.

Package/ Product	Capacity (GB)	Actual Wholesale cost / Month (BD)	Proposed Wholesale Charge/ Month (BD)	Current Retail Charge/ Month (BD)	Proposed Wholesale above actual cost (%)	Retail mark-up above proposed wholesale (%)
256 kbit/s Residential Broadband	2	BD [*]	9	10	BD [*]	10
512 kbit/s Residential Broadband	8	BD [*]	26	25	BD [*]	-4
1 Mbit/s Residential Broadband	15	BD [*]	34	40	BD [*]	15
2 Mbit/s Residential Broadband	20	BD [*]	51	60	BD [*]	15
256 kbit/s Business Broadband	2.5	BD [*]	34	40	BD [*]	15
256 kbit/s Business Broadband	5	BD [*]	68	80	BD [*]	15

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Package/ Product	Capacity (GB)	Actual Wholesale cost / Month (BD)	Proposed Wholesale Charge/ Month (BD)	Current Retail Charge/ Month (BD)	Proposed Wholesale above actual cost (%)	Retail mark-up above proposed wholesale (%)
512 kbit/s Business Broadband	10	BD [*]	85	100	BD [*]	15
1 Mbit/s Business Broadband	15	BD [*]	128	150	BD [*]	15
2 Mbit/s Business Broadband	20	BD [*]	170	200	BD [*]	15
256 kbit/s Business Broadband	Flat	BD [*]	119	140	BD [*]	15
512 kbit/s Business Broadband	Flat	BD [*]	170	200	BD [*]	15
1 Mbit/s Business Broadband	Flat	BD [*]	213	250	BD [*]	15
2 Mbit/s Business Broadband	Flat	BD [*]	298	350	BD [*]	15

From the table above there are a number of conflicting issues to consider:

- (i) for all but the 256 Kbit/s and 512 Kbit/s residential packages Batelco's proposed wholesale charge is 15 per cent below the retail price;
- (ii) for the 512 Kbits/s residential package Batelco's proposed wholesale charge of BD 26 per month is **above** the current retail price of BD 25 per month. This may be because a reduced retail price of BD 25 per month from BD 30 per month was approved by the Authority on 19 October 2006 (Ref: ERU/1006/189). Applying a retail minus margin of 15 percent on the current monthly retail charge of BD 25 for this

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package would result in a wholesale charge of BD 21.25;

- (iii) for the business packages using retail minus approach results in a wholesale cost which is between (*) percent and (*) percent higher than Batelco's cost of providing this service;
- (iv) the 2 Mbit/s residential package has a threshold limit of 20GB which is 5GB below the package approved by the Authority on 19 October 2006 (Ref: ERU/1006/189) and which is currently offered Batelco in the retail market; and
- (v) Batelco offer a number of discounted packages to Education and Special Needs customers. As the table below shows, for each of these packages except the 2 Mbit/s business threshold package the proposed wholesale price is above the retail price by between 3 percent and 41 percent. This is shown in the table below.

Package/ Product	Capacity (GB)	Proposed Wholesale Charge/ Month (BD)	Educ. Retail Charge/ Month (BD)	Educ. Retail mark-up above wholesale (%)
256 kbit/s Business Broadband	2	68	40	-41%
512 kbit/s Business Broadband	10	85	60	-29%
1 Mbit/s Business Broadband	15	128	100	-22%
2 Mbit/s Business Broadband	20	170	175	3%
256 kbit/s Business Broadband	Flat	119	110	-8%

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Package/ Product	Capacity (GB)	Proposed Wholesale Charge/ Month (BD)	Educ. Retail Charge/ Month (BD)	Educ. Retail mark-up above wholesale (%)
512 kbit/s Business Broadband	Flat	170	165	-3%
1 Mbit/s Business Broadband	Flat	213	200	-6%
2 Mbit/s Business Broadband	Flat	298	275	-8%

Batelco has provided cost breakdown information for each of the packages outlined above in two separate spreadsheets “20070108 Annex F WSDSL 2005 Costs.xls” and “20070312 Updated BB 2005 Costing (with 2006 BB Pkgs)- wholesale-97% usage.xls”. The cost elements used for each of the package is shown below. All network costing elements are directly traceable to Batelco’s 2005 Accounts and include the 2005 WACC.

Costing Element
DSLAM
ATM/MPLS
INET Platform
International Links
CPE- Business
After Sale Care
Wholesale
Others

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(i) **Residential Package**

The Authority can take three approaches to deciding the wholesale charges of residential broadband packages:

(A) **Retail minus of 15 percent**

Using the retail minus approach of 15 percent as proposed by Batelco in its January Letter would result in the following residential broadband wholesale charges:

Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Retail Minus 15 % Charge/ Month (BD)
256 kbit/s Residential Broadband	2	10	8.5
512 kbit/s Residential Broadband	8	25	21.25 ⁽¹⁾
1 Mbit/s Residential Broadband	15	40	34
2 Mbit/s Residential Broadband	20	60	51

(1) Assuming Batelco proposed wholesale price in its January letter of BD 26 is a mistake and it should be based on a retail price of BD 25 and not BD 30.

The question arises as to whether a margin of 15 percent across a range of residential packages would be enough for an operator to cover their retail and marketing, customer service and billing costs as well as make a reasonable return.

As the Authority highlighted to Batelco in a letter dated 8 June 2006 (Ref:

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GDO/ERU/0606/715), for the BD10 entry level package the Authority undertook a consultation with ISPs in Bahrain in order to establish the monthly cost of ISPs providing billing, first-line technical support and customer contracts when reselling the 10BD package. The Authority received 7 replies to its consultation. From this consultation the Authority established that for the BD 10 entry level package that the average cost per customer for an ISP's own billing, technical support and customer contract costs was BD 1.77 per month.

As a simple illustration, applying the BD 1.77 to the entry level package (256 Kbps) will result (ignoring any additional revenue for over usage charges) in a wholesale charge that is above the proposed retail charge from Batelco. This can be seen in the table below. The wholesale price being below the retail price does not take into account the possibility of an OLO having to charge a lower retail price than Batelco to gain market share.

Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Retail Minus 15% Wholesale Charge plus BD 1.77 /Month (BD)
256 kbit/s Residential Broadband	5	10	10.27
512 kbit/s Residential Broadband	8	25	23.02
1 Mbit/s Residential Broadband	15	40	35.77

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Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Retail Minus 15% Wholesale Charge plus BD 1.77 /Month (BD)
2 Mbit/s Residential Broadband	20	60	52.77

Applying the monthly cost of ISPs providing billing, first-line technical support and customer contracts when reselling the BD 10 package of BD 1.77 per customer to the remaining three packages results in the total cost to an OLO providing this service to an end user as outlined in the table above.

For the four packages the addition of the BD 1.77 cost would result in an (unweighted) average retail margin of only 7.9 per cent between Batelco's proposed wholesale charges and the possible retail price an OLO who takes this service can charge. It should, also be noted that for the BD 1.77 cost the OLOs who responded to the consultation were stating an average price for providing billing, first-line technical support and customer contracts when reselling the 10BD package only. Reselling all or any of the remaining residential packages may impact on this cost level. Therefore, the addition of this cost should be used as a guide only.

(B) **Retail minus of 30 percent**

Benchmarking undertaken by another regulator within the Gulf Region and provided to the Authority indicates that for 10 European Union countries the average retail minus wholesale margin for retail ADSL pricing is 30 percent. The Authority's own benchmarking as shown in

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the table below also confirms that retail minus of 30 percent is more commonly used for ADSL than 15 percent proposed by Batelco.

Country	Access Product	Retail Product	Average Annual Retail Minus
Ireland	Connect	broadband home starter	47%
	Expand IP	broadband home plus	42%
	Swift IP	broadband home professional/ business starter	41%
	Express IP	broadband business plus	38%
	Sonic IP	broadband business enhanced	41%
Jersey	Residential - Option 1	Rapid - Option 1	40%
	Residential - Option 2	Rapid - Option 2	40%
	Residential - Option 3	Rapid - Option 3	40%
	Business - Option 1	Rapid Business - Option 1	33%
	Business - Option 2	Rapid Business - Option 2	40%
	Business - Option 3	Rapid Business - Option 3	50%
Singapore	Wholesale B-Access Asymmetric 1.5 Mbps	SingTel 1.5 Mbps Unlimited	72%

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Country	Access Product	Retail Product	Average Annual Retail Minus
	Wholesale B-Access Asymmetric 3.5 Mbps	SingTel 3.5 Mbps Unlimited	52%
	Wholesale B-Access Asymmetric ADSL2+	SingTel 25 Mbps Unlimited	57%

Notes: The margin between the list retail price (before discounts) and the wholesale price calculated using the following:

$$100\% \times (\text{Retail price} - \text{wholesale price}) / (\text{retail price})$$

The relatively high margins in Singapore are partially explained by SingTel offering considerable discounts on list prices when subscribers sign fixed term contracts.

Information was not available for the UK as the retail products corresponding to the wholesale broadband products are no longer available.

Benchmarking was undertaken in July 2006.

Given the benchmarking and the concerns with retail minus 15 percent approach outlined above, the Authority considers that retail minus 30 percent approach may therefore be a more appropriate approach than a retail minus 15 percent approach. Using the retail minus approach of 30 percent would result in the following residential broadband wholesale charges:

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Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Proposed Wholesale Charge/ Month (BD)
256 kbit/s Residential Broadband	2	10	7
512 kbit/s Residential Broadband	8	25	17.5
1 Mbit/s Residential Broadband	15	40	28
2 Mbit/s Residential Broadband	20	60	42

Using retail minus 30 percent approach would result in no wholesale charges being above retail charges even including the monthly cost of ISPs providing billing, first-line technical support and customer contracts when reselling the BD 10 package of BD 1.77. It would also give OLOs some degree of flexibility to charge prices below those proposed by Batelco in retail markets which may not be available with retail minus 15 percent charge.

(C) **Batelco calculated wholesale cost**

The third approach that the Authority can take in setting Batelco's wholesale charges is to use its actual calculated costs submitted to the Authority in its spreadsheets of 8 January 2007 and 8 February 2007 outlined above. Using these costs would result in the following residential broadband wholesale charges:

Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Actual Wholesale Charge/ Month (BD)
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Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Actual Wholesale Charge/ Month (BD)
256 kbit/s Residential Broadband	2	10	BD [*]
512 kbit/s Residential Broadband	8	25	BD [*]
1 Mbit/s Residential Broadband	15	40	BD [*]
2 Mbit/s Residential Broadband	20	60	BD [*]

While cost based charges is the Authority's preferred approach it can be seen from the table above that for three of the four packages Batelco's submitted wholesale costs (which includes a network cost depending on the speed of the package and a BD [*] wholesale operations cost for each package) results in a wholesale charge which is either **above** or very close to the retail price. Added to this the OLO who purchases the wholesale DSL product must cover their retail and marketing, customer service and billing costs. Therefore, despite cost-based pricing being the Authority's preferred methodology, the Authority considers that in this instance, it is not fair nor reasonable for residential packages to accept a methodology that uses Batelco's wholesale costs to set wholesale charges.

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(ii) **Business Package**

Again, the Authority can take three approaches to deciding the wholesale charges of business broadband packages:

(A) **Retail minus of 15 percent**

Using the retail minus approach of 15 percent as proposed by Batelco to the Authority in its January Letter would result in the following business broadband wholesale prices:

Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Proposed Wholesale Charge/ Month (BD)
256 kbit/s Business Broadband	2.5	40	34
256 kbit/s Business Broadband	5	80	68
512 kbit/s Business Broadband	10	100	85
1 Mbit/s Business Broadband	15	150	128
2 Mbit/s Business Broadband	20	200	170
256 kbit/s Business Broadband	Flat	140	119
512 kbit/s Business Broadband	Flat	200	170
1 Mbit/s Business Broadband	Flat	250	213

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Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Proposed Wholesale Charge/ Month (BD)
2 Mbit/s Business Broadband	Flat	350	298

It can be seen from the tables above that using a retail minus 15 percent approach gives proposed wholesale charges that are lower than current retail prices but the question may still arise as to whether a margin of 15 percent across a range of business packages would be enough for an operator to cover their retail and marketing, customer service and billing costs as well as make a reasonable return.

(B) **Retail minus of 30 percent**

Benchmarking undertaken by another National Regulatory Authority within the Gulf Region and provided to the Authority indicates that for 10 European Union countries the average retail minus wholesale margin for retail ADSL pricing is 30 percent. The Authority has also undertaken its own benchmarking and this is shown in the table below.

Using retail minus approach of 30 would result in the following business broadband wholesale charges:

Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Proposed Wholesale Charge/ Month (BD)
256 kbit/s Business Broadband	2.5	40	28
256 kbit/s Business Broadband	5	80	56

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Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Proposed Wholesale Charge/ Month (BD)
512 kbit/s Business Broadband	10	100	70
1 Mbit/s Business Broadband	15	150	105
2 Mbit/s Business Broadband	20	200	140
256 kbit/s Business Broadband	Flat	140	98
512 kbit/s Business Broadband	Flat	200	140
1 Mbit/s Business Broadband	Flat	250	175
2 Mbit/s Business Broadband	Flat	350	245

It can be seen from the tables above that using a retail minus 30 percent approach gives proposed wholesale charges that are lower than current retail prices and may allow an operator to enter into the business market and cover their retail and marketing, customer service and billing costs.

Having a mark-up of either 15 percent or 30 percent still, however, results in a considerable difference between Batelco's calculated wholesale costs and its proposed wholesale charges for business packages as can be seen in the table below:

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Package/ Product	Capacity (GB)	Actual Wholesale cost / Month (BD)	Retail - 15% Difference – Actual wholesale cost and proposed wholesale charge (BD)	Retail - 30% Difference – Actual wholesale cost and proposed wholesale charge (BD)
256 kbit/s Business Broadband	2.5	BD [*]	BD [*]	BD [*]
256 kbit/s Business Broadband	5	BD [*]	BD [*]	BD [*]
512 kbit/s Business Broadband	10	BD [*]	BD [*]	BD [*]
1 Mbit/s Business Broadband	15	BD [*]	BD [*]	BD [*]
2 Mbit/s Business Broadband	20	BD [*]	BD [*]	BD [*]
256 kbit/s Business Broadband	Flat	BD [*]	BD [*]	BD [*]
512 kbit/s Business Broadband	Flat	BD [*]	BD [*]	BD [*]
1 Mbit/s Business Broadband	Flat	BD [*]	BD [*]	BD [*]
2 Mbit/s Business Broadband	Flat	BD [*]	BD [*]	BD [*]

The table above shows that using retail minus of 15 percent Batelco's proposed wholesale charges would be between BD [*] and BD [*] **higher** than the their cost of providing the wholesale service. Using retail minus of 30 percent Batelco's proposed wholesale charges would still be

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between BD [*] and BD [*] **higher** than their cost of providing the wholesale service.

While the Authority has yet to undertake a comprehensive retail benchmarking study of retail broadband prices for Batelco's business or residential packages it may not be wrong to consider that a retail price of BD 350 per month for a 2 Mbit/s flat rate package would not compare favourably with similar broadband packages in best practice countries such as the UK or the United States. Preliminary and high-level benchmarking undertaken by the Authority, as outlined in the table below, shows that as close as possible on a like-by-like basis for the countries UK, Jordan, Ireland, Malta and Saudi Arabia, the monthly retail rental charge (converted to BD) is below the retail charges currently offered by Batelco.

ISP	Speed	Rental BD/month	Closest comparable Batelco package	Batelco rental BD/month
BT Option 1	8 MBits	BD 38.97	2Mb flat rate - Business	BD 350
BT Option 2	8 MBits	BD 25.97	2Mb flat rate - Business	BD 350
Jordan Telecom	256 KBits	BD 6.17	256 Kb flat rate - Business	BD 140
Jordan Telecom	512 KBits	BD 6.79	512 kb flat rate - Business	BD 200
Jordan Telecom	1 MBits	BD 7.41	1Mb flat rate - Business	BD 250
Maltacom	1 MBits	BD 8.58	1Mb flat rate - Business	BD 250

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ISP	Speed	Rental BD/ month	Closest comparable Batelco package	Batelco rental BD/ month
Maltacom	4 Mbits	BD 63.77	2Mb flat rate - Business	BD 350
Maltacom	4 Mbits	BD 79.71	2Mb flat rate - Business	BD 350
STC	256 Kbits	BD 21.21	256 Kb flat rate - Business	BD 140
STC	512 Kbits	BD 34.85	512 kb flat rate - Business	BD 200
eircom	3 Mbits	BD 23.76	2Mb flat rate - Business	BD 350
eircom	4 Mbits	BD 52.68	2Mb flat rate - Business	BD 350
eircom	6 Mbits	BD 100.40	2Mb flat rate - Business	BD 350

Source: Various Websites

Notes:

- (1) BT, Jordan Telecom, Eircom and Maltacom are all taken from business website of operator. Saudi Telecom (STC) does not differentiate between residential and business broadband. All charges include Value Added Tax or sales tax where applicable.
- (2) Packages may differ in the number of email addresses provided or the presence of customer premise equipment (CPE) provided by the operator.
- (3) Connection charges applicable to individual packages have been ignored.
- (4) All packages can be considered as being 'flat-rate.'

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Further, the Authority has undertaken some simple benchmarking of retail residential and business packages (1Mb and 2Mb) in the Arab region. All data are from operators websites and contains the following notes:

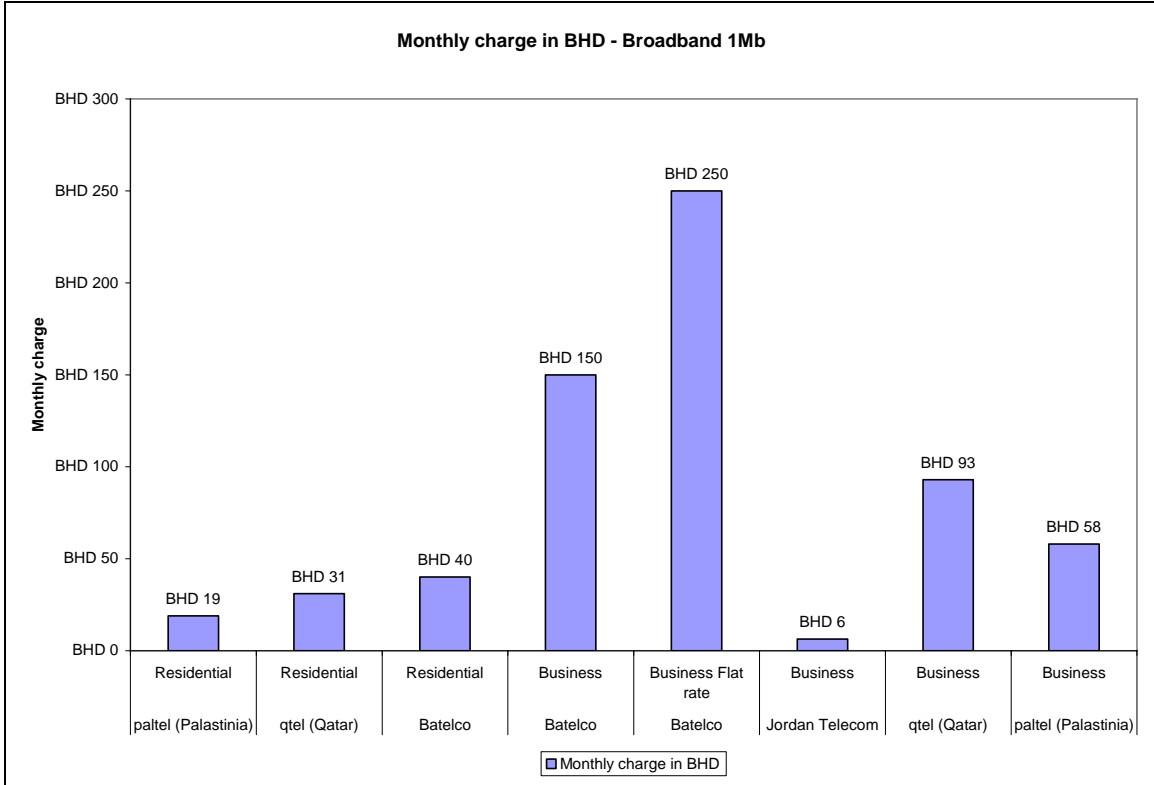
1. Qatar packages are unlimited download;
2. Jordan packages are unlimited download;
3. Bahrain packages are unlimited for business and threshold for residential;
4. Palestine packages – it is unclear if they are flat rate or threshold.

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Comparison of Batelco 1Mbit/s internet package prices with other selected Arab countries:

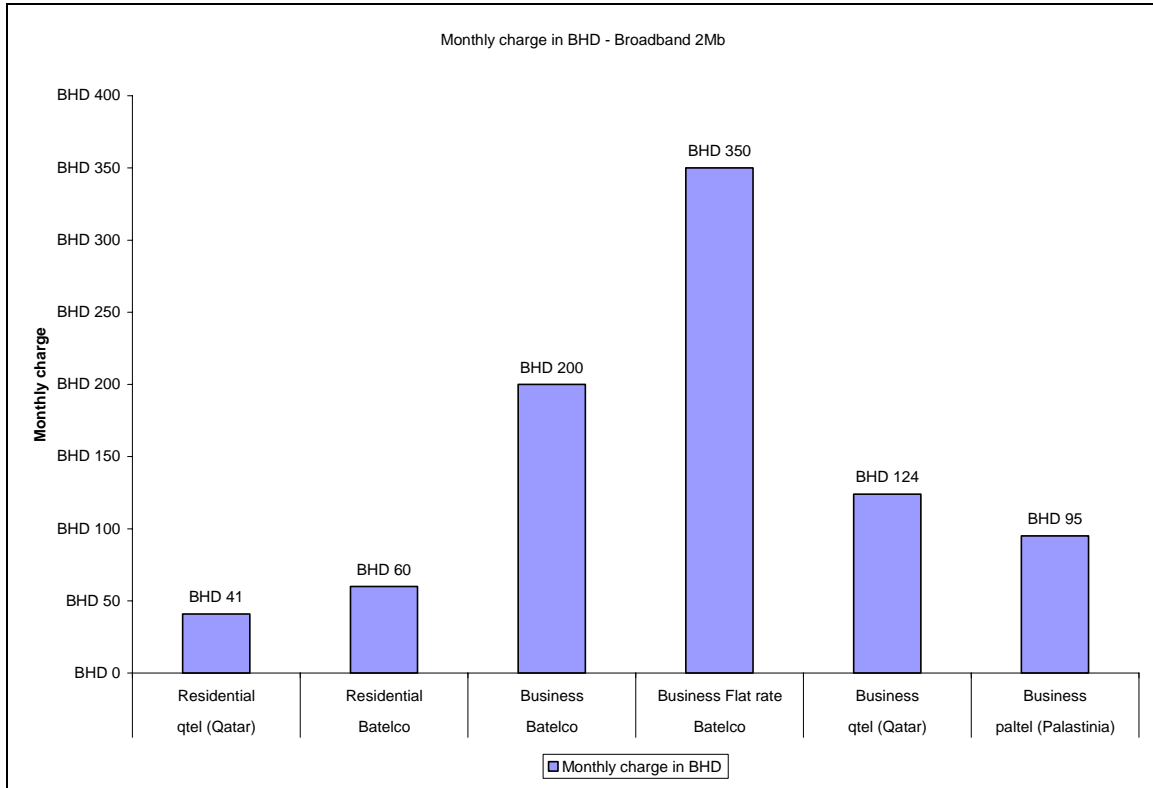


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Comparison of Batelco 2 Mbit/s internet package prices with other selected Arab countries.



Therefore, the Authority considers that limiting the wholesale charge to either a 15 percent or a 30 percent wholesale margin may constrain the ability for retail prices to fall closer to cost as a result of operators purchasing the wholesale service an entering into the retail market in competition with Batelco.

Further, limiting the wholesale charge to either a 15 percent or a 30 percent wholesale margin would result in wholesale charges which are **above** the retail prices Batelco charges on its educational and special needs packages. This can be seen in the table below.

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Package/ Product	Capacity (GB)	Educ. Retail Charge/ Month (BD)	15% Proposed Wholesale Charge/ Month (BD)	30% Proposed Wholesale Charge/ Month (BD)
256 kbit/s Business Broadband	5	40	68	56
512 kbit/s Business Broadband	10	60	85	70
1 Mbit/s Business Broadband	15	100	128	105
2 Mbit/s Business Broadband	20	175	170	140
256 kbit/s Business Broadband	Flat	110	119	98
512 kbit/s Business Broadband	Flat	165	170	140
1 Mbit/s Business Broadband	Flat	200	213	175
2 Mbit/s Business Broadband	Flat	275	298	245

(C) **Batelco calculated wholesale cost**

The third approach that the Authority can take in setting Batelco's wholesale charges for business packages is to use its calculated costs submitted to the Authority in its spreadsheets of 8 January and 8 February outlined above. Using these costs would result in the following business broadband wholesale charges:

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Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Wholesale cost / Month (BD)	Difference Retail- Wholesale
256 kbit/s Business Broadband	2.5	40	BD [*]	BD [*]
256 kbit/s Business Broadband	5	80	BD [*]	BD [*]
512 kbit/s Business Broadband	10	100	BD [*]	BD [*]
1 Mbit/s Business Broadband	15	150	BD [*]	BD [*]
2 Mbit/s Business Broadband	20	200	BD [*]	BD [*]
256 kbit/s Business Broadband	Flat	140	BD [*]	BD [*]
512 kbit/s Business Broadband	Flat	200	BD [*]	BD [*]
1 Mbit/s Business Broadband	Flat	250	BD [*]	BD [*]
2 Mbit/s Business Broadband	Flat	350	BD [*]	BD [*]

From the table above it can be seen that for all of Batelco's packages Batelco's submitted wholesale costs which include a network cost depending on the speed of the package and a BD [*] wholesale cost per month for each package results in a wholesale charge which is **below** the retail charges by up to BD [*]. Further these wholesale costs would be below the retail price

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for the educational and retail packages as can be seen in the table below:

Package/ Product	Capacity (GB)	Retail Charge/ Month (BD)	Education Retail Charge/ Month (BD)	Wholesale cost/ Month (BD)
256 kbit/s Business Broadband	2.5	40	NA	BD [*]
256 kbit/s Business Broadband	5	80	40	BD [*]
512 kbit/s Business Broadband	10	100	60	BD [*]
1 Mbit/s Business Broadband	15	150	100	BD [*]
2 Mbit/s Business Broadband	20	200	175	BD [*]
256 kbit/s Business Broadband	Flat	140	110	BD [*]
512 kbit/s Business Broadband	Flat	200	165	BD [*]
1 Mbit/s Business Broadband	Flat	250	200	BD [*]
2 Mbit/s Business Broadband	Flat	350	275	BD [*]

(iii) Wholesale DSL – pricing approaches

In deciding what approach to take to pricing wholesale DSL services the following must be taken into consideration:

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(A) Retail minus 15 percent approach

For both business and residential packages retail minus of 15 per cent may not allow enough flexibility for retail prices to fall to more competitive levels.

For residential packages there may be evidence to suggest that an OLO who takes these services may not be able to cover all their costs and still price competitively against Batelco in the retail market, particularly in relation to the 256 Kbps entry level package.

For business packages the proposed wholesale charge of the packages will be up to **BD [*] greater** than Batelco's cost of providing the packages. These costs already include a return on capital employed of 12.2 percent.

For business packages the proposed wholesale charge will be **higher** than the retail rate for educational and special needs packages.

(B) Retail minus 30 percent approach

For the simple resell of ADSL services, benchmarking studies have found that the average retail minus is 30 percent.

For business packages the proposed wholesale charge of the packages will be up to **BD [*] greater** than Batelco's cost of providing the packages.

For business packages the proposed wholesale charge will be **higher** than the retail charge for educational and special needs packages.

(C) Cost based approach

For residential packages Batelco's proposed wholesale charges are **higher** than current retail charges for 1 of the 4 packages and close to retail prices for another two.

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For business packages the charge for the package will be up to BD [*] less than Batelco's current retail charge which given the simple benchmarking of retail may allow considerable flexibility to reduce retail prices closer to cost through competition.

For business packages the wholesale rate will be **lower** than the retail rate for educational and special needs packages.

Based on costing information provided by Batelco and unchanged by the Authority, it is clear from the above analysis that the cost based approach cannot be considered for the residential packages and the retail minus approaches of either 15 percent or 30 percent cannot be considered for the business packages. Therefore in relation to the business packages the Authority proposes to use a cost based approach.

Despite the Authority's stated concerns with the use of retail minus methods to set wholesale charges and that in the majority of cases a cost based approach is preferable to a retail minus approach, in this instance it is clear that because in one of the four cases Batelco's wholesale costs are above the retail charges and for 2 of the remaining 3 residential packages Batelco's wholesale costs would not be enough to allow an operator to resell the product in the retail market and cover its own costs, unlike for the business packages, a cost-based approach is not possible. Therefore, for the residential packages the only two remaining options are Batelco's proposed retail minus 15 percent approach or an alternative retail minus 30 percent approach. The Authority considers that the retail minus 30 approaches should be adopted for the following reasons:

- (A) the Authority has been provided with benchmarking that indicates the average ADSL charge for 10 European operators is 30 percent below the retail charge for the resell of

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broadband product. This had been confirmed by the Authority's own benchmarking;

- (B) retail minus 15 percent approach may not allow an operator to enter into the business market and cover their retail and marketing, customer service and billing etc. costs; and
- (C) the requirement for Batelco to withdraw those retail packages that they are currently providing below cost and replace them with retail packages that are above cost would the Authority considers be detrimental to the development of internet services in Bahrain and may lead to many consumers not having access to the internet.

Conclusion:

- (A) Residential packages wholesale charges are set at retail minus 30 percent.
- (B) Business packages wholesale charges are set at costs, including a return on capital employed, submitted by Batelco.

This results in the following set of wholesale charges for DSL services:

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Package/ Product	Capacity (GB)	TRA Proposed Wholesale Charge/ Month (BD)	Retail Charge/ Month (BD)
256 kbit/s Residential Broadband	2	7	10
512 kbit/s Residential Broadband	8	18	25
1 Mbit/s Residential Broadband	15	28	40
2 Mbit/s Residential Broadband	20	42	60
256 kbit/s Business Broadband	2.5	19	40
256 kbit/s Business Broadband	5	31	80
512 kbit/s Business Broadband	10	44	100
1 Mbit/s Business Broadband	15	58	150
2 Mbit/s Business Broadband	20	77	200
256 kbit/s Business Broadband	Flat	46	140
512 kbit/s Business Broadband	Flat	56	200
1 Mbit/s Business Broadband	Flat	82	250
2 Mbit/s Business Broadband	Flat	99	350

Note (1) Charges have been rounded up to the nearest BD.

(iv) **Over threshold usage charge**

Batelco has provided cost information on the additional cost incurred per MB above the threshold

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level. The cost of this is calculated by Batelco to be [*] Fils per MB. However, Batelco propose to charge broadband DSL operators 6.5 Fils per MB above the threshold. Batelco does not explain why the tariff per MB above the threshold should be 6.5 Fils/MB but the underlying cost is [*] Fils/MB. The Authority proposes a charge of 2.09 Fils/MB as shown in the table below.

Usage Cost	Cost/Usage
INET platform cost	BD [*]
International uplinks cost	BD [*]
Total Cost	BD [*]
Total Usage	[*]
Above threshold cost	2.09 Fils/MB

(v) **Agreement Processing Fee and Establishment Fee**

Supporting Documentation was supplied by Batelco in support of two other Wholesale DSL tariffs. These are described below:

- (A) an agreement processing fee of BD 1,903; and
- (B) an establishment fee of BD 12,500.

Based on an assessment of supporting documentation the Authority considers that the agreement processing fee is fair and reasonable. The agreement processing fee has risen from that proposed in the previous reference offer dated 12 July 2006 due mainly to increased labour costs. Based on an assessment of supporting documentation the Authority considers that the establishment fee is not fair and reasonable. This is discussed below.

With respect to the establishment fee, the Authority approved a charge of BD 5,000 in the July Order. In scrutinizing this charge the Authority accepts that Batelco's charge-out rates for each of its grades of staff has risen between July 2006 and December 2006. Therefore the Authority accepts Batelco's cost of BD [*]

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for “Internal” and “Configuration” costs as outlined in the spreadsheet “20070108 Annex F WSDSL 2005 Costs.xls”. However, currently in the Kingdom of Bahrain there are over 17 licensed ISPs. The Authority still considers therefore that it would not be unreasonable that 5 ISPs, as it proposed in the July Order, would take up a wholesale DSL service from Batelco and not 4 as proposed by Batelco.

With the total number of ISPs to which the establishment fee will apply being 5, the Authority considers that an establishment fee per ISP of BD 5,216 (BD [*/5]) should apply for Batelco to recover the establishment costs.

At the time of issuing the Draft Order the Authority stated that if “Batelco wish, the Authority may consider arguments put forward by Batelco as to why the Wholesale DSL product, although remaining as an access service in the Reference Access Offer should have a price structure that is ‘available on request’”.

The Authority went further to say “in deciding whether or not to make Wholesale DSL charges available on request the Authority must be sure that alternative access methods exist. As a service description and applicable charges for a local loop unbundled product is not yet available in the Reference Access Offer, the Authority considers that a fully functioning Bitstream product with charges set on a fair and reasonable basis must be in place and agreed between Batelco and the Authority before the Authority would consider setting charges as available on request for the wholesale DSL product”.

In its Response Batelco did not put any arguments forward to the Authority to consider whether Wholesale DSL charges should or should not be available on request. Also the Authority has concerns with the Bitstream Service which are discussed below, particularly in relation to residential port charges. Finally, since issuing the Draft Order it has come to the attention of the Authority that one OLO had taken

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the Wholesale DSL product from Batelco. Therefore, at this early development of wholesale internet access (DSL and Bitstream) in Bahrain, the Authority considers that it may not be the appropriate time to make charges for the wholesale DSL product available on request. The Authority will monitor developments in this context going forward.

(i) **Bitstream Access Services**

The Authority considers that Bitstream product refers to an access service which enables the Access Seeker to provide high speed services to its End Users via a digital pathway across the Access Provider's network. The digital pathway consists of one or more ADSL Links between End User premises and one or more Aggregation Links.

Bitstream is a wholesale product that consists of the provision of transmission capacity in such a way as to allow new entrants to offer their own services to their customers as long as they hold a relevant license. Batelco may also provide transmission services to an Access Seeker to carry traffic to a 'higher' level in the network hierarchy. Such transmission services (for example, LLCO) are discussed elsewhere in this Order.

In Batelco's Reference Access Offer Batelco proposed 4 Residential and 4 Business Bitstream products. These wholesale products are presented in the table below.

Package/Product	Residential Price/ Month (BD)	Business Price/ Month (BD)
256 kbps	23.1	25.2
512 kbps	25.8	30.3
1 MBps	31.2	40.6
2 MBps	42.2	61.0

On 8 January 2007, at the request of the Authority, Batelco provided cost breakdown information for each of the packages outlined above in a spreadsheet "20070108 Annex

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G Bitstream Costs.xls”. This cost information is shown below.

Costing Element	Res 256 Kbps (BD per month)	Res 512 kbps (BD per month)	Res 1MB (BD per month)	Res 2 MB (BD per month)
Access Cost	BD [*]	BD [*]	BD [*]	BD [*]
DSLAM	BD [*]	BD [*]	BD [*]	BD [*]
Core Transmission	BD [*]	BD [*]	BD [*]	BD [*]
IP Link	BD [*]	BD [*]	BD [*]	BD [*]
Fibre Cable	BD [*]	BD [*]	BD [*]	BD [*]
Total Network Cost	BD [*]	BD [*]	BD [*]	BD [*]
After Sale Care	BD [*]	BD [*]	BD [*]	BD [*]
Wholesale	BD [*]	BD [*]	BD [*]	BD [*]
Others	BD [*]	BD [*]	BD [*]	BD [*]
Total Wholesale Cost	BD [*]	BD [*]	BD [*]	BD [*]
Fixed Monthly Cost	BD [*]	BD [*]	BD [*]	BD [*]
Proposed Charge	(*)	(*)	(*)	(*)

Note: Contention Ratio 1:15

Costing Element	Bus 256 Kbps (BD per month)	Bus 512 kbps (BD per month)	Bus 1MB (BD per month)	Bus 2 MB (BD per month)
Access Cost	BD [*]	BD [*]	BD [*]	BD [*]
DSLAM	BD [*]	BD [*]	BD [*]	BD [*]
Core Transmission	BD [*]	BD [*]	BD [*]	BD [*]
IP Link	BD [*]	BD [*]	BD [*]	BD [*]
Fiber Cable	BD [*]	BD [*]	BD [*]	BD [*]
Total Network Cost	BD [*]	BD [*]	BD [*]	BD [*]
After Sale Care	BD [*]	BD [*]	BD [*]	BD [*]
Wholesale	BD [*]	BD [*]	BD [*]	BD [*]
Others	BD [*]	BD [*]	BD [*]	BD [*]

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Costing Element	Bus 256 Kbps (BD per month)	Bus 512 kbps (BD per month)	Bus 1MB (BD per month)	Bus 2 MB (BD per month)
Total Wholesale Cost	BD [*]	BD [*]	BD [*]	BD [*]
Fixed Monthly Cost	BD [*]	BD [*]	BD [*]	BD [*]
Proposed Charge	(*)	(*)	(*)	(*)

Note: Contention Ratio 1:8

The Authority notes that from the costing information supplied on 8 January 2007, the Authority has been able to reconcile the network component core transmission with the 2005 Accounts. This network element includes the 2005 WACC of 12.2 percent.

(i) **Access Costs**

Batelco included an "Access Cost" element of:

- BD [*] for residential Bitstream; and
- BD [*] for business Bitstream.

The justification provided by Batelco was the loss of voice and internet revenue that shares the local copper loop.

The Authority did not think this was correct and proposed to allocate access costs based on the Bitstream product taking only the high bandwidth portion of a customer's line and not the customer's entire line i.e. customers will still be able to make and importantly receive Batelco calls using the lower bandwidth portion of the line. There are a number of ways to allocate costs ranging from bandwidth used to allocation of subscribers (internet as a proportion of total line). The Authority considered that the most appropriate and transparent way to allocate access costs to the local loop was to use Retail Internet Revenue as a percentage of Total Retail Revenue (all data is taken from the 2005 Accounts). This resulted in an Access Cost charge of:

- BD 1.4 per port per month for residential; and

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- BD 1.2 per port per month for business

On 17 April Batelco sent an alternative model to the Authority for its consideration that calculated access costs of.

- BD [*] per port per month for residential; and
- BD [*] per port per month for business

The main characteristics of this model were an addressable market of (*), (*) percent loss of voice revenue and use of profits for each service and not revenues.

Based on a total addressable market above Batelco could potentially recover BD (*) million annually from internet services alone:

$$(((BD [*] + BD [*]) / (*)) \times (*)) \times 12 = BD (*)$$

The Authority used Batelco's model as a base and changed a number of assumptions as outlined in the table below:

Batelco Assumption	TRA Assumption
Batelco use a Mobile-to-Fixed call profit figure of BD [*], which is half of the actual figure of BD [*].	Use the actual Fixed-to-Mobile figure of BD [*].
Batelco use a total profits figure of BD [*].	Profits from 2005 Regulatory Accounts of BD [*].
Batelco use an Internet Services profit figure of BD [*].	Profit from 2005 Regulatory Accounts of BD [*].
Batelco assumes that profit from all leased lines and data services should be included.	Assumed that 50% of leased line and data services may be lost to Bitstream OLOs.
Batelco assumes an addressable market of (*) Broadband, Leased Line and Data customers.	TRA assumes an addressable market of 193,520 potential customers (Number of fixed subscribers as at 31 December 2005). Spreadsheet simply takes (*).
Batelco assume less than BD (*) line rental for residential and BD	Full Residential Line Rental of BD 1.160 per month and 2.160 per

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(*) for business.	month used.
Batelco assumes (*)% of originating voice traffic (and hence profit) will be lost Bitstream operators.	TRA originally assumed no voice revenues will be lost. Spreadsheet simply (*).

Incorporating these assumptions the Authority calculated an Access cost of:

- BD 4.22 per port per month for residential; and
- BD 3.22 per port per month for business

Based on a total addressable market of (*) Batelco could potentially recover BD (*) million annually from internet services alone:

(*) = (*)

(ii) **DSLAM Costs**

For the DSLAM, the network element cost is BD [*] per month (traceable back to the 2005 audited regulatory accounts and includes a 12.2 percent cost of capital).

In their Response to the Authority Batelco proposed that (*) percent of DSLAM costs should be allocated to port rental charges and not (*) percent of DSLAM costs as is the current case. Batelco argue for this increase as a consequence of a proposed loss of (*) percent of voice revenue. This results in an increase of BD [*] per month on the DSLAM charge of BD [*] making the new charge BD [*] per month. This could potentially increase Batelco's wholesale revenues a further BD 2 million annually. (*).

Batelco claim this increase because they are currently implementing the rollout of NGN equipment to replace its existing separate platform circuit switched network. In particular, Batelco is replacing its separate broadband (DSLAM) and voice (RLU/CLU) platforms with Multi-Service Access Nodes (MSANs). An MSAN connects a customer's telephone line to the core

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network and is able to provide telephony and broadband, such as DSL, from a single platform.

However, MSANs do not appear in Batelco's 2005 Accounts. Instead, an old network architecture of DSLAMs, RLUs and PSTN Line Cards is used. In replacing its DSLAMs with MSANs, Batelco calculated that [*]% of recorded DSLAM costs should be allocated to broadband with the other [*]% being allocated to voice.

Batelco argues that with the introduction of Bitstream at a wholesale level, internet users will now use their Bitstream provider for voice services. As a result, customers will no longer use Batelco to make (or receive) calls. Therefore, the entire cost of DSLAMs should be allocated to broadband.

The Authority considers that Batelco's scenario is possible, though highly unlikely in the short run after the commercial launch of Bitstream. First, a customer is not obliged to take voice services from the Bitstream OLO. They would only do so if such services were cheaper than similar services provided by Batelco. Second, many subscribers use Calling Cards to make international calls. Such subscribers can continue to do so even if they become a Bitstream customer. Finally, in order for the Bitstream operator to provide originating and terminating voice calls would require a separate telephone number. Calls made from/to this number would bypass Batelco's RLU/CLUs. But calls made from/to the subscriber's old Batelco number would continue to route through Batelco's RLU/CLUs. In the absence of Number Portability, Business subscribers are certainly likely to retain their Batelco line in order to receive incoming calls, since it is a low cost for them to do so (i.e. they are liable for the line rental and do not pay to receive calls).

In summary, the Authority considers that it is not the case that every Bitstream subscriber will discontinue to use Batelco to make/receive voice calls. It is a possibility, but would require the subscriber to

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effectively change her/his telephone number. In the absence of Number Portability, this will involve a substantial switching cost. Therefore, to allocate both a higher DSLAM cost **and an** Access Network cost to the Bitstream product would increase port charges by up (*) percent (512Kbps residential port charge for example, would increase from BD [*]per month to BD [*] per month), on the assumption that Batelco will lose (*) percent of voice revenue. The Authority considers this to be excessive and would result in port charges, especially for residential ports being uncompetitive when compared with current internet retail prices in Bahrain (this is discussed in detail later).

Therefore, the Authority considers that the correct DSLAM charge that should apply is BD [*] per month, where this is directly reconcilable with the 2005 Accounts and includes the 2005 WACC.

In approving the BD [*] DSLAM charge as a component of port rental charges in 2007 the Authority notes that Batelco have used costs from the 2005 Regulated Accounts and broadband subscriber numbers of (*) as at December 2005, However as at December 2006 when the Reference Access Offer was submitted, the number of broadband subscribers was [*]. Therefore the true unit cost of a DSLAM in 2007 would be lower than that proposed by Batelco because (i) there exist some economies of scale and/or (ii) underlying equipment costs have fallen.

The Authority considers that there is a need to move to a more 'forward-looking' methodology of assessing Batelco's costs.

(iii) **Non-Network Costs**

For non-network costs Batelco did supply supporting documentation relating to:

- Aftersale Care;
- Wholesale; and

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- Others.

These costs were placed on each port.

Based on this supporting documentation The Authority considered that the charges as proposed by Batelco were:

1. Excessive - Batelco proposed to charge a wholesale cost to the OLO of BD [*] per month. If, for example, an operator took **only** 500 Bitstream ports (customers) from Batelco, based on Batelco's time allocations it will be required to provide 31.25 man-days ((500 ports x 30 mins)/60 minutes)/8 hours) of support per month for the 500 ports. This equates to Batelco 1 staff working **full time each month** to support the 500 ports. In all likelihood an ISP would not take Batelco's Bitstream service to become an ISP to only 500 customers. If we use a more realistic target of 5,000, this will result in 14 Batelco staff (((5,000 x 30 mins)/60 mins)/8hours)/22 work days per month) working full-time to support the 5,000 ports.
2. Duplicative - A number of tasks involved in Aftersales Care, Wholesale and Others were also included in Batelco's BD 870 per month 'maintaining relationship' charge. This charge constituted 7.7 man-days per month (61.5 hours/22 days per month) of wholesale time allocated to each of the OLOs who take up the Bitstream services. Examples of the duplication of tasks is shown below:

Non-Network Costs	Maintain Relationship Cost
Wholesale account manager.	Wholesale account manager
Sales support/complaints	Sales support/complaints and fault handling
Credit control & Collection	Invoice receiving and checking/collection
Customer relations	Supplier relationship
Bill processing	IAA Billing System

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Non-Network Costs	Maintain Relationship Cost
Inet Helpdesk	Technical Manager

3. Overlapped with other Bitstream charges listed below:

- (a) processing of the original contract;
- (b) port connection;
- (c) rejections reversals and withdrawals of Bitstream orders;
- (d) speed changes;
- (e) port cessations;
- (f) suspensions of a Bitstream service; or
- (g) call outs of a technician at an access seekers request.

Based on the above and based additional supporting documentation provided by Batelco for the Maintaining Relationship Fee on 2 May 2007 the Authority considers that non-network costs should consist of:

1. A Maintaining Relationship Fee of BD 1,076 per month. This is fully described in the table below.

Role	Activities	Av. Estimated Hrs per Activity/month/OLO
Product Manager	Ensuring daily workflow for (Provision, Fault, Billing....etc) are correct and running smoothly	1
Grade: Specialists (SP)	Development and enhancement of workflows of the product	1
	Responsible for planning and budgeting	3
	Supplier relationships and cost control	2
	Sales support	1
	Support and interact with legal and regulatory department	2
	Customer meeting/calls/emails	3
		13
Technical Manager	Complaints & fault handling	8

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Grade: Specialists (SP)	Ensuring the customer meeting forecasts (internal meeting)	2
	Ensuring the network meet the OLO forecast (internal meeting)	5
	Technical meeting with the customer on regular basis	6
		21
Account Manager	Regular meetings/visits	4
Grade: Specialists (SP)	Material issues management	9
	Invoice reviewing and checking	2
	follow-up pending requested orders	3.3
	Escalating point for faults	0
	Answering and Follow up calls/emails	10
	Collection	1
		29.3
Total hours		63.3
Total Cost per OLO		1076.1

2. A Premium Rate INET help desk service at a rate of BD 0.250 per minute. This service will be the first point of contact between the OLO and Batelco for reporting and logging of faults. In particular, the INET service will be available 24 hours a day, 7 days a week and responsible for:

- Front-line support and service assurance;
- Assisting the OLO to satisfy and investigate any end-user complaints;
- Trouble shooting the faults and monitor the customer line on the iManager (monitoring Software) or Alcatel Work Station (AWS) and will raise the faults through the CRM to the concerned department in Batelco; and
- Logging customer calls in Batelco's Ticketing System for historical records and follow ups.

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(iv) **Wholesale Margin**

Finally, Batelco have included a wholesale margin of (*) percent on total network and wholesale costs. In its January Letter Batelco make the following statement in relation to the inclusion of the wholesale margin or (*) per cent on Bitstream port rental charges:

“This wholesale margin is considered by Batelco not just to be characterised as an access deficit contribution because of the historic treatment of access deficit contributions in other jurisdictions, but rather as a fair and reasonable price taking into account the transitional and relatively early state of liberalisation in Bahrain (one part of which includes the existence of a substantial access deficit) which Batelco believes can be addressed for the time being by a modest wholesale margin which at the same time allows the TRA to promote effective and fair competition. Batelco considers the wholesale margin to be fair and reasonable in this Reference Access Offer because:

- (a) a substantial access deficit currently exists where line rentals do not cover the cost of installing, providing and maintaining the “last mile” of Batelco’s fixed access network. A short submission on the access deficit (based on 2004 unaudited regulatory accounts) was submitted by Batelco on 30 April 2006 as part of the previous Reference Access Offer evaluation exercise. An updated access deficit calculation is attached at Annex C. These figures are, like the cost information, based on 2005 audited regulatory accounts and show that the current under-recovery of the access deficit represents BD [*]. Even if the whole of the surplus for previous Reference Interconnect and Reference Access Offers sales above network cost was combined, the total surplus

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is significantly less than [*]% of the total access deficit for 2005. Batelco is not anticipating any improvement in the situation during 2007. Whether or not any excess is labelled as an access deficit component or as a wholesale margin does of course depend on agreement between Batelco and TRA as to the appropriateness of the method of recovery;

- (b) subscribers and users may be protected in the interim from a full recovery of the access deficit through line rentals (or a similar retail charge) by a contribution made by other licensed operators to overall costs which other licensed operators would not otherwise pay;
- (c) a “fair and reasonable” wholesale margin is permitted in order to reward investment incentives for Batelco, in order for Batelco to remain competitive in Bahrain whilst at the same time fulfilling statutory and other public obligations to the Government and people of Bahrain as the incumbent national carrier. The principal cost area for Batelco is as a universal service provider;
- (d) Batelco’s business as a whole during 2005 had an EBITDA of [*]%; the wholesale margins sought in this RAO are by comparison fair and reasonable; and
- (e) section 57(e) of the Telecommunications Law and more particularly, the Access Regulation allows access products to be priced on a “fair and reasonable” basis by the TRA. Taking the TRA statutory powers and duties in account, the principle still allows the TRA to approve access prices which, bearing in mind the size and scope of the Bahrain economy, strike a fair and reasonable balance between rewarding investment incentives at the same time as protecting consumers and promoting

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fair and effective competition. Batelco feels the TRA's past approach and interpretation of the access pricing principles as being overly rigid and prescriptive in focussing solely upon cost and not upon a balanced and pragmatic "workaround" solution which still meets minimum legal requirements."

Batelco have raised these arguments in previous submissions concerning Reference Access Offer(s). The Authority refers Batelco to its Order of July 2006, which responds to each of Batelco's concerns listed above.

(v) Final Charges

Therefore the Authority considers that the following port rental charges should apply for Bitstream Access:

Costing Element	Res 256 Kbps (BD per month)	Res 512 kbps (BD per month)	Res 1MB (BD per month)	Res 2 MB (BD per month)
Access Cost	BD [*]	BD [*]	BD [*]	BD [*]
DSLAM	BD [*]	BD [*]	BD [*]	BD [*]
Core Transmission	BD [*]	BD [*]	BD [*]	BD [*]
IP Link	BD [*]	BD [*]	BD [*]	BD [*]
Fibre Cable	BD [*]	BD [*]	BD [*]	BD [*]
Total Network Cost	10.11	12.13	16.17	24.25
Fixed Port Cost	10.11	12.13	16.17	24.25

Notes: (1) All costs except IP Link and Fibre Cable are reconcilable to the 2005 audited Accounts and contain a cost of capital of 12.2 percent.

(2) In order to provide an internet service to customers an OLO who takes this port rental product must also provide it own INET services, international links, customer support and retail and billing.

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Costing Element	Bus 256 Kbps (BD per month)	Bus 512 kbps (BD per month)	Bus 1MB (BD per month)	Bus 2 MB (BD per month)
Access Cost	BD [*]	BD [*]	BD [*]	BD [*]
DSLAM	BD [*]	BD [*]	BD [*]	BD [*]
Core Transmission	BD [*]	BD [*]	BD [*]	BD [*]
IP Link	BD [*]	BD [*]	BD [*]	BD [*]
Fibre Cable	BD [*]	BD [*]	BD [*]	BD [*]
Total Network Cost	10.88	14.67	22.24	37.39
Fixed Port Cost	10.88	14.67	22.24	37.39

Notes: (1) All costs except IP Link and Fibre Cable are reconcilable to the 2005 audited Accounts and contain a cost of capital of 12.2 percent.

(2) In order to provide an internet service to customers an OLO who takes this port rental product must also provide its own INET services, international links, customer support and retail and billing.

Following the issue in of the Draft Order a number of meetings relating the Bitstream product took place. On 26 April 2007, Batelco and the Authority met to discuss the Access Network cost and the non-network costs. Out of this meeting a set of port charges were discussed as shown below:

Costing Element	256 Kbps (BD per month)	512 kbps (BD per month)	1MB (BD per month)	2 MB (BD per month)
Res Fixed Port Cost	(*)	(*)	(*)	(*)
Bus Fixed Port Cost	(*)	(*)	(*)	(*)

The discussion was based on an increase in the Access Network cost on business port charges from BD 3.22 determined by the Authority to BD [*] proposed by Batelco. The Authority asked Batelco to provide written justification for such an increase and upon receiving this would consider the higher charge.

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On 29 of April 2007, the Authority sent an email to Batelco outlining the charges as discussed in the meeting of 26 April.

On 3 May 2007 Batelco replied to the Authority's email of 29 April 2007 with higher port charges. These port charges are shown below.

Costing Element	256 Kbps (BD per month)	512 kbps (BD per month)	1MB (BD per month)	2 MB (BD per month)
Res Fixed Port Cost	(*)	(*)	(*)	(*)
Bus Fixed Port Cost	(*)	(*)	(*)	(*)

Some further email correspondence was entered into between the parties after that date however at no stage after the meeting of 26 April 2007 did Batelco provide the Authority with a justification for an increase in the Access Network cost on business port charges from BD 3.22 determined by the Authority to BD [*] proposed by Batelco and to the extent that it provided any justification it only did so when requesting the TRA to consider further increases to costs that did not reflect the discussion between the parties on 26 April 2007 and which in any event the Authority considered were not adequately justified.

(vi) **One-Off Bitstream Fees:**

Supporting Documentation was supplied by Batelco on 8 January 2007 in support of two other Bitstream tariffs. These are described below:

- (A) an establishment fee of BD 78,177 payable once only; and
- (B) an agreement processing fee of BD 1,449 payable once only.

Based on an assessment of supporting documentation the Authority considers that the agreement processing fee charge is fair and reasonable. The agreement processing fee has risen from that proposed in the

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previous reference access offer dated 12 July 2006, due mainly to increased labour costs.

The Authority's analysis of the Establishment fee is examined in detail below.

(vii) **Establishment Fee**

Batelco's Establishment fee of BD 78,177 is a once payable charge by each Licensed Operator to support Batelco's proposed product development cost of the Bitstream service. The fee of BD 78,177 equates to BD [*] divided by the number of OLOs Batelco estimates will take the product up over the life of the Bitstream service. Batelco estimates this to be (*) OLOs. The total cost of the establishment fee is outlined below.

Product Development	Department	GRADE	Duration in Months	Monthly Rate (BD)	Total Cost (BD)
Internal Development cost	Wholesale Dept	SP	5.9	BD [*]	BD [*]
		SP	3.9	BD [*]	BD [*]
	Transmission	G1	9	BD [*]	BD [*]
	Costing	SP	2	BD [*]	BD [*]
		SM	1	BD [*]	BD [*]
	Regulatory Affairs	MM	3	BD [*]	BD [*]
IT Systems Configuration Cost	CRM	SP	10	BD [*]	BD [*]
		G1	8.3	BD [*]	BD [*]
	TBMS	SP	8.3	BD [*]	BD [*]
		G1	6.7	BD [*]	BD [*]
	EWD	SP	11.1	BD [*]	BD [*]
		G1	8.3	BD [*]	BD [*]
	SAP	SP	8.3	BD [*]	BD [*]
		G1	8.3	BD [*]	BD [*]
	EAI	SP	8.3	BD [*]	BD [*]

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Product Development	Department	GRADE	Duration in Months	Monthly Rate (BD)	Total Cost (BD)
		G1	7.8	BD [*]	BD [*]
	User acceptance test	SP	1.7	BD [*]	BD [*]
		G1	1.7	BD [*]	BD [*]
	Finalization by concerned IT manager	MM	6.7	BD [*]	BD [*]
	Outsource and Support	SP	8.9	BD [*]	BD [*]
		G1	6.7	BD [*]	BD [*]
				BD [*]	BD [*]
External Consultation Cost	External Consultant	Consultant	2.5	BD [*]	BD [*]
		Total Months	138.4	[*]	[*]

Batelco’s Establishment fee represents either fixed asset, IT or capitalised labour costs. As such, the Authority is potentially concerned that they could be treated by Batelco as capital costs and appear on Batelco’s Balance Sheet and as such be included in the allocation of costs in Batelco’s regulatory accounts. This is an issue the Authority considers it will need to pursue further because if these cost also appear in the regulatory accounts there is potential that Batelco could be over recovering them by also charging a high establishment fee.

The Authority also considers that as can be seen from the table above that the total time to develop the Bitstream product of 138.4 man months or nearly 12 man years seems excessive. While the Authority considers that each of the individual process such as regulatory affairs, wholesale departments and IT system configuration costs etc. could constitute legitimate costs in the development of the product, it would question the time in months that each task has taken Batelco. A number of the tasks shown in the

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table above and their potential authenticity are discussed in details below:

(A) IT Systems Configuration Costs

For the IT Systems Configuration Costs Batelco has previously supplied documentation to the Authority in the form of supplier price quotes in support of Carrier Pre-Selection (CPS) charges. In particular, in a fax dated 1 February 2005 (ref CL/481/05) Batelco states:

“(*).”

The Authority considers that there should be close parallels in terms of CRM and TBMS costs for Bitstream as for CPS. Based on this and based on documentation supplied by Batelco dated 25 December 2006 *“IT Systems and Applications Development Cost Estimates”* the Authority has the following comments:

Batelco provide the following high level flow chart as support for the IT System configuration costs.

Description	Affected System(s)
(*)	
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	
(*)	[*]
(*)	[*]

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(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	
(*)	[*]
(*)	[*]
(*)	[*]
(*)	
(*)	[*]
(*)	[*]
(*)	
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]
(*)	[*]

In providing a new wholesale service, Batelco will be required to modify its existing management systems (CRM, billing, etc). The Authority considers that these costs can be very expensive as they involve creating computer screens (ordering, changes, cancellation, etc). The Authority considers that modification of these systems is usually undertaken by external IT consultants. The Authority considers that it would be unusual for an operator to have this

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modification capability in-house. Batelco seem to suggest that it will modify its systems in-house.

However, given that Batelco's proposed daily cost is BD [*] versus an Oracle daily cost of BD (*), the Authority may be minded to accept Batelco's cost estimates, especially as there may be existing economies of scope between the requirement to modify the Bitstream configuration costs and the and CPS configuration costs. The Authority however does have considerable concerns with the length of time Batelco state it will require to Configuration their IT Systems of 111 man months or 9.25 man years.

(B) Wholesale Department

Batelco provides limited supporting documentation for the internal development costs associated with the wholesale department. This list tasked as applicable to the Wholesale Department are outlined below:

Designing the Product
Develop Processes (Provision, Fault billing...etc)
Defining & Reconciling Costing element with FS
Drafting Service Description
Site visit to [*] for gain experience
Pricing the product
Helping the Product manager in the product design
Drafting diagrams and consulting with Network & IT
Helping in drafting processes

The Authority does not consider this list to be very detailed nor adequate with the likelihood that it took less than one hour to compile to support a charge of BD [*] and a time period of Batelco 9.8 man months. This represents [*]

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percent of total set-up costs. The Authority notes that in CPS charges Batelco had a Wholesale Department cost of BD [*] which represented [*] percent of total set up costs. The Authority Considers these charges should be BD [*] ([*] percent x BD [*]).

(C) Costing Department

Batelco estimates that the Costing Department would take three months to assist in developing Bitstream processes. It provides a limited description of specific activities:

Understanding service by having different meetings with products owners
Reviewing related documents: products descriptions and reference access offer
Agreeing with network engineers on element will be used for the service
working on a costing model and document assumptions
Agreeing on costing assumptions with network engineers and products owners
Presenting costing information to management and regulators
Drafting response to regulator for various type of questions raised regarding costing

Batelco estimates a 3 man months cost of BD [*] for the costing department. Whilst the Authority considers that these may be bone fide activities, it is not clear to the Authority why costing this product would take three months given that the majority of costs are taken straight from the regulatory accounts. The Authority would expect considerable economies of scope between Bitstream and CPS and notes that no Costing Department costs were included by Batelco in calculating its CPS system set-up costs.

(D) Regulatory Affairs Department

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Batelco estimates that the Regulatory Affairs Department would also take three months to assist in developing Bitstream processes. It provides a limited description of specific activities:

Project co-ordination for bitstream with Batelco and between Batelco business units and TRA
Advice as regards Batelco's legal obligations to provide bitstream
Advice and consultation responses as regards wholesale markets draft and final determination in part concerning possible provision of bitstream
Correspondence with TRA concerning bitstream
Internal meetings concerning options to comply with wholesale dominance determination, formulation of the bitstream terms and conditions and pricing of the bitstream product
Research, consideration and advice in relation to comparable bitstream regulatory requirements and bitstream products in other jurisdictions
Comments and drafting bitstream service description for successive RAO publications.

Batelco estimates a 3 man months cost of BD [*]. Again, while these may be bone fide activities, it is not clear to the Authority as to why they would take three months for the Regulatory Affairs Department to develop the Bitstream product. The Authority notes that no Regulatory Affairs Department costs were included by Batelco in calculating its CPS system set-up costs.

(E) **Transmission Cost**

No description has been given to the Authority of what exactly a 'Transmission Cost' constitutes. Batelco have provided a list of somewhat unclear processes as supporting documentation to the Transmission costs. These are outlined below.

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Drafting the primarily solution
Develop internal Processes (Provision, Fault, maintenanceetc)
Agreeing on costing assumptions with Finance and products owners
Helping in drafting Service Description
defining the network element with Finance and product owners
Helping the Product manager in the product design
Drafting diagrams and consulting with supplier
Network final design agreement
Helping in drafting processes
Network managers signature collections
Core network configurations/ MPLS/GigE interface
Configuring the LPAM profiles
Presenting the solution to the management, product manager and regulators
Site visit
Final tuning of the network
Consultant with venders
Bitstream scenarios research
Testing the capabilities of Batelco networks
Sites survey to all Batelco sites
Sites preparation to Bitstream

The list provided above is all Batelco consider is required to support a 9 man months at a cost of BD [*]. Again the Authority considers that this may be a legitimate charge but is concerned with the 9 man month timeframe of this charge.

(F) External Consultant Cost

Batelco estimates it would require the services of an external consultant for two and a half months in order to complete the set-up process

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at a total cost of BD [*] ((* days at BD [*] per day). Batelco has supporting documentation in the form of a 1 page letter from the consultant to explain his functions in helping to set up the Bitstream product. These have been listed by the Consultant as being:

- External work on the initial development of bitstream proposals in 2004;
- External work on various technical bitstream issues between 2004 and 2006;
- External studies on forms of bitstream implemented in other jurisdictions as part of Batelco's recent product development;
- External discussion papers on key issues for Batelco consideration;
- External work still to be done to conclude the product; and
- Engagement by us of economists to assist Batelco in some of the above.

No additional explanations are given as to the nature of these services performed (time taken, materials used reports prepared etc.) While the Authority does not argue that Batelco may have retained the services of an external consultant to provide it with advice the Authority must consider what portion of these costs should Batelco be allowed to recover from OLOs who purchase the Bitstream product?

Apart from this, the Authority considers that Batelco should have a more detailed breakdown of what functions the consultant undertook. One simple (although not exhaustive) piece of supporting document could be a pre-signed and dated contract between the consultant and Batelco stating that the consultant's daily rate is BD [*].

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(G) Conclusion on Establishment Charge

The Authority has undertaken very preliminary benchmarking in an attempt to benchmark Batelco's Establishment of Relationship fee with establishment fees levied for Bitstream services in other jurisdiction. While finding information has proven difficult, the Authority has thus far determined the one-off establishment fee for Bitstream services offered by the incumbent operator Eircom in Ireland at BD 4,028 (reference: Eircom-ADSL Bitstream Service Price List), the incumbent operator Tele Danmark in Denmark BD 5,409 (Reference: Tele Danmark) and the incumbent operator in Estonia BD 570 (Reference: Estonian Telecommunications Regulatory Authority). The Authority has also found that no establishment of relationship fee is charged in Hungary (Reference: Hungarian Telecommunications Regulatory Authority).

While the Authority realizes that a sample of four does not constitute a relevant benchmark, it is nevertheless a good starting point to consider that Batelco's Establishment of Relationship Fee at greater than BD 50,000 may be too excessively high due to Batelco allocating the incorrect amount of time to the development of this product.

As the Authority does not consider Batelco's Establishment of Relationship fee to be fair and reasonable it must determine one that it considers to be a fair and reasonable alternative. The Authority does not currently have enough benchmarking information to set a fee based on benchmarks. Alternatively it does not consider that the supporting documentation provided by Batelco is enough for the Authority to base its own estimates on what a fair and reasonable establishment fee should be. While as the Authority has stated above it believes that the

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cost categories put forward by Batelco could constitute legitimate cost categories that could input into calculation of the final establishment fee it does not consider that a total time taken of 12 man years as an accurate reflection of the time that should be taken to develop the Bitstream product.

In providing an alternative establishment fee the Authority considers that its estimates must be evidence based and applying an 'arbitrary' figure to counter Batelco's estimate of 12 man years would not be the correct approach. Therefore, the Authority has relied on Batelco provided estimates and costs that were included in the Carrier Pre-selection one-off General Set-up Charge of BD 10,000 to determine a fair and reasonable one-off Establishment of Relationship Fee of BD 50,701 per Licensed Operator.

The set-up charges the Authority is satisfied as being fair and reasonable to include in the establishment of a relationship charge are contained in the table below:

Product Development		Department	Total Cost (BD)
Internal Development cost	(*) percent of total set up costs – as allocated in CPS	Wholesale Department	[*]
	Accepted Batelco Estimate	Transmission	[*]
IT Systems Configuration Cost	Accepted Batelco Estimate	CRM	[*]
	Accepted Batelco Estimate	TBMS	[*]
	Accepted Batelco Estimate	EWD	[*]

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Product Development		Department	Total Cost (BD)
	Accepted Batelco Estimate	SAP	[*]
	Accepted Batelco Estimate	EAI	[*]
	Accepted Batelco Estimate	UAT	[*]
	Accepted Batelco Estimate	Finalization	[*]
	Accepted Batelco Estimate	Outsource	[*]
	Accepted Batelco Estimate	Total	[*]

For reasons described above the Authority does not accept the inclusion of the following cost categories:

- (a) Costing Department;
- (b) Regulatory Affairs Department; and
- (c) External Consultant.

In calculating the charge above, the Authority considers that a similar planning horizon of 5 years for set-up, operating and capital costs of CPS should also apply to the Bitstream service. Therefore, the Authority considers that Batelco's proposal of spreading the set-up costs over 4 Licensed Operators in a 5-year period is conservative, given that there are over 17 licensed ISPs in Bahrain. The Authority considers that at least one (1) Licensed Operator will purchase the Bitstream service from Batelco for each of the 5 years; giving a total of 5 Licensed Operators over the 5-year planning horizon (this includes Batelco retail).

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In setting the fair and reasonable charge at BD 50,701 per Licensed Operator the Authority still considers that this charge may be too high and may be a barrier for other operators taking up Batelco's Bitstream service. However, the Authority also wants to allow Batelco to recover all its efficient and legitimate costs of defining and setting up the wholesale Bitstream service. Therefore, while the Authority is prepared to allow a fair and reasonable charge of BD 50,701 per Licensed Operator for this Reference Access Offer, which is comparable to the fair and reasonable charge of BD 50,497 per Licensed Operator included in the July 2006 Order, it considers that detailed assessment will need to be undertaken to assess the correct Establishment of Relationship charge. In particular for the reference access offer of the second half of 2007 the Authority intends to undertake the following detailed investigations:

- (a) Continue the process of writing to a number of regulatory authorities to obtain the level of establishment of relationship fee for Bitstream services offered in their jurisdiction;
- (b) undertake, with the aid of consultants specializing in IT system configurations, a detailed assessment of Batelco's high level flow chart as support for the IT System configuration costs. If required ask Batelco to provide a process flow-chart for Bitstream, similar to one which was provided for the Carrier Pre-selection;
- (c) seek demonstrations from Batelco as to how the IT system has been upgraded to include billing, development etc. of a Bitstream product;
- (d) seek clarification from Batelco that none of the costs included in the calculation of the

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establishment of relationship fee are capitalized on the balance sheet and therefore form part of its Regulatory Asset Base;

- (e) ask Batelco to better illustrate the role of the Wholesales, Regulatory Affairs and Costing Departments along with demonstrations of for example, costing models used, internal reports developed and service descriptions; and
- (f) for the transmission cost estimates, obtain estimates of, for example, the time taken on site preparations and site surveys, provisioning, testing, faults finding processes development and Bitstream scenario research undertaken.