A draft Order issued by the Telecommunications Regulatory Authority setting the fair, reasonable and non-discriminatory price and non-price terms of the Wholesale Local Access Service in the Reference Offer of the Bahrain Telecommunications Company B.S.C

Draft Order on the Wholesale Local Access Service

12 July 2012
Ref: MCD/07/12/097

Public Version

Public Version (Confidential information has been replaced by [XXX])

Request for comments:
The Telecommunications Regulatory Authority invites comments on this draft Order from all interested parties. Comments should be submitted before 23 August 2012 at 4pm.

Purpose: To set the fair, reasonable and non-discriminatory price and non-price terms of the Wholesale Local Access Service in the Reference Offer of the Bahrain Telecommunications Company B.S.C.
Instructions for submitting a response

1. The Telecommunications Regulatory Authority ('the Authority') invites comments on this draft Order from all interested parties. Comments should be submitted by 23 August 2012 at 4pm.

2. Responses should be sent to the Authority preferably by email (or by fax or post) to the attention of:

   Director, Market and Competition Department
   mcd@tra.org.bh
   Telecommunications Regulatory Authority
   P.O. Box 10353, Manama, Kingdom of Bahrain
   Fax: +973 1753 2125

3. Responses should include:
   a. the name of the company/institution/association etc.;
   b. the name of the principal contact person;
   c. full contact details (physical address, telephone number, fax number and e-mail address); and
   d. in the case of responses from individual consumers, name and contact details.

4. The Authority expects respondents to provide a response to the 5 questions listed in last page of this document (see page 58). The Authority invites respondents to substantiate their responses and to follow the headings of this document in their submission.

5. In the interest of transparency, the Authority intends to make all submissions received available to the public. The Authority will evaluate a request for confidentiality in line with relevant legal provisions and the Authority’s published guidance on the treatment of confidential and non-confidential information.¹

6. Respondents are required to mark clearly any information included in their submission that is considered confidential. Where such confidential information is included, respondents are required to provide both a confidential and a non-confidential version of their submission (soft copies and not scanned copies). If a part or a whole submission is marked confidential, reasons should be provided. The Authority may publish or refrain from publishing any document or submission at its sole discretion.

7. Once the Authority has received and considered all the comments raised by respondents, the Authority intends to issue its final Order.

DRAFT ORDER

1. Pursuant to:
   a. The exercise of its powers under Article 3(c)(1), 3(c)(16), 3(c)(18), 57(b) and 57(e) of Legislative Decree No. 48 for the year 2002 promulgating the Telecommunications Law ('the Telecommunications Law'), and Articles 2, 3, 4, 5 of the Access Regulation issued on 30 April 2005 (the 'Access Regulation').
   b. The Dominance Determination in Wholesale Markets by Batelco issued on 22 January 2006;
   c. The legal basis and reasoning set out in Annex A to this Order. The Annexes forms an integral part of the Order.

2. The Telecommunications Regulatory Authority ('the Authority') hereby orders Bahrain Telecommunications Company B.S.C ('Batelco') to implement the Wholesale Local Access ('WLA') service as detailed in Annex B and reflecting the changes ordered by the Authority in Annex A of this Order.

Compliance

3. Batelco shall comply with the terms of this Order. Failure to comply with the terms of this Order may constitute a material breach of the Telecommunications Law and may consequently be subject to enforcement action pursuant to the relevant provisions of the Telecommunications Law.

Entry into force

4. This Order is effective on the date of its issuance. The WLA service commercial launch date is set to Final Order date + 5 Working Days.

5. This Order is without prejudice to any further orders, regulations and determinations that the Authority may consider necessary pursuant to its powers and duties under the Telecommunications Law.

Signed on Day Month Year

Mohammed Bubashait
General Director
Telecommunications Regulatory Authority
Manama, Kingdom of Bahrain
Annex A - Order’s legal basis and reasoning

Table of contents

Instructions for submitting a response ................................................................. 2
DRAFT ORDER ........................................................................................................ 3
Annex A - Order’s legal basis and reasoning ....................................................... 4
Table of contents .................................................................................................. 4
Acronyms and definitions ....................................................................................... 5
1 Introduction ........................................................................................................ 7
2 Background to this draft Order ......................................................................... 7
3 Legal basis .......................................................................................................... 10
   3.1 The WLA service is necessary to meet Batelco’s existing obligation to offer wholesale leased lines in its RO .................................................. 10
   3.2 The Authority’s view on Batelco’s Argument that the WLA service represents a new Access Obligation that meet the requirements of Article 3.7 of the Access Regulation .......... 14
   3.3 Batelco’s WLA Service Submission ............................................................. 20
4 Overview of the WLA service ......................................................................... 21
5 Non-price terms of the WLA service ............................................................... 23
6 Price terms of WLA service .......................................................................... 35
   6.1 Batelco’s proposal ....................................................................................... 35
   6.2 Approach taken by the Authority to set the WLA service charges .......... 36
   6.3 WLA service charges set by the Authority ............................................... 38
Annex B – WLA service description and annexures ........................................... 42
   6.4 SERVICE DESCRIPTION 2-5: WHOLESALE LOCAL ACCESS SERVICE (WLA) .42
   6.5 ANNEX 1 - CIRCUIT SPEEDS, DEFINED INTERFACES, MEDIA AND TOPOLOGY 47
   6.6 ANNEX 2 - WLA ORDER FORM .............................................................. 48
   6.7 ANNEX 3 – SLA ....................................................................................... 51
   6.8 ANNEX 4 – TECHNICAL CHARACTERISTICS ........................................ 54
   6.9 ANNEX 5 – AGGREGATION LINK TECHNICAL DIAGRAM AND SPECIFICATIONS 55
   6.10 ANNEX 6 – PROVISIONING VALIDATION TEST ................................... 56
   6.11 ANNEX 7 – WLA SERVICE DIAGRAMS ............................................ 57
List of questions .................................................................................................. 58
## Acronyms and definitions

<table>
<thead>
<tr>
<th>Acronym / term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregation link</td>
<td>Connectivity established between the OLO and a Batelco access node which is comprised of the fibre access and the CPE and excludes other transmission cost. While the Aggregation link is part of the WLA service, it can be used to aggregate low-speed CAT/LLCO and potentially other wholesale services.</td>
</tr>
<tr>
<td>CPE</td>
<td>Customer Premise Equipment (Switch or router provided by Batelco to terminate the service at the end-user location for the Local MPLS service and the WLA Service)</td>
</tr>
<tr>
<td>Ethernet Pseudowire Tagged mode</td>
<td>According to RFC 4447, Layer 2 services (such as Frame Relay, Asynchronous Transfer Mode, and Ethernet) can be &quot;emulated&quot; over an MPLS backbone by encapsulating the Layer 2 Protocol Data Units and transmitting them over &quot;pseudowires&quot;. Ethernet pseudowires emulate the essential attributes of Ethernet connectivity over a packet network (MPLS) and are defined in RFC 4448. 'Tagged Mode' signifies that service-delimiting VLAN tags are used to transport Ethernet frames over the MPLS network.</td>
</tr>
<tr>
<td>FRND</td>
<td>Fair, Reasonable and Non-Discriminatory</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communications Technologies</td>
</tr>
<tr>
<td>IETF</td>
<td>Internet Engineering Task Force is an open standards organization. The standards developed by IETF are referred to as Request For Comments (RFC).</td>
</tr>
<tr>
<td>L2</td>
<td>Layer 2</td>
</tr>
<tr>
<td>MPLS</td>
<td>Multiprotocol Label Switching, a scalable, protocol agnostic, data-carrying NGN technology.</td>
</tr>
<tr>
<td>NCT</td>
<td>Notified Control Tariff</td>
</tr>
<tr>
<td>P2A circuit</td>
<td>point-to-aggregation circuit (only applies to WLA service)</td>
</tr>
<tr>
<td>P2M configuration (also called H&amp;S configuration)</td>
<td>point-to-multipoint configuration (i.e. hub-and-spoke configuration)</td>
</tr>
<tr>
<td>P2P circuit</td>
<td>point-to-point circuit (can apply to Domestic Leased Line Service, Local MPLS service L2 P2P and CAT/LLCO)</td>
</tr>
<tr>
<td>P2P configuration</td>
<td>point-to-point configuration</td>
</tr>
<tr>
<td>PE</td>
<td>Provider Edge switch/router</td>
</tr>
<tr>
<td>QoS</td>
<td>Quality of Service</td>
</tr>
<tr>
<td>RFC</td>
<td>Request for Comments</td>
</tr>
<tr>
<td>RO</td>
<td>Reference Offer</td>
</tr>
<tr>
<td>RTD</td>
<td>Round Trip Delay</td>
</tr>
</tbody>
</table>
## Draft Order on the wholesale MPLS service

### Annex – Order Legal Basis and Reasoning

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLA</td>
<td>Service Level Agreements</td>
</tr>
<tr>
<td>T&amp;C</td>
<td>Terms and Conditions</td>
</tr>
<tr>
<td>WACC</td>
<td>Weighted Average Cost of Capital (currently set at 9.5%)</td>
</tr>
<tr>
<td>WLA service</td>
<td>Wholesale Local Access service (Aggregation link(s) and P2A circuits).</td>
</tr>
</tbody>
</table>
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

1 Introduction

6. The availability, quality, and pricing of business connectivity services at the retail and wholesale levels are critical for the economic development of the Kingdom of Bahrain. This is one area where the performance of the sector can be improved.

7. The purpose of this Order is to set the fair, reasonable and non-discriminatory terms of the Wholesale Local Access service proposed by Batelco whose design has been developed with the input and guidance of the Authority. This will support the promotion of competition and the protection of end-users in relation to services used by business and other non-residential users.

2 Background to this draft Order

8. Batelco wrote to the Authority proposing a Wholesale MPLS Service on 11 December 2010 (ref: GCL/453/10) following a meeting between Batelco and the Authority on 30 November 2010.2

9. At various occasions, Batelco has expressed the desire to speed up the review of the proposed wholesale service and retail tariffs.

10. Similarly the Authority has emphasised the imperative to introduce lower retail prices and sound SLAs, and to ensure that OLOs can avail of a wholesale product enabling competition at the retail level. To this end, the Authority has worked extensively with Batelco.

11. In its response dated 7 February 2011 (ref: MCD/02/11/009), the Authority explained in writing its position that the proposed service is a regulated service which falls within the wholesale market for access to transmission capacity. Specifically, the Authority stated:

“The Authority considers that the proposed WMPLS Service is a wholesale leased line and therefore falls under the Dominance in Wholesale Markets by Batelco issued on 22 January 2006, the relevant wholesale product market being the “wholesale market for access to transmission capacity””

12. Cognisant of the complexity of the issues involved in business connectivity services, at the retail and wholesale levels, the Authority has provided extensive guidance to Batelco with a view to facilitate the timely introduction of improved business connectivity services at the retail level and a ‘MPLS’-based service at the wholesale level. The Authority worked extensively with Batelco with a view to ensure that the design of the proposed wholesale leased line based on MPLS would enable competition at the retail level in compliance with the Retail Tariff Notification Regulation issued on 25 February 2010 (the ‘Retail Tariff Regulation’).

13. Guidance has been provided to facilitate the preparation of a Notified Control Tariff (‘NCT’) compliant with the Retail Tariff Regulation and on the definition of SLAs for MPLS as well

---

2 Email from James Ibbetson to Dr Alexandre Serot.
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

as on the design of a wholesale MPLS-based service. Such guidance was notably provided by the Authority through:

a. the meeting between Batelco and the Authority held on 30 November 2011 in which Batelco presented the high level characteristics of a potential MPLS-based wholesale product;

b. the Authority’s letter dated 7 February 2011 (ref: MCD/02/009) in which the Authority provided its preliminary position on a number of aspects of Batelco’s initial wholesale MPLS-based service proposal;

c. the five meetings between Batelco and the Authority held in the fourth quarter of 2011 during which the MPLS service’s characteristics and the MPLS costing submitted by Batelco were extensively discussed. After each meeting, the Authority provided Batelco with detailed written guidance.

14. On 11 January 2012, the Authority received “Notified Controlled Tariff 42 Local MPLS” (‘NCT 42’) from Batelco pursuant to Articles 3 and 4 of the Retail Tariff Regulation for the review of the existing tariffs of the Local MPLS service and the introduction of an equivalent wholesale service called Wholesale Local Access (‘WLA’) (Ref: GCL/13/12). The wholesale service was required by Article 3.2 of the Retail Tariff Regulation which says:

“A Notifying Operator that has been determined by the Authority to have a Dominant Position in a wholesale market(s) and is required to prepare a reference Interconnection or Access offer for such products in accordance with Article 57 of the Telecommunications Law, must, when notifying the Authority of a new Controlled Tariff for a Retail Telecommunications Service that is vertically-related to that wholesale market, provide a corresponding Wholesale Telecommunications Service in the vertically related upstream market(s) to allow other Licensed Operators to replicate the Controlled Tariff of the Notifying Operator”

15. The wording of the Retail Tariff Regulation contemplates that wholesale equivalent services are regulated and reviewed under Article 57 of the Telecommunications Law.

16. After a period of detailed and thorough review of NCT 42 by the Authority which included:

a. one clarification meeting held at the Authority’s premises on 22 January 2012;

b. two requests for information sent by the Authority to Batelco and dated 25 January 2012 and 20 February 2012;

c. one clarification conference call held on 6 March 2012; and

d. several e-mail correspondences between the Authority and Batelco,

the Authority issued the “Decision relating to Batelco’s Local MPLS services” (ref: MCD03/12/047) (‘the Decision’) on 27 March 2012 pursuant to Articles 3, 53, 57 and 58 of

---

3 On 10 July 2011, Batelco responded by letter (ref: GCL/226/11) to the Authority’s letter dated 7 February 2011 (ref: MCD/02/11/009). In its letter Batelco provided further information on its WMPLS proposal and included a service description combining the CAT, LLCO and WLA services under the WLA label. Following this letter, the Authority wrote to Batelco (email from Dr Alexandre Serot to James Ibbetson and Nadia Alawadhi dated 11 August 2011) to organise a series of meeting.

17. The Decision allowed Batelco to implement its proposed retail tariffs (with the exception of speed in excess of 200Mbit/s which failed the margin squeeze test) and set WLA terms and conditions which it deemed at the time unfair, unreasonable and discriminatory.

18. On 8 April 2012, the Authority asked Batelco for an update regarding the implementation of the Decision (MCD/04/12/053).

19. On 12 April 2012, Batelco officially responded and explained that it needed time to assess the Decision despite Batelco’s desire to implement the changes.

20. On 11 May 2012, Batelco explained that while it could accommodate the majority of the elements contained in the Decision, it had a number of outstanding concerns for which it put forward alternative proposals (GCL/196/12). The main concerns were the price of the WLA service and the gap between the retail and wholesale rates.

21. On 22 May 2012, the Authority responded to Batelco (MCD/05/075) and expressed its disappointment at Batelco’s decision not to implement the Decision (as permitted by the Retail Tariff Regulation), which concluded a lengthy process initiated on the wholesale side in November 2010. It also explained that it looked forward to receiving the new NCT mentioned by Batelco.

22. On 7 June 2012, Batelco submitted a new NCT (‘NCT46 Local MPLS’), which reflected some elements of the Decision and incorporated Batelco’s alternative proposals (including on the pricing of the WLA service) communicated to the Authority in its letter dated 11 May 2012 (GCL/196/12). The wholesale submission included in NCT 46 departs from the Decision in various respects, including on pricing, on forecasting, on the treatment of soft changes made to the services.

23. On 17 June 2012, the Authority wrote to Batelco and explained notably that it intended to issue a draft Reference Offer Order in relation to the WLA service to ensure that the service is implemented and that OLOs can avail of a service whose terms and conditions are fair, reasonable and non-discriminatory. The Authority also noted that the implementation period of NCT 42 was lapsing on 20 June 2012.

24. On 19 June 2012, Batelco sought a request for extension to implement NCT 42 of 10 working days (GCL/238/12).

25. On 20 June 2012, the Authority granted Batelco an extension to 24 June 2012 (i.e. a two working days extension).

26. On 24 June 2012, the implementation period of NCT 42 lapsed.

27. Following the receipt of the NCT 46, the Authority issued a request for further information pursuant to Article 53 of the Telecommunications Law on 20 June 2012 (ref: MCD/06/12/087).

28. In the email sent by Batelco on 26 June 2012 (ref: GCL/248/12), Batelco submitted a revised version of its wholesale submission to be taken into consideration by the Authority.

---

4 According to Batelco, the retail SLAs elements of the Decision have been implemented.

5 Email from Dr Alexandre Serot to Nadia Alawadhi.
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

as part of its assessment of NCT 46. The submission contained amendments to the WLA service description, the renewed minimum service period, wholesale forecasting and fault restoration time.

29. On 27 June 2012 (ref: GCL/250/12), Batelco provided a response to the Authority's request for information issued on 20 June 2012 (ref: MCD/06/087). The response included updated information relating to the number of wholesale circuits (CAT and LLCO), where available. However Batelco was unable to fully comply with the information request with regards to information relating to “the effective bandwidth calculation for 2011” and annual cost evolution between 2010 and 2011, and between 2011 and 2012 for relevant network elements.

3 Legal basis

3.1 The WLA service is necessary to meet Batelco's existing obligation to offer wholesale leased lines in its RO

30. The WLA service is a wholesale leased line service. The Authority considers that the WLA service proposed by Batelco does not constitute a new Access Obligation under the Access Regulation dated 30 April 2005 (the ‘Access Regulation’). Pursuant to the Dominance Determination in Wholesale Markets by Batelco dated 22 January 2006 (the ‘Dominance Determination’) and the Access Regulation, Batelco is required to include in its Reference Offer (‘RO’) wholesale leased lines services. The Authority considers that the WLA service corresponds to the natural evolution of the terms and conditions of the existing wholesale leased lines services currently offered by Batelco, namely the Customer Access Tail (‘CAT’) and Local Leased Circuit for OLO (‘LLCO’) services. Accordingly, the Authority has reviewed the WLA service proposed by Batelco and sets the fair, reasonable, and non-discriminatory terms and conditions of the WLA service in the exercise of its power under 3(c)1, 3(c)(16), 3(c)(18), 57(b), 57(e) of the Telecommunications Law and Articles 3.3, 3.4, 3.5, and 5 of the Access Regulation.

31. Two of the core duties of the Authority are the promotion competition and the protection of the interest of subscribers and users (Article 3(b) of the Telecommunications Law). Business users, including other non-commercial users (such as administrations), are a critical group of consumers who depends heavily on the availability, pricing, quality, and range of telecommunications services for their activities and the services they offer. Amongst telecommunications services, connectivity services, such as leased lines and IP-VPN, are fundamental requirements of today’s business users to integrate with supply chains and the global economy. They affect their competitiveness, their productivity, their ability to leverage the opportunities created by Information and Communications Technologies (‘ICT’), and the overall economy. Business connectivity, at the retail and wholesale level, is an area where progress has been slow and the performance of the sector has been disappointing. Accordingly this is a priority area of the Authority.

6 Email from Nadia Alawadhi to Dr Alexandre Serot.
7 Email from Nadia Alawadhi to Thomas Hain.
8 See for example, the various annual price benchmarking reports commissioned by the Authority, the latest being dated 21 August 2011.
32. To enable the Authority to promote competition and protect the interest of end-users, Article 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, access to the network and its facilities, services tariffs, access to real property, and the promotion of competition.

33. Article 3(c)(13) of the Telecommunications Law also 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.

34. In the telecommunications industry, characterised by significant fixed cost and often uneconomical duplication of infrastructure, the existence of an effective and adequately scoped access regime is paramount to enable competition in areas where feasible, typically downstream markets. The services offered at the wholesale level should be adjusted over time to ensure that they allow competition at the downstream level and reflect technological change. This is especially the case when the regulatory framework in place at the retail level is not designed to directly address issues such as excessive pricing but instead rely on access-based competition, where there is no effective infrastructure-based competition, to drives prices down to competitive level and incentivise operators to innovate and meet consumers' needs. The Retail Tariff Regulation dated 20 February 2010 has for key premise that it is the SMP operator who proposes a price change or a new tariff, not the Authority.

35. In accordance with Article 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 on 30 April 2005 the Access Regulation.

36. The Dominance Determination found Batelco dominant in a number of wholesale markets for access services, including, the wholesale market for access to transmission capacity, with one of the two relevant access inputs being wholesale leased lines. Another market identified was the wholesale market for high-bandwidth access to customer premises, with one of the two relevant access inputs being wholesale leased lines. The wholesale leased lines input correspond to Access Obligation 3.5(a) of the Access Regulation.

37. 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 and to meet the Access Obligation to provide wholesale leased lines.

38. Since March 2006, Batelco has provided in its RO submissions, which includes its Reference Access Offer that it is required to make available pursuant to Articles 3.3 and 4 of the Access Regulation, a CAT and a LLCO services. Since the issuance of the Reference Access Order dated 12 July 2006, CAT and LLCO have been offered to the industry as wholesale leased lines.

39. In the last decade, the fixed network of Batelco undertook a major transformation towards NGN. It is now a full IP-based network which makes use of the MPLS technology. In 2004,
Batelco introduced what it referred to then as “broadband MPLS based IP-VPN service” (TPR 45). The characteristics of the service have evolved since its introduction.\(^{10}\) Today, the services offered under this TPR include IP-VPN services, Ethernet services point-to-point, and Ethernet services point-to-multipoint. It includes both managed and unmanaged services. The other services offered by Batelco in the retail market for leased lines include SDH leased lines, LAN connect and some TDM legacy low-speed circuits.

40. In parallel, the CAT/LLCO services have also evolved. For instance, higher speed SDH-based CAT/LLCO services were introduced as a regulated service following the Authority Order dated 25 January 2011 in response to the increase in speed requirements at both the retail and wholesale levels. In July 2008, Batelco also started migrating the low-speed CAT/LLCO (up to 2Mbit/s) to its NGN so that CAT/LLCOs are now offered as Ethernet service.\(^{11}\)

41. However, in some important respects, the wholesale leased lines services offered by Batelco have not been sufficiently adjusted to reflect the evolution of Batelco's retail offers, of the demand at the retail level, and technological change. As a consequence, the wholesale leased lines currently offered no longer provide an appropriate building block for OLOs to effectively compete with Batelco at the retail level:

   a. Some OLOs have bought retail MPLS service from Batelco to offer services to their own retail customers. This is clearly a sign of market failure.

   b. Ethernet-based transmission services are more and more demanded by businesses in Bahrain. The absence of a wholesale MPLS service is detrimental to competition as OLOs cannot effectively compete against Batelco at the retail level.

   c. Compared to the retail MPLS, the high-speed CAT/LLCO service (i.e. circuits of speeds greater than 2 Mbit/s) does not provide the same scalability and flexibility in terms of speeds as the ‘MPLS based IP-VPN’ service does. The high-speed CAT/LLCO service is currently available for 3 different speeds: DS3 (44.736 Mbit/s), STM-1 (155.52 Mbit/s) and STM-4 (622.08 Mbit/s). The Local MPLS service (called ‘MPLS based IP-VPN’ service in Batelco’s website) is available for the following speeds: 4, 8, 10, 20, 25, 50, 100, 200, 500 and 1,000 Mbit/s.

   d. The high-speed CAT/LLCO service is an SDH-based service. The SDH technology is relatively more expensive than the Ethernet/MPLS technology. As a result, cost-based SDH-based wholesale leased line services tend to be more expensive than the Ethernet/MPLS-based services. This is further exacerbated by the lack of granularity in the gradation of SDH-based leased lines tariffs. The relative high-cost of SDH-based lease lines is one of the reason why Batelco has been gradually migrating low-speed Local Leased circuits and low-speed CAT/LLCO circuits from legacy network (combination of ASCOM/BBDN and SDH) to NGN (Ethernet over MPLS).

42. The Authority further considers that the WLA service proposed by Batelco is not intrinsically a new wholesale service for a number of reasons including:

---

\(^{10}\) See Batelco’s letter dated 5 March 2012, GCL/83/12.

\(^{11}\) The process whereby Batelco carried out this migration and the changes it made have been the subject of a Draft Article 35 Order issued 9 February 2010. The technical issues have only been recently resolved (email from Eric Dunand to Chris Evans dated 23 October 2011).
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

a. All new CAT and LLCO circuits of speed below 2 Mbit/s that are now delivered by Batelco are, from a technical standpoint, identical to the proposed WLA service. The only novelty introduced by the WLA service is the possibility to virtually aggregate several circuits (Ethernet pseudowire tagged mode) into the same port of the CPE. This represents an efficiency improvement.

b. While Batelco still supports the existing legacy TDM-based low-speed circuits, it does not install any new ones. All new low-speed retail and wholesale circuits are now being delivered by Batelco on its NGN. There are no reasons for limiting the migration from TDM to NGN (i.e. MPLS) to circuits of speeds below 2 Mbit/s. The Authority considers that such evolution should also include wholesale circuits with higher throughput (more than 2 Mbit/s).

c. At the core, the definition of the LLCO, CAT and WLA as provided by Batelco are identical: they are wholesale dedicated private leased circuit service.

i. The LLCO is “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.” (emphasis added)

ii. The CAT is “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.” (emphasis added)

iii. The WLA is “a wholesale dedicated private leased circuit service within the Kingdom of Bahrain between a Point of Presence and an End User’s premises / an OLOs premises providing guaranteed symmetrical bandwidth”

43. The Authority further notes that in the proposal attached to its letter dated 10 July 2011 (GCL226/11) Batelco proposed one unified service description for the LLCO, CAT and WLA services.

44. Overall the Authority considers that the WLA service proposed by Batelco is necessary to meet Batelco’s existing Access Obligation to offer wholesale leased lines under the Access Regulation and the Dominance Determination. The WLA service only corresponds to a natural evolution of the wholesale leased lines services which Batelco is currently mandated to offer. As such, the Authority considers that the exercise of its power under 3(c)(1), 3(c)(16), 3(c)(18), 57(b) and 57(e) of Telecommunications Law and Articles 3.3, 3.4, 3.5, and 5 are sufficient to order Batelco to introduce the WLA service in its RO.

---

12 As confirmed by Batelco in its response dated 5 March 2012 (ref: GCL 83/12) to the Authority’s Article 53 request for information dated 20 February 2012 (ref: MCD 02/12/023).

13 Batelco’s RO, Schedule 1 2-5 (LOCAL LEASED CIRCUIT FOR OLO).

14 Batelco’s RO, Schedule 1 2-6 (CUSTOMER ACCESS TAIL SERVICE).

15 See Batelco file titled 20120626 Annex A - revised WLA Service Description and Annexures sent by email from Nadia Alawadhi to Dr Alexandre Serot on 26 June 2012.
3.2 The Authority's view on Batelco's Argument that the WLA service represents a new Access Obligation that meet the requirements of Article 3.7 of the Access Regulation

45. As explained above, the Authority reafirms that it does not consider that the WLA service constitutes a new Access Obligation. Batelco has submitted a contrary position as summarized below. For the sake of completeness, the Authority has nonetheless decided to evidence why the Authority considers this position to be invalid and that, even in the event that the WLA is considered as a new Access Obligation, the WLA service meets the requirements of Article 3.7 of the Access Regulation (contrary to what has been argued by Batelco below).

46. If the WLA service is considered to constitute a new Access Obligation, Article 3.7 of the Access Regulation requires the Authority to assess whether the obligation to provide the WLA service is no more than is appropriate and necessary to address the market failure identified, namely the market power of Batelco, taking into account:

   a. the technical and economic viability of installing competing facilities, in light of the level and rate of market development;
   b. the feasibility and efficiency of providing the form of Access, particularly in light of the available capacity; and
   c. the TRA's duty to safeguard and encourage the long-term development of competition and the long-term interests of end users.

3.2.1 Batelco's position

47. Batelco submitted by email on 11 December 2010 a wholesale WPLS proposal in which Batelco said:\textsuperscript{16}

   “We note that the remedies arising from this determination (the CAT and LLCO products) were subject to the RAO Order dated 12 July 2006. Any additional obligations, such as new products and services, are subject to additional requirements that the regulated additional obligation:

   “….is no more than is appropriate and necessary to address the market failure identified by the TRA, taking into account:

   (a) the technical and economic viability of installing competing facilities, in light of the level and rate of market development;
   (b) the feasibility and efficiency of providing the form of Access, particularly in the light of the available capacity; and
   (c) the TRA’s duty to safeguard and encourage the long-term development of competition and the long-term interests of end users..”

\textsuperscript{16} 20101211 Wholesale MPLS discussion proposal.docx, submitted by email from James Ibbetson to Dr Alexandre Serot on 11 December 2010.
Draft Order on the wholesale MPLS service  
Annex – Order Legal Basis and Reasoning

Article 3.7 Access Regulation

Since:

(a) remedies already exist, being continued supply of CATs and LLCOs at narrowband and broadband speeds;

(b) there is no demonstrated market failure justifying a further remedy;

(c) competitive pressure and development is likely to have increased since 2006 when the dominance determination was published. Indeed, Batelco believes there is competitive or near prospectively competitive supply available from 2Connect, Zain, Mena, Viva, the new national network (incorporating the EWA network as managed by the BIX) and various equipment suppliers.

Batelco considers the service as part of the unified Batelco reference offer supply terms in section 3 of schedule 1 (wholesale services). Any subsequent changes by the TRA could therefore still be carried out automatically for Batelco and wholesale customers under clause 2.3 of the general terms.”

48. In its letter dated 10 July 2011 (GCL/226/11), Batelco further:

“Batelco would like to re-emphasize that the proposed WLA service as they (sic) relate to broadband MPLS circuits to be in addition to and above its required remedies arising from the Dominance in Wholesale Market Determination dated 22 January 2006 in respect of the wholesale market for access to national transmission capacity.”

49. In other words, Batelco considers that the WLA service (labelled then wholesale MPLS) is a commercial offer which is not and should not be regulated.

50. Batelco argued that the WLA service is a new Access Obligation and, as such, it could only be introduced as a regulated product in Batelco’s RO if it meets the requirements of Article 3.7 of the Access Regulation. Batelco further contends that the requirements are not met and hence that the WLA service should remain unregulated, if offered by Batelco.

51. Batelco does not challenge the introduction of the WLA service: it challenges the Authority’s view that the WLA should be a regulated service included in Batelco’s RO and hence the Authority’s ability to review and set the fair, reasonable, and non-discriminatory terms and conditions applicable to the WLA service.

3.2.2 Article 3.7 test of Access Regulation applied to the proposed WLA service

52. In this section the Authority applies the test of Article 3.7 of the Access Regulation to the WLA service and considers the various limbs of the test to reach an overall conclusion.
Market failure

53. They are many types of market failures (e.g. externalities, public goods). Market power, and its consequences for economic welfare in terms of productive, allocative and dynamic efficiency, is one of the most relevant market failures in the context of regulatory and competition policy.

54. In the 2006 Dominance Determination, the Authority identified a number of market failures, including:
   a. Batelco is dominant in the wholesale market for access to Customer Premises (High Bandwidth), with one of the two relevant inputs being wholesale leased lines; and
   b. Batelco is dominant in the wholesale market for access to transmission capacity, with one of the two relevant inputs being wholesale leased lines.

55. In the Determination of Significant Market Power in certain retail markets dated 3 June 2008 (‘SMP Determination), the Authority identified a number of market failures, including:
   a. Batelco has significant market power in the retail market for domestic leased lines.\(^\text{17}\)

56. While it has been a number of years since the publication of these two Determinations, the Authority considers that the market failures remain for a number of reasons, including:
   a. At the end of 2011 (latest market data available to the Authority), Batelco’s market share in the retail market for domestic leased line services was very substantial \((\%\)) down slightly from its 2007 level, above 90\% \((\%\))
   b. At the end of 2011, Batelco’s market share in the wholesale market was \(\%\), down slightly from its 2007 level, well above 90\% \((\%\)). The slightly lower market share of Batelco at the retail level is explained by the use, albeit on a small scale, of Batelco’s CAT service by OLOs. While some entry has occurred, it has taken place on a very limited scale, reflecting the economic and technical reality of network deployments (see below).
   c. At the end of 2011, Batelco’s market share remains very high in relation to leased lines of speed greater than 2Mbit/s \((\%\)). For speed lower than 2Mbit/s, it is \((\%\)).
   d. Batelco is the only operator in Bahrain that possesses a national-wide fixed access network infrastructure comprising of ducts, chambers, joints, cables and distribution points. Unlike OLOs, Batelco’s fixed access network enables Batelco to provide connectivity services to the great majority of existing and potential customers of leased lines and other services built on leased lines in Bahrain.
   e. The markets remain characterised by significant barriers to entry and the absence of competing infrastructure (see also paragraphs 57-62). While Batelco retail leased lines services remain highly profitable, this has not invited fixed network deployment on a large scale. It suffices to compare the current retail MPLS prices

\(^{17}\) In the present context the SMP designation of Batelco in the retail market for international leased lines is also relevant in so far as an international leased line is made of a domestic component and an international component.
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

(in place since 2004) with the fair, reasonable, and non-discriminatory WLA charges set by the Authority and the other downstream costs. The prices of other retail leased lines have also not been adjusted by Batelco since at least 2008. At the wholesale level, the Authority has during each RO review set fair, reasonable and non-discriminatory charges for wholesale leased lines at level lower, in some case substantially lower, than Batelco’s proposal.

f. The availability of wholesale leased lines has not curbed Batelco’s market power at the retail level and has not enabled OLOs to effectively compete with Batelco for a number of reasons, including those set out in paragraph 41. Further there have been issues regarding non-price aspects (lack of SLAs, speed,\textsuperscript{18} etc.). As evidenced by the continuous very high market share of Batelco at the retail level, the impact of wholesale regulation has been very limited.

The technical and economic viability of installing competing facilities, in light of the level and rate of market development

57. The objective of Article 3.7 of the Access Regulation in relation to installing competing facilities is to assess the extent to which the facilities represents an enduring economic bottleneck to which access should be given in order to promote competition.

58. Relevant competing facilities in the relevant markets would be alternative network equipment and facilities (including duct) to Batelco’s ones that enable the provision of leased lines. A leased line enables the carriage of traffic between different points. It is composed of an access part on one end, a transmission part, and another access part on the other end in the case of a point-to-point leased line.

59. Given the characteristics of those facilities, the Authority considers that the technical and economic viability of installing and deploying such competing facilities on a nationwide basis is highly unlikely in light of the level and rate of market development. In fact, building a fixed wired access and core network of a similar reach of Batelco’s existing network, would involve very substantial civil work costs and cable and other network equipment costs. The capital requirement, coupled with the sunk nature of the cost involved in deploying such an access and core network, and demand conditions make the duplication on a significant scale particularly challenging and highly unlikely on a commercial basis. The very limited deployments of fixed wired networks are evidence of the lack of economic viability of installing competing facilities on a meaningful extent.

60. In addition to sunk costs, economies of scale and scope constitute another considerable barrier to entry. Batelco benefits from significant economies of scale (or density) and economies of scope, as Batelco provides the full spectrum of telecommunications services (voice, Internet access, leased lines, VPN, etc) through its fixed network. An operator building an alternative fixed wired network for the purpose of providing leased lines would unlikely benefit from the same level of economies of scale and would have to offer the same suite of services to reach a similar level of economies of scope. This would be in addition to Batelco’s incumbency advantages.

61. The deployment of an alternative fixed wired network would be particularly time-consuming. Even with access to Batelco’s duct network, the Authority considers that the

\textsuperscript{18} E.g. Draft Article 35 Order issued 9 February 2010.
technical and economical viability of installing competing facilities to be unlikely in a timely and meaningful extent given issues such as duct congestion, cost, and lead delivery times.

62. While microwave links could be construed as competing facilities, the Authority considers that it is not the case for the majority of instances and that they constitute only a limited constraint (as is further evidenced by the market share of Batelco in the relevant markets) and therefore unable to address the market failures identified. Because of the performance limitations of microwaves links, certain retail customers do not wish to use them and instead rely on fixed wired links. Compared to fixed wired links, microwave links tend to suffer from quality of service, capacity, and deployment limitations:

a. Microwave links require the dish antennas located at both sites to be in clear line of sight. Clear line of sight is often not available between two sites due to the relatively high verticality of buildings in Bahrain. When clear line of sight is not available between two locations, additional hops are required (thus increasing the cost of the microwave solution);

b. Microwave links also requires dish antennas to be installed on high ground (generally 10 to 20 metres above the ground). The appropriate height is not always available;

c. Microwave links are more vulnerable to security threats than fixed fibre links;

d. Spectrum congestion represents a barrier to comprehensive deployment and a clear constraint to competition based on microwave links on a large scale. It also prevents a licensed operator to deliver long distance microwave links without the use of additional hops. This is especially the case for links covering a distance greater than 5km. Such links require spectrum in the congested 6-8 GHz band. When no spectrum in the 6-8 GHz band is available, the link requires to be built with several hops in higher frequency bands;

e. In contrast with fixed wired links, the performance of fixed microwave links is less reliable and more random. For example it can be hindered by weather. Typically this is the case in the Middle East where microwave signals get attenuated by dust and sand storms.

63. For the reasons set out above and by appropriately pricing wholesale leased lines in a manner consistent with the requirements of the Telecommunications Law, the Authority is of the view that imposing upon Batelco an obligation to provide the WLA service is unlikely to adversely impact potential investment in competing infrastructure in light of the level and rate of market development.

64. Overall, taking into account the technical and economic viability of installing competing facilities in light of the level and rate of market development, the Authority considers that it is no more than appropriate and necessary to address the market failures identified to impose upon Batelco an obligation to offer the WLA service:

a. Batelco’s network equipment and facilities necessary for the provision of leased lines are highly unlikely to be replicable by an alternative operator;

b. By appropriately pricing the WLA service in a manner consistent with the requirements of the Telecommunications Law, imposing upon Batelco an obligation to provide the WLA service is unlikely to have a negative impact on investment incentives in competing facilities.
Draft Order on the wholesale MPLS service  
Annex – Order Legal Basis and Reasoning

The feasibility and efficiency of providing the form of Access, particularly in light of the available capacity

65. Batelco has proposed to offer the WLA service to the industry. Therefore, it is feasible and efficient to provide this form of access in light of available capacity. Any capacity constraint could be easily addressed by the installation of additional equipment and facilities whose cost would be recovered by Batelco through the WLA charges.

66. The industry has also expressed a strong interest in the WLA service. This suggests that there is substantial pent-up demand for the service.

67. The Authority further notes that wholesale leased lines are widely offered throughout the world as a regulated service or as a commercial service by operators.

68. The provision of the WLA service can be expected to bring economic efficiency gains by fostering competition (see next section as well) and improving the performance of the sector in relation to business connectivity services.

69. For the above reasons, taking into account the feasibility and efficiency of providing the form of access, particularly in light of the available capacity, the Authority considers that it is no more than appropriate and necessary to address the market failure identified to impose upon Batelco an obligation to provide the WLA service.

The Authority’s duties to safeguard and encourage the long-term development of competition and the long-term interests of end users

70. The Telecommunications Law gives the Authority the duties to promote competition and to protect end-users. The Authority considers that the introduction of the WLA service in Batelco’s RO will encourage the long-term development of competition by notably allowing OLOs to compete more effectively with Batelco in the provision of services to business users at the retail level. This is currently not feasible with the existing CAT service (see paragraph 41 above) and this further justifies why the WLA service is required beyond the existing CAT. This will lead to improve performance of the sector with respect to business connectivity services and will lead to various efficiency gains:

   a. Productive efficiency gains: as in a more competitive environment, operators will have stronger incentives to become more efficient in the provision of their services.

   b. Allocative efficiency gains: as in a more competitive environment, end-users will enjoy lower prices. This in turn will lead to a wider diffusion of services and the uptake of more value added services and solutions, such as cloud-computing solutions.

   c. Dynamic efficiency gains: as a more competitive environment fosters innovation, and leads to further growth and diffusion of services, such as managed IP-VPN, cloud-computing solutions, advanced solutions, dedicated internet access, remote storage, and other seamless ERP solutions meeting consumers’ needs and expectations.

71. The WLA service will provide an essential building block of the access regime necessary for operators to develop their own retail services. End-users will therefore benefits from greater choice and, differentiated and innovative services.
72. As a regulated service, OLOs will have the necessary confidence to develop their services and solutions based on the WLA service. Its terms and conditions would be adequately enforceable by the Authority.

73. By pricing appropriately the WLA service in a manner consistent with the requirements of the Telecommunications Law, the WLA is unlikely to negatively impact on the commercial investment in competing facilities in Bahrain. The access-based regime will continue to provide adequate make or buy signals where relevant.

74. Overall, taking into account the Authority’s duties to safeguard and encourage the long-term development of competition and the long-term interests of end-users, the Authority considers that it is no more than appropriate and necessary to address the market failures identified to impose upon Batelco an obligation to provide the WLA service for the following reasons:
   a. By providing an essential building block of the access regime, the WLA will further strengthen competition for the long-term benefits of end-users, and hence its introduction is fully consistent with the Authority’s duties to encourage competition and the protection of interests of end-users; and
   b. The WLA will contribute to improving the performance of the sector in terms of business connectivity services and will provide economic efficiency gains.

Conclusion on the Test of Article 3.7 of the Access Regulation

75. For the reasons set out above, the Authority considers that if the WLA is considered to constitute a new Access Obligation that it is no more than appropriate and necessary to address the market failures identified to impose upon Batelco an obligation to provide the WLA service.

3.3 Batelco’s WLA Service Submission

76. Further to the above, and on the basis of the factual background outlined in Section 2 of this Order, and pursuant to Articles 3(b), 3(c)(1), 3(c)(16), 3(c)(18), 57 of the Telecommunications Law, Articles 2, 3, 4, and 5 of the Access regulation, the Authority considers that the WLA service submitted on 26 June 2012 (ref: GCL/248/12) and the additional information provided on 27 June 2012 (ref: GCL/250/12) as Reference Access Offer submission made pursuant to Article 4 of the Access Regulation and which is as such review in accordance with Article 57 of the Telecommunications Law and Article 5 of the Access Regulation.

Q1. Please provide your comments on the legal basis on which the Authority is issuing this draft Order.
4 Overview of the WLA service

77. According to Batelco’s WLA service description, the WLA service is:

“a wholesale dedicated private leased circuit service within the Kingdom of Bahrain between a Point of Presence and an End User’s premises / an OLOs premises providing guaranteed symmetrical bandwidth.

Available To: Licensed Operators holding an appropriate licence.

Figure 1: Non-technical diagram of WLA service (illustrative only)
78. During the review of NCT 42, Batelco confirmed to the Authority that:

   a. the WLA service is an Ethernet service point-to-point or Ethernet service point-to-multipoint (Pseudowire Ethernet tagged mode\(^\text{21}\) with port-based aggregation or virtual aggregation) providing symmetrical guaranteed bandwidth.

   b. the WLA service for speeds equal to or lower than 2 Mbit/s will be delivered via copper to the end-user sites (i.e. client of the OLO).

   c. the WLA service for speeds equal or greater than 4 Mbit/s will be delivered via fibre to the end-user sites (i.e. client of the OLO).

   d. the aggregation link is fibre based. The WLA service allows several WLA circuits to be aggregated on the same port of the CPE located in the OLO’s premises.

   e. for assurance, maintenance record and other operational reasons (such as customer’s request for redundancy), Batelco confirmed that, in all cases, WLA circuits will be delivered on distinct CPEs than those used for Batelco retail circuits. In the same manner, WLA circuits of different OLOs at the same retail customer location will be delivered on distinct CPEs.

   f. the WLA point-to-point service for speeds ranging from 64kbit/s to 2 Mbit/s has the same technical characteristics as the existing CAT/LLCO service delivered over NGN (i.e. excluding legacy). Batelco confirmed that the two services are identical.

   g. The WLA service can be used as backhaul for the LLU service.

---

**Q2. Please provide your comments on the Authority’s overview of the WLA service.**

---

\(^{20}\) “20120207 Batelco response to TRA information request NCT 42 Local MPLS.pdf” (ref: GCL/41/12), submitted by Batelco on 7 February 2012; and “20120305 NCT 42 Local MPLS - Batelco's response to TRA's information request.pdf” (ref: GCL/83/12), submitted by Batelco on 5 March 2012.

\(^{21}\) Ethernet pseudowires emulate the essential attributes of Ethernet connectivity over a packet network (MPLS) and are defined in RFC 4448. ‘Tagged Mode’ signifies that service-delimiting VLAN tags are used to transport Ethernet frames over the MPLS network.
5 Non-price terms of the WLA service

79. In this section, the Authority refers to Batelco’s submission of the WLA service description dated 26 June 2012 (20120626 Annex A - revised WLA Service Description and Annexures.docx, ref: GCL/248/12). Batelco’s submission can be found in Annex B of this draft Order (c.f. Annex B – WLA service description and annexures, page 42).

80. Batelco’s WLA service description is composed of a main body text and seven annexures. In the following section, the Authority reviews Batelco’s submission. When deemed necessary, the Authority orders fair, reasonable and non-discriminatory (‘FRND’) changes to the WLA Service Description and its annexures pursuant to Article 3(c)(1), 57(b) and 57(e) of the Telecommunications Law, and Articles 2,3,4,5 and 6 of the Access Regulation.

Definitions of “Point of presence” and “OLO Premises”

81. It is not clear to the Authority why the mention and definition of "OLO Premises" is necessary given the inclusion of the definition of Point of Presence. Whereas a Point of Presence covers both an aggregation or a network connection, an OLO Premises covers solely a network connection.

82. In the “Definitions” section of the WLA Service Description, Batelco further defines the WLA service as:

“dedicated local private leased circuit transmission capacity for digital point-to-point communications within the Kingdom of Bahrain (more particularly specified at Annex 1) between:

(a) two of the OLO’s Points of Presence;
(b) an OLO’s Point of Presence and its End User Premises; and
(c) an OLO’s Point of Presence and the Point of Presence of another OLO.”

83. Absent valid justifications from Batelco, the Authority orders Batelco to remove the definition of “OLO Premises” from the WLA service description pursuant to Article 57 of the Telecommunications Law in order to improve the transparency of the WLA service description and to avoid any confusion. The section titled “The Service” should be modified accordingly, i.e. by replacing “OLOs premises” by “Point of Presence”.

Aggregation link

84. The Authority considers Batelco’s conditions (as detailed in annex 5 of the WLA service description and reproduced below) when an OLO can request additional aggregation links to be unfair, unreasonable and discriminatory. They will hinder the ability of OLOs to compete with Batelco.

85. In annex 5 of the WLA service description submitted by Batelco on 26 June 2012, Batelco indicates that:

“The OLO may require additional Aggregation Links for (a) passive protection purposes, or (b) where additional capacity is required at
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

the same OLO Premises in cases where the existing Aggregation Link is full or peaking at 80% capacity and Batelco agrees to provide these at time and material rates plus monthly rental."

86. Certain business customers may require a fully redundant connectivity solution for the transmission of sensitive data. Such redundant protection can be achieved by setting-up a second active circuit providing connectivity between the customer’s premises (e.g. a customer’s headquarter) and a different Point of Presence of the OLO. To compete effectively with Batelco, the Authority considers that an OLO should be able to provide such protection to its end-users. The Authority considers that an OLO should be able to have as many aggregation links as it deems necessary.

87. Pursuant to Article 57 of the Telecommunications Law, the Authority orders Batelco to remove the current conditions applicable for an OLO to request additional aggregation links. There should be no limitations of the number of aggregation links in the WLA service description.

88. Furthermore, Batelco should endeavour to work with OLOs to find ways to minimize the risk and recovery time associated with the complete failure of an aggregation link (e.g. timely transfer of WLA circuits from one aggregation to another one).

Supply of Service – Delivery lead time of 45 working days

89. Batelco proposes to endeavour to deliver the service to OLOs within 45 working days.\(^{22}\) The Authority understands that the delivery lead time starts from the day of acceptance of an order, which has to take place within 2 working days of placing an order. The 45 working days period corresponds to more than 2 calendar months.

90. As Batelco did not provide any measurements of operational performance for the delivery of retail circuits, it is difficult for the Authority to precisely quantify whether the proposed 45 working days delivery lead time is fair, reasonable, and non-discriminatory.

91. In specific circumstances, such as when an OLO requests a high-speed WLA circuit at a location where no fibre access is currently available or there is no duct available or the existing cable cannot accommodate other circuits, the Authority appreciates that Batelco would require adequate time to conduct feasibility studies before making available the necessary facilities for the circuit to be provisioned. However the proposed uniform 45 working days as maximum delivery lead time is considered to be very long.

92. The Authority also notes that Batelco had originally proposed a delivery lead time of 15 working days for copper-based WLA circuits (i.e. speeds of 2 Mbit/s and below) and 30 working days for fibre-based WLA circuits (i.e. speeds of 4 Mbit/s and above) in its submission of the WLA service description dated 10 July 2011 (ref: GCL/226/11).

93. For the above reasons and pursuant to Article 57 of the Telecommunications Law, the Authority orders Batelco to reduce the maximum delivery lead time from 45 working days to 30 working days (see below for the instances in which this delivery lead time does not apply).

94. Once the WLA service has been in operation for 2 complete calendar quarters, the Authority intends to review the maximum lead times in light of the SLA measurement

---

\(^{22}\) See page 40, SERVICE DESCRIPTION 2-5: WHOLESALE LOCAL ACCESS SERVICE (WLA), ANNEX 3 – SLA
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

reports provided by Batelco (see below paragraphs 135 and 136). Based on the empirical evidence the Authority will form a view as to whether further changes are required.

Supply of Service – Delivery lead time where fibre access is available and can accommodate a WLA circuit or in case of an amendment to a WLA circuit

95. The Authority considers that the delivery lead time of 30 working days is unreasonably excessive when an OLO either requests:
   a. a new WLA circuit in a physical location which is already connected via a fibre cable to Batelco’s access network and when such fibre cable has sufficient capacity to accommodate the new WLA circuit; or
   b. an amendment to an existing WLA circuit (e.g. speed downgrade or upgrade, configuration change).

96. In the two above cases, the Authority considers that the lead delivery time should be reduced to 15 working days. The Authority considers that 15 working days is fair and reasonable in light of the work that Batelco is required to perform (e.g. installation and connection of the CPE and parameterisation of the circuit).

97. For the above reason and pursuant to Article 57 of the Telecommunications Law, the Authority orders Batelco to amend its WLA service description so that the maximum delivery lead time for cases where Batelco is not required to lay additional cables is set to 15 working days.

Supply of Service – Exceptional Delivery Date

98. Paragraph 3.2(c) of the WLA service description proposed by Batelco and dated 26 June 2012 says that:
   "Within seven (7) Working Days from the date of the acceptance of the Order, Batelco will advise the OLO if the Order cannot be delivered in the standard time scales shown in Annex 3. In circumstances where the service cannot be delivered by the standard time scale, Batelco will give notice of the date for the provision of the WLA Service which is defined for the purposes of this paragraph 3.2 as the “Exceptional Delivery Date”.

99. In the Definition section of the same WLA Service Description, “Exception Delivery Date” is defined as:
   "Exceptional Delivery Date means the date defined at paragraph 3.2(c)."

100. The Authority considers that taken together, these two points of the service description are unfair and unreasonable. The specific circumstances when the normal delivery lead time would not apply are not defined and, as such, paragraph 3.2(c) could easily be abused and lead to distortion of competition and gaming.

101. The Authority considers that the only circumstance which would potentially call for an “Exceptional Delivery Date” (i.e. delivery lead time greater than the 30 working days set by the Authority) correspond to the case where new access ducts are required (i.e. where
access ducts are inexistent or where exiting access ducts are congested or obstructed and cannot accommodate the laying of additional cable).

102. To ensure the WLA service description is fair, reasonable, and non-discriminatory and pursuant to Article 57 of the Telecommunications Law, the Authority orders Batelco to define the circumstance where the service cannot be delivered in the standard time scales as the case where the building of new access ducts is required.

103. In any cases, the Authority considers that Batelco should endeavour to deliver WLA circuits within the standard time frame at all times (i.e. within 30 working days) and that Batelco should provide a reasonable provisioning date.

Further changes to paragraph 3.2(c) of the WLA service description

104. In light of the changes ordered regarding standard delivery lead times and the circumstance when the standard times do not apply, paragraph 3.2(c) needs to be further modified. Paragraph 3.2(c) should be modified to say that within 7 working days from the acceptance of an order, Batelco will advise in writing the OLO of the applicable maximum delivery lead times (i.e. 30 working days or 15 working days) and in case the “Exceptional Delivery Date” applies of the reasonable provisioning date with reasons.

105. This change is ordered for internal consistency of the service description and clarification’s purposes.

Response time and restoration time

106. Batelco has proposed the following parameters for response time and restoration time:

<table>
<thead>
<tr>
<th>Time</th>
<th>Response time</th>
<th>Restoration time</th>
</tr>
</thead>
<tbody>
<tr>
<td>During working hours</td>
<td>2 working hours</td>
<td></td>
</tr>
<tr>
<td>Outside working hours</td>
<td>4 working hours</td>
<td>8 working hours</td>
</tr>
</tbody>
</table>

Source: Batelco's WLA service description submission dated 26 June 2012

107. The maximum response time outside working hours should logically be “4 hours” instead of “4 working hours”.

108. In the same manner, the maximum restoration time should be expressed in hours and not in working hours.

109. Pursuant to Article 57 of the Telecommunications Law, the Authority orders Batelco to amend the maximum response time outside working hours to “4 hours” and the maximum restoration time to “8 hours” in its WLA service description.

23 See page 43, SERVICE DESCRIPTION 2-5: WHOLESALE LOCAL ACCESS SERVICE (WLA), ANNEX 3 – SLA
110. Batelco has proposed a cap on the maximum rebate an OLO is entitled to, on a monthly basis, as a result of Batelco not meeting the Service Levels in the WLA service SLA. The proposed cap is 10 Service Credits per month which is equivalent to 50% of the monthly rental charge (as 1 Service Credit equals to 5% of the monthly rental charge).

111. The Authority considers that the current rebate cap is not fair nor reasonable as it allows situations in which an OLO would still have to pay 50% of the monthly rental charge when the WLA service is not available for a significant part of a calendar month. The WLA is a service designed to serve the needs of business users and should therefore be provided with a high level of performance and appropriate incentive scheme to ensure its timely delivery and the prompt resolution of any technical issues that would negatively impact business users.

112. For the above reasons and pursuant to Article 57 of the Telecommunications Law, the Authority orders Batelco to amend its WLA service description so that the “Rebate Cap” is renamed “Total monthly rebate cap” and is set to 20 Service Credits per month.

**Individual Service Level Rebate Caps and rebates structure for Service Availability**

113. Batelco has also proposed to introduce individual rebate caps for the following Service Levels: Validation Time (2 Service Credits), Ready for Test (2 Service Credits), Service Availability (4 Service Credits) and Quality of Service (3 Service Credits).

114. The Authority considers that an appropriate rebate structure should be in place and that the individual rebate caps should be removed as they do not provide sufficient incentives to Batelco to rectify any failure to meet the targets and to provide a performing service. For instance if Batelco fails to deliver a WLA circuit within the applicable standard lead time (30 or 15 working days period) penalties would stop increasing after two working days passed the standard lead time. Similarly if the Uptime of the service is less than 98%, the maximum rebate for Service Availability would be 4 Service Credits, i.e. 20% of the monthly rental, for a potentially non-functioning service over a full month.  

115. In order to provide an appropriate rebate structure and the necessary incentives on Batelco to rectify any failure to meet the targets and thereby ensure that the terms and conditions of the service are fair, reasonable, and non-discriminatory, the Authority considers that:

- individual rebates caps should be removed;
- the service rebate detailed in the table below should apply to Service Availability;

---

24 As an aside, it would appear that Batelco forgot to include a rebate when availability is between 98% and 99%.
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

Table 1: Service rebate applicable to Service Availability

<table>
<thead>
<tr>
<th>Service Availability (&quot;SA&quot;) (in %)</th>
<th>Service Downtime (&quot;SD&quot;)</th>
<th>Service rebate (in Service Credits)</th>
<th>Service rebate (in % of applicable monthly charge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.70% &lt; SA 99.50% ≤ SA ≤ 99.7%</td>
<td>02h11min ≤ SD &lt; 03h39min</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>99.00% &lt; SA ≤ 99.5%</td>
<td>03h39min ≤ SD &lt; 07h18min</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>98.00% &lt; SA ≤ 99.0%</td>
<td>07h18min ≤ SD &lt; 14h36min</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>97.00% &lt; SA ≤ 98.0%</td>
<td>14h36min ≤ SD &lt; 21h54min</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>96.00% &lt; SA ≤ 97.0%</td>
<td>21h54min ≤ SD &lt; 1 day 05h12min</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>95.00% &lt; SA ≤ 96.0%</td>
<td>1 day 05h12min ≤ SD &lt; 1 day 12h30min</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>94.00% &lt; SA ≤ 95.0%</td>
<td>1 day 12h30min ≤ SD &lt; 1 days 19h48min</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>93.00% &lt; SA ≤ 94.0%</td>
<td>1 days 19h48min ≤ SD &lt; 2 days 03h06min</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>92.00% &lt; SA ≤ 93.0%</td>
<td>2 days 03h06min ≤ SD &lt; 2 days 10h24min</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>91.00% &lt; SA ≤ 92.0%</td>
<td>2 days 10h24min ≤ SD &lt; 2 days 17h42min</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>90.00% &lt; SA ≤ 91.0%</td>
<td>2 days 17h42min ≤ SD &lt; 3 days 01h00min</td>
<td>11</td>
<td>55%</td>
</tr>
<tr>
<td>89.00% &lt; SA ≤ 90.0%</td>
<td>3 days 01h00min ≤ SD &lt; 3 days 08h18min</td>
<td>12</td>
<td>60%</td>
</tr>
<tr>
<td>87.00% &lt; SA ≤ 89.0%</td>
<td>3 days 08h18min ≤ SD &lt; 3 days 22h54min</td>
<td>13</td>
<td>65%</td>
</tr>
<tr>
<td>85.00% &lt; SA ≤ 87.0%</td>
<td>3 days 22h54min ≤ SD &lt; 4 days 13h30min</td>
<td>14</td>
<td>70%</td>
</tr>
<tr>
<td>83.00% &lt; SA ≤ 85.0%</td>
<td>4 days 13h30min ≤ SD &lt; 5 days 04h06min</td>
<td>15</td>
<td>75%</td>
</tr>
<tr>
<td>81.00% &lt; SA ≤ 83.0%</td>
<td>5 days 04h06min ≤ SD &lt; 5 days 18h42min</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td>79.00% &lt; SA ≤ 81.0%</td>
<td>5 days 18h42min ≤ SD &lt; 6 days 09h18min</td>
<td>17</td>
<td>85%</td>
</tr>
<tr>
<td>77.00% &lt; SA ≤ 79.0%</td>
<td>6 days 09h18min ≤ SD &lt; 6 days 23h54min</td>
<td>18</td>
<td>90%</td>
</tr>
<tr>
<td>75.00% &lt; SA ≤ 77.0%</td>
<td>6 days 23h54min ≤ SD &lt; 7 days 14h30min</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>SA ≤ 75.0%</td>
<td>7 days 14h30min ≤ SD</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: the Authority

While there are no rebates associated with the Response Time and Restoration Time parameters, this is acceptable in so far as there are rebates associated with Service Availability. Any delays in Response Time and Restoration Time will impact the Service Availability parameter. This relationship should provide adequate incentives for Batelco to respond to and restore any faults in a timely manner.

d. The total monthly rebate cap of 20 Service Credits is sufficient to limit Batelco’s liability.

116. For the above reasons and pursuant to Article 57 of the Telecommunications Law, the Authority orders Batelco to amend its WLA service description so that:

a. It does not include individual rebate caps; and

b. The service rebates applicable to Service Availability are as set in Table 1.
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

Fixed Service Period and Minimum Service Period

117. In the “Definitions” section of the WLA Service Description, Batelco defines the Fixed Service Period and the Minimum Service Period applicable to the WLA service as follows:

“**Fixed Service Period** means, where the OLO has submitted an Order requesting that a WLA Service be provided for a fixed period and the Order has been accepted by Batelco, the period during which the resulting WLA Service Agreement remains in force, such period commencing on the Service Commencement Date.

**Minimum Service Period** means an applicable minimum period of twelve (12) calendar months (unless otherwise stated in an Order submitted by the OLO and accepted by Batelco) for which the WLA Service will be provided, such period commencing from the Service Commencement Date.”

118. The Authority does not see the rational for the inclusion of the definition of a Fixed Service Period as such period would not provide the OLO with any additional advantages compared to the Minimum Service Period (i.e. 12 calendar months). To the contrary, if the OLO was to terminate its contract before the expiry of the Fixed Service Period (which cannot be less than 12 months), the OLO would be liable to liquidated damages. In other words, the regime of the Fixed Service Period would be contractually less favourable than the Minimum Service Period which, as amended by the Authority, is deemed fair and reasonable.

119. Therefore, pursuant to Article 57 of the Telecommunications Law and, to improve the transparency of the WLA service description, the Authority orders Batelco to remove the definition of “Fixed Service Period” from the WLA service description. The definition of “Minimum Service Period” should be modified accordingly, i.e. by removing the text “(unless otherwise stated in an Order submitted by the OLO and accepted by Batelco)”. Similarly, paragraph 3.3 (b) (which deals with the case of a termination after the Minimum Service Period but before the Fixed Service Period) of the proposed Service Description should be modified accordingly.

Notice period for service termination

120. In paragraph 3.3(a) (which deals with the case of when the Minimum Service Period has not expired) of the proposed Service Description, Batelco sets the notice period to at least 3 months.

121. The Authority considers that the WLA service description should allow for an OLO to terminate the WLA service agreement with a minimum notice period of one calendar month in all cases:

a. Before completion of the Minimal Service Period of 12 calendar months, the Authority notes that an OLO would still be liable to settle the fees up to the end of the Minimum Service Period whether the notice period given by the OLO is 3 calendar months or 1 calendar month.

b. Upon completion of the Minimal Service Period of 12 calendar months, the Authority considers that a one month notice is fair, reasonable and coherent with the automatic renewal of the WLA service on a monthly basis.
122. Pursuant to Article 57 of the Telecommunications Law the Authority therefore orders Batelco to amend the WLA service description so that the notice period for service termination is set to one calendar month in all cases.

Amendments to the WLA Service and contractual implications

123. Two cases of WLA service amendments can be identified:
   a. Case A: An amendment to the WLA service leads to a new Minimal Service Period, in other words, the “contract” is renewed; or
   b. Case B: An amendment to the WLA service does not lead to a new Minimal Service Period, in other words, the existing “contract” is maintained.

124. Batelco proposed that any request for amendment to the WLA service would lead to a new Minimal Service Period (Case A above) with the exception of “[u]pgrade that does not require any new network resources, a new Minimum Service Period shall not commence and Batelco shall provide a WLA Amended Service for the remainder of the current Service Period” (paragraph 3.4(a) of the WLA Service Description).

125. The Authority considers that the broad application of Case A is unfair and unreasonable. The Authority is of the view that Case A should only apply when new network equipment and facilities are required to implement the requested amendment. A throughput upgrade or downgrade should fall under Case B. Such soft change would typically involve a software configuration and is not a valid reason to lock-in the customer for a new Minimum Service Period. By contrast, if the amendment necessitates a new access fibre or a new CPE, then the Authority considers that it is fair and reasonable for such amendment to fall under Case A.

126. For the above reasons and pursuant to Article 57 of the Telecommunications Law, the Authority orders Batelco clarify in the WLA service description that Case A applies solely when the amendment requested requires new network equipment and/or facilities. Batelco shall provide written reason when requested by the OLO.

Liquidated damages formula applicable to early termination

127. Batelco proposes that the liquidated damages for early termination of service are calculated as the applicable monthly charge multiplied by the number of months between the written notice of termination and the end of the Minimum Service Period of 12 months (see paragraph 3.3 (a) of the WLA service description). The Authority does not have an issue with this.

128. However, to prevent potential gaming from OLOs whereby an OLO could downgrade the circuit speed before terminating it in order to minimise the amount of liquidated damages to be paid to Batelco, the Authority considers that it is fair, reasonable and appropriate to calculate liquidated damages with the following formula:
**Draft Order on the wholesale MPLS service**

**Annex – Order Legal Basis and Reasoning**

\[ \text{LD} = \text{WC} \times (12 - M) \]

with:

LD: Liquidated damage to be paid (cancellation charge);

WC: Relevant wholesale charge defined as the maximum between:

- a) the current WLA monthly service charge;
- b) the average WLA monthly service charge paid since the RFT Date (whichever of the two is higher)

M: Number of months between the Ready for Test ("RFT") Date and the removal order date rounded-up to the next full month.

129. The amended formula will provide adequate protection to Batelco against tactical downgrade. Pursuant to Article 57 of the Telecommunications Law, the Authority therefore orders Batelco to:

a. Introduce the above formula in its WLA service description; and

b. Remove paragraph 3.4(c) of the WLA service description. This paragraph is not required given the change made by the Authority to the liquidated damages formula.

**SLAs' trigger**

130. The Authority understands that the WLA SLA will be only triggered by the OLO when reporting a fault. In other words, service levels will be triggered manually by the OLO rather than automatically by Batelco’s network monitoring systems (i.e. probe).

131. Such process is acceptable for issues related to service availability. However, the Authority considers that such process is not optimal for issues related to QoS parameters (i.e. jitter, RTD, packet loss).

132. The Authority is of the view that the WLA SLA should not only be triggered by the OLO but should also be automatically triggered by the Batelco’s system, especially when the SLA relates to Batelco’s core network (e.g. jitter).

133. Having regard to the temporary technical limitations faced by Batelco, the Authority has decided not to order Batelco to change this point for the purpose of this Order (this matter will be reviewed in due course).

**Quarterly reporting of SLA measurements for WLA service**

134. The Authority is of the view that in some respects the SLA of the WLA service is not very demanding on Batelco and could therefore be further strengthened. In order to monitor the performance of Batelco against this SLA and to refine them in the future based on empirical evidence, the Authority, pursuant to Articles 53 and 57 of the Telecommunications Law, orders Batelco to report the measurements of SLA parameters for the WLA service on a quarterly basis. The quarterly reports and underlying data shall be submitted no later than 5 working days from the end of the relevant calendar quarter and should include the following measurements:

a. **Number of trouble tickets:**
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

i. Number of trouble tickets (i.e. reported fault) opened and closed over the period (by categories of faults, if available).

b. Service delivery (Validation Time and Ready for Test):

i. average number of and standard deviation for days over the period between: a) Batelco’s reception of an order form sent by an OLO; and b) Batelco’s acceptance or rejection of that order (Validation Time);

ii. number of different occurrences for which the ‘Validation Time’ SLA parameter was not met over the period (i.e. occurrences where a service credit was granted) and average amount of service rebate granted per occurrence over the period;

iii. when the Lead delivery time of 15 working days applies, average number of and standard deviation for days over the period between: a) Batelco’s validation of the order form; and b) Batelco’s effective delivery of the service;

iv. number of different occurrences for which the ‘Lead delivery time of 15 working days’ SLA parameter was not met over the period (i.e. occurrences where a service rebate was granted) and average amount of service rebate granted per occurrence over the period;

v. when the Lead delivery time of 30 working days applies, average number of and standard deviation for days over the period between: a) Batelco’s validation of the order form; and b) Batelco’s effective delivery of the service;

vi. number of different occurrences for which the ‘Lead delivery time of 30 working days’ SLA parameter was not met over the period (i.e. occurrences where a service credit was granted) and average amount of service rebate granted per occurrence over the period;

vii. when the ‘Exceptional Delivery Date’ applies, average number of and standard deviation for days of the period between: a) Batelco’s validation of the order form; and b) Batelco’s effective delivery of the service;

viii. number of new aggregation links delivered over the period by type of applicable ‘Lead delivery time’ (15 working days, 30 working days or ‘Exceptional Delivery Date’)

ix. number of new WLA circuits links delivered over the period by type of applicable ‘Lead delivery time’ (15 working days, 30 working days or ‘Exceptional Delivery Date’)

x. number of WLA circuits amended (i.e. upgrade or downgrade) over the period (by type of applicable ‘Lead delivery time’ (15 working days, 30 working days or ‘Exceptional Delivery Date’)

xi. number of active WLA circuits (by speed) and aggregation links at the end of the period.

c. availability:

i. average and standard deviation of the SLA measurement for availability over the period;
Draft Order on the wholesale MPLS service  
Annex – Order Legal Basis and Reasoning

ii. number of faults related to service availability reported over the period; and

iii. number of different occurrences for which the service availability SLA parameter was not met over the period (i.e. occurrences where a service credit was granted) and average amount of service rebate granted per occurrence over the period;

d. **packet loss, Latency (i.e. RTD) and jitter:**
   
i. average and standard deviation of the SLA measurement for packet loss, latency and jitter over the period;

ii. number of faults related to packet loss, latency or jitter reported over the period; and

iii. number of different occurrences for which the SLA parameter for packet loss, latency or jitter was not met over the period (i.e. occurrences where a service credit was granted) and average amount of service rebate granted per occurrence over the period.

e. **Response Time and Restoration Time:**
   
i. average and standard deviation of the Response Time over the period;

ii. average and standard deviation of the Restoration Time over the period;

iii. number of different occurrences for which the ‘Response Time’ SLA parameter was not met;

iv. number of different occurrences for which the ‘Restoration Time’ SLA parameter was not met;

f. **total service rebate:** total amount of service rebate granted by Batelco to customers over the period as a percentage of the total revenues excluding rebates.

**Future enhancements to the WLA SLA**

135. When SLAs have been in operation for 2 complete calendar quarters, the Authority intends to invite Batelco to present the main results of the SLA measurement reports. On this occasion, Batelco will be invited to propose improvements to the SLA parameters and WLA processes for the Authority’s review and approval (using the track change functionality). Based on the empirical evidence the Authority will form a view as to whether further changes to the SLAs and WLA processes are required.

136. Batelco indicated in its letter dated 5 March 2012 (ref: GCL/83/12) that it is currently seeking to provision new system management tools which would enable the end-to-end monitoring of the performance of NGN services. [X]. The Authority looks forward to Batelco’s implementation of the system management tools which would enable the end-to-end monitoring of performance. The current lack of end-to-end monitoring is a significant limitation of the SLAs. The Authority would like to be informed when such tools are fully operational. Based on discussion with Batelco regarding the timing of such implementation, the Authority expects Batelco to propose the end-to-end application of all SLA parameters before the end of 2013.
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

Technical characteristics

137. It would appear from the service description proposed by Batelco that Batelco has omitted to specify that the frame size 64 Bytes and 128 Bytes are supported by the WLA service.

138. Regardless of whether this is an omission; the Authority considers that those frame sizes should be supported by the WLA service to accommodate various traffic types. It would be unfair, unreasonable and discriminatory (they are supported at the retail level) if this was not the case.

139. Similarly, the Authority also considers that the provisioning validation test of the WLA service should include tests for frame sizes of 64, 128, 256, 512, 1,024, 1,280 and 1,536 Bytes.

140. Pursuant to Article 57 of the Telecommunications Law, the Authority therefore orders Batelco to amend annex 4 and annex 6 of its WLA service description accordingly.

Future enhancements to the WLA service

141. The WLA service may require further adjustments and improvements. Accordingly, the Authority reserves all its legal rights regarding the terms and conditions of the WLA service.

Q3. Please provide your comments on the non-price terms of the WLA service and the Authority’s setting of fair, reasonable and non-discriminatory non-price terms for the WLA service.
6 Price terms of WLA service

6.1 Batelco’s proposal

142. In its proposal dated 26 June 2012, Batelco proposed WLA charges are equal to the charges set by the Authority in the 27 March 2012 Decision plus a 20% mark-up. As explained in the Decision, the WLA charges therein were based on 2009 cost (see paragraphs 118 to 127).25

143. Batelco also proposed the following 4 year glide path:26

"Wholesale stepped glide path for throughputs of 4 Mbits/s and above (to be made public to promote certainty and clarity to the wholesale market place):

First year from commercial launch - 20% above cost + WACC
Second year from commercial launch - 15% above cost + WACC
Third year from commercial launch - 10% above cost + WACC

By 2015 the price of WLA will be at cost. Batelco to retain discretion to accelerate glide path or move to cost during the proposed three year period."

144. Batelco justified the glidepath in the following way:27

"(a) the glidepath approach expressed in the 2006 arbitration panel decision in relation to Batelco’s application for a stay of part of the RIO order issued by the TRA on 6 August 2006 (para 5.65):

"Or perhaps if Batelco were able to show that a “glide path”, which gradually reduced termination rates, best accommodates the competing factors to which the TRA is required to have regard";

(b) the mobile termination rates glidepath Batelco agreed with MTC-Vodafone (now Zain) on 29 January 2006; and

(c) the TRA’s recent position paper on bottom-up costing dated 19 October 2011 which states (at page 78 Key Message 23):

“When there is a significant gap between calculated service costs and current charges (due for example to the move from a top-down cost model to a bottom-up cost model), the Authority considers that the use of a glidepath may be appropriate to move from existing to appropriate cost based charges.”"

25 Batelco initial proposal was retail minus 20%.
26 As detailed in the document attached with Batelco’s letter dated 11 May 2012 (GCL/196/12). In the proposal dated 26 June 2012 (Email from Nadia Alawadhi to Dr Alexandre Serot), Batelco indicated that the pricing proposal contained in the letter dated 11 May 2012 and attached document remain applicable.
27 Ibid.
6.2 Approach taken by the Authority to set the WLA service charges

6.2.1 Pricing principle

145. Consistent with Article 57 of the Telecommunications Law, the Authority considers that fair and reasonable tariffs are tariffs that reflect the efficiently incurred costs of providing a service, including a return on capital employed. While the Authority has some concerns over Batelco’s MPLS costing, the Authority is of the view that cost-based WLA charges are appropriate in the present context and consistent with the Authority’s duties to promote competition and to protect end-users. Thanks to the information submitted by Batelco, the Authority has been able to develop a sound understanding of the structure of cost.

146. The Authority therefore does not agree with Batelco’s proposal to set WLA charges based on a glide path down to cost plus WACC over a four year period with a starting point at cost plus 20% mark-up.

147. The Authority considers that the reasons brought forward by Batelco do not justify the proposed pricing approach of the WLA service.

148. Point (a) of Batelco’s submission is not relevant in the present context. The glidepath approach in relation to international inbound was motivated by the very large gap between the applicable price of the service at the time and the cost of the service. It was suggested as a compromise by the Arbitration Panel.

149. Point (b) of Batelco’s submission is also not relevant in the present context. It refers to a commercial agreement reached on 29 January 2006 between Batelco and Zain.

150. In relation to point (c) of Batelco’s submission, the Authority notes that in its Position Paper on bottom-up cost models dated 19 October 2011, it explains that a glide path may be appropriate to move from existing to appropriate cost-based charges “[w]hen there is a significant gap between calculated service costs and current charges (due for example to the move from a top-down cost model to a bottom-up cost model)” (Key message 23).

151. However, in the case of the WLA service, the Authority notes that the WLA cost-based charges are calculated based on top-down information submitted by Batelco and not based on bottom-up cost models. Further, there are no existing charges for the WLA service from which a significant gap with cost-based charges could be identified.

152. As Batelco and the industry are fully aware, the Authority is in the process of developing bottom-up cost models which are expected to be completed by the end of 2012. Those models will provide a more robust understanding of network cost drivers and their likely evolution. Against this background, the Authority is of the view that it would be inappropriate to set a 4-year glide path at this point in time. Once the bottom-up cost models are consulted upon and validated, the Authority intends to consider the question of the merits and appropriateness of introducing a glide path for wholesale leased lines.

153. For all the above reasons, the Authority is of the view that cost-based WLA charges are appropriate.
6.2.2 Derivation of the WLA service charges

154. In relation to the derivation of the WLA service charges, the following should be noted:

a. **Approach**: The WLA service charges are derived in the same manner as in the Decision dated 27 March 2012 (as explained in paragraph 118 to 125 of the Decision).

b. **Use of 2010 cost**: The only difference relates to the network cost: the calculated WLA service charges are based on 2010 network costs, the latest costs available at the time of the draft Order.

While it would arguably have been justified to make a forward-looking adjustment to the 2010 cost-based WLA charges to reflect the expected downward evolution of MPLS-based service unit costs, the Authority has decided not to do in the present context (see above paragraph 152). This is a conservative decision of the Authority.

28

c. **Applicable gradients and routing factors for the calculation of WLA service cost-based charges** (same as in the Decision but reproduced below for ease of reference):

To calculate the WLA cost-based charges of speeds greater than 2 Mbit/s, the Authority has applied a gradient scale calculated with the following formula:

\[
\text{gradient} = \left( \frac{\text{Speed in Mbit/s}}{2} \right)^{2/3}
\]

Table 2: Routing factors to be used for the allocation of NGN cost to MPLS-based products

<table>
<thead>
<tr>
<th>Business Unit</th>
<th>Service</th>
<th>Circuit type</th>
<th>CPE (AN09)</th>
<th>Access (AN01 or AN08)</th>
<th>Aggregatio - distribution (CN19, CN21, CN23, CN40, CN56)</th>
<th>Core (CN38)</th>
<th>GRADIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail</td>
<td>Local MPLS service L2</td>
<td>P2P circuit</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P2H half circuit</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>H2M half circuit</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local MPLS service L3</td>
<td>P2C access circuit</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
<td>GRADIENTS</td>
</tr>
<tr>
<td>Wholesale</td>
<td>WLA</td>
<td>P2A circuit</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aggregation Link</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAT/LLCO NGN</td>
<td>P2P circuit</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

28 The Authority notes that the cost of the MPLS-based lease line has [X]% between 2009 and 2010. Applying the same [X]% trend to derive forward-looking WLA service charges based on 2012 costs would result in charges set [X]% lower. The Authority also notes that based on the information on the number of circuits submitted by Batelco on 27 June 2012 (ref: GCL/250/12), the total aggregated capacity of MPLS-based lease lines has [X]% between 2009 and 2010 and by [X]% between 2010 and 2011.
6.3 WLA service charges set by the Authority

155. Based on the information provided by Batelco, the Authority has calculated the cost-based charge of the WLA service. The associated WLA service cost stack is presented in the below table
### Draft Order on the wholesale MPLS service

Annex – Order Legal Basis and Reasoning

#### Table 3: WLA service cost stack and the Authority’s FRND cost based charges

<table>
<thead>
<tr>
<th>Speed of P2A circuit</th>
<th>CPE</th>
<th>Number of copper pair</th>
<th>Number of fibre pair</th>
<th>Fibre/Copper cost</th>
<th>MSAN G.SHDLS</th>
<th>MSAN (CN05)</th>
<th>Aggregation - distribution (CN19, CN21, CN23, CN40, CN56)</th>
<th>Core (CN38)</th>
<th>Total network costs</th>
<th>Wholesale Costs</th>
<th>Total TRA’s FRND charge (in BD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64 kbit/s</td>
<td>[X]</td>
<td>[X]</td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>59,432</td>
</tr>
<tr>
<td>128 kbit/s</td>
<td>[X]</td>
<td>[X]</td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>61,709</td>
</tr>
<tr>
<td>256 kbit/s</td>
<td>[X]</td>
<td>[X]</td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>66,264</td>
</tr>
<tr>
<td>512 kbit/s</td>
<td>[X]</td>
<td>[X]</td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>75,373</td>
</tr>
<tr>
<td>1 Mbit/s</td>
<td>[X]</td>
<td>[X]</td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>92,737</td>
</tr>
<tr>
<td>2 Mbit/s</td>
<td>[X]</td>
<td>[X]</td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>128,320</td>
</tr>
<tr>
<td>4 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>218,606</td>
</tr>
<tr>
<td>8 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>286,711</td>
</tr>
<tr>
<td>10 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>317,099</td>
</tr>
<tr>
<td>15 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>385,332</td>
</tr>
<tr>
<td>20 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>446,235</td>
</tr>
<tr>
<td>25 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>502,210</td>
</tr>
<tr>
<td>50 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>740,079</td>
</tr>
<tr>
<td>75 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>939,593</td>
</tr>
<tr>
<td>100 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>1,117,674</td>
</tr>
<tr>
<td>150 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>1,434,381</td>
</tr>
<tr>
<td>200 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>1,717,068</td>
</tr>
<tr>
<td>300 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>2,219,810</td>
</tr>
<tr>
<td>400 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>2,668,546</td>
</tr>
<tr>
<td>500 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>3,080,974</td>
</tr>
<tr>
<td>1000 Mbit/s</td>
<td>[X]</td>
<td></td>
<td></td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>[X]</td>
<td>4,833,613</td>
</tr>
</tbody>
</table>

| Aggregation Link     | [X] |                      |                      |                   | [X]          | [X]        | [X]                                               | [X]          | [X]                 | [X]            | 200,000                       |

Source: the Authority from Batelco’s submission

156. The Authority sets the fair and reasonable charges for the WLA service in the following table.
### Table 4: WLA service FRND charges set by the Authority

<table>
<thead>
<tr>
<th>Chargeable item</th>
<th>Batelco proposed WLA charges</th>
<th>TRA’s FRND WLA charges</th>
<th>Evolution of TRA’s FRND charges vs. Batelco proposed charges</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WLA P2A L2 circuit speed (per P2A circuit, in BD per month)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64 kbit/s</td>
<td>58.508</td>
<td>59.432</td>
<td>1.6%</td>
<td></td>
</tr>
<tr>
<td>128 kbit/s</td>
<td>60.963</td>
<td>61.709</td>
<td>1.2%</td>
<td></td>
</tr>
<tr>
<td>256 kbit/s</td>
<td>65.872</td>
<td>66.264</td>
<td>0.6%</td>
<td>Delivered in a copper access.</td>
</tr>
<tr>
<td>512 kbit/s</td>
<td>75.692</td>
<td>75.373</td>
<td>-0.4%</td>
<td></td>
</tr>
<tr>
<td>1 Mbit/s</td>
<td>97.143</td>
<td>92.737</td>
<td>-4.5%</td>
<td></td>
</tr>
<tr>
<td>2 Mbit/s</td>
<td>138.879</td>
<td>128.320</td>
<td>-7.6%</td>
<td></td>
</tr>
<tr>
<td>4 Mbit/s</td>
<td>310.2</td>
<td>216.606</td>
<td>-30.2%</td>
<td></td>
</tr>
<tr>
<td>8 Mbit/s</td>
<td>405.6</td>
<td>286.711</td>
<td>-29.3%</td>
<td></td>
</tr>
<tr>
<td>10 Mbit/s</td>
<td>446.9</td>
<td>317.099</td>
<td>-29.0%</td>
<td></td>
</tr>
<tr>
<td>15 Mbit/s</td>
<td>539.8</td>
<td>385.332</td>
<td>-28.6%</td>
<td></td>
</tr>
<tr>
<td>20 Mbit/s</td>
<td>622.6</td>
<td>446.235</td>
<td>-28.3%</td>
<td></td>
</tr>
<tr>
<td>25 Mbit/s</td>
<td>699.4</td>
<td>502.210</td>
<td>-28.2%</td>
<td></td>
</tr>
<tr>
<td>50 Mbit/s</td>
<td>1022.4</td>
<td>740.079</td>
<td>-27.6%</td>
<td>Delivered in a fibre access.</td>
</tr>
<tr>
<td>75 Mbit/s</td>
<td>1293.9</td>
<td>939.593</td>
<td>-27.4%</td>
<td></td>
</tr>
<tr>
<td>100 Mbit/s</td>
<td>1,536.20</td>
<td>1,117.674</td>
<td>-27.2%</td>
<td></td>
</tr>
<tr>
<td>150 Mbit/s</td>
<td>1,967.10</td>
<td>1,434.381</td>
<td>-27.1%</td>
<td></td>
</tr>
<tr>
<td>200 Mbit/s</td>
<td>2,351.70</td>
<td>1,717.068</td>
<td>-27.0%</td>
<td></td>
</tr>
<tr>
<td>300 Mbit/s</td>
<td>3,035.70</td>
<td>2,219.810</td>
<td>-26.9%</td>
<td></td>
</tr>
<tr>
<td>400 Mbit/s</td>
<td>3,646.30</td>
<td>2,668.546</td>
<td>-26.8%</td>
<td></td>
</tr>
<tr>
<td>500 Mbit/s</td>
<td>4,207.40</td>
<td>3,080.974</td>
<td>-26.8%</td>
<td></td>
</tr>
<tr>
<td>1,000 Mbit/s</td>
<td>6,592.00</td>
<td>4,833.613</td>
<td>-26.7%</td>
<td></td>
</tr>
<tr>
<td><strong>Aggregation Link (in BD per month)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggregation Link</td>
<td>200.00</td>
<td>200.000</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Aggregation Link (in BD per month)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggregation Link</td>
<td>200.00</td>
<td>200.000</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Installation and configuration charge for soft change request (in BD per soft change)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘Soft’ change</td>
<td>50.000</td>
<td>50.000</td>
<td>0.0%</td>
<td>Same charges at retail and wholesale. Applies when no new resources are required (e.g. increase or decrease the bitrate of a P2A circuit). Include the CPE installation and configuration at both ends.</td>
</tr>
<tr>
<td><strong>Installation and configuration charge for hard change request (in BD per hard change)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64 and 128 kbit/s</td>
<td>150.000</td>
<td>150.000</td>
<td>0.0%</td>
<td>Same charges at retail and wholesale. Apply when new resources are required such as new cable access, new network</td>
</tr>
<tr>
<td>256 and 512 kbit/s</td>
<td>200.000</td>
<td>200.000</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>1 Mbit/s</td>
<td>250.000</td>
<td>250.000</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>2 Mbit/s</td>
<td>300.000</td>
<td>300.000</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>4 Mbit/s to 1 Gbit/s</td>
<td>400.000</td>
<td>400.000</td>
<td>0.0%</td>
<td></td>
</tr>
</tbody>
</table>
### Draft Order on the wholesale MPLS service

**Annex – Order Legal Basis and Reasoning**

<table>
<thead>
<tr>
<th>Chargeable item</th>
<th>Batelco proposed WLA charges</th>
<th>TRA’s FRND WLA charges</th>
<th>Evolution of TRA’s FRND charges vs. Batelco proposed charges</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregation link</td>
<td>Time and materials</td>
<td>Time and materials</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Additional work (e.g. laying access copper or fibre)</td>
<td>Time and materials</td>
<td>Time and materials</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Protection</td>
<td>Time and materials</td>
<td>Time and materials</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Source: The Authority

**Q4. Please provide your comments on the price terms of the WLA service and the Authority’s setting of fair, reasonable and non-discriminatory price terms for the WLA service, including the one-off charges.**
Annex B – WLA service description and annexures

157. The following Annex includes Batelco’s submission of the WLA service description and its 7 annexures dated 26 June 2012.

6.4 SERVICE DESCRIPTION 2-5: WHOLESALING LOCAL ACCESS SERVICE (WLA)

1. THE SERVICE

The Wholesale Local Access (WLA) Service is a wholesale dedicated private leased circuit service within the Kingdom of Bahrain between a Point of Presence and an End User’s premises / an OLO’s premises providing guaranteed symmetrical bandwidth.

Available To: Licensed Operators holding an appropriate licence.

2. DEFINITIONS

Capitalised terms not defined in this Service Description are defined in Schedule 8 Part 1 (Dictionary). Terms defined in this Service Description are specific to it.

Aggregation Link means the connectivity established between the OLO and a Batelco access node, as further detailed in Annex 4 and Annex 5. Relocation of the Aggregation Link will be charged on a time and materials basis.

End User Premises means a permanent physical location in Bahrain owned or controlled by a person or organisation that is neither a licensee, nor affiliated to or controlled by a licensee, and from which location that person or organisation conducts business and receives telecommunication services.

End User Connection means the connection from the End User Premises to the Aggregation Link as indicated in Annex 7.

Exceptional Delivery Date means the date defined at paragraph 3.2(c).

Fixed Service Period means, where the OLO has submitted an Order requesting that a WLA Service be provided for a fixed period and the Order has been accepted by Batelco, the period during which the resulting WLA Service Agreement remains in force, such period commencing on the Service Commencement Date.

Minimum Service Period means an applicable minimum period of twelve (12) calendar months (unless otherwise stated in an Order submitted by the OLO and accepted by Batelco) for which the WLA Service will be provided, such period commencing from the Service Commencement Date.

Order means a written request by the OLO in the format specified by Batelco in Annex 2 (subject to change from time to time) for a WLA Service.

OLO Premises means a network connection located at premises owned or shown to be leased by an OLO or at a Batelco collocation facility, but for the avoidance of doubt cannot be at an End User Premises, cable station, earth station, manhole, power room, lead-in pipe, duct, outdoor cabinet, MDF, riser room or anywhere not on the main island of Bahrain unless connected by a permanent physical connection above sea level and accessible by Batelco.
Draft Order on the wholesale MPLS service  
Annex – Order Legal Basis and Reasoning

**Point of Handover** means the port on the CPE (customer premise equipment provided by Batelco) at the End User Premises and the port on the CPE at the OLOs premises.

**Point of Presence** means an aggregation or a network connection located at premises owned or shown to be leased by an OLO or at a Batelco collocation facility, but for the avoidance of doubt cannot be at an End User Premises, cable station, earth station, manhole, power room, lead-in pipe, duct, outdoor cabinet, MDF, riser room or anywhere not on the main island of Bahrain unless connected by a permanent physical connection above sea level and accessible by Batelco.

**Ready for Test (RFT) Date** means the date when all elements to the WLA Service have been successfully installed and ready for end-to-end testing by Batelco and OLO, such testing to be carried out in accordance with Annex 6.

**Renewed Minimum Service Period** means an applicable minimum period of one (1) calendar month for which the WLA Service will be provided, such period commencing from the expiry of a Service Period.

**Service Commencement Date** for each Order for the WLA Service will be the date of successful implementation and notified handover (as further described in Annex 6) of the WLA Service by Batelco to the OLO.

**Service Credit** means, in relation to a single service credit, that amount represented by 5% of the monthly rental charge.

**Service Period** means Minimum Service Period or Fixed Service Period or Renewed Minimum Service Period.

**Upgrade** means an increase in the throughput of the End User Connection.

**WLA Service Agreement** means an agreement to provide WLA Service formed by the acceptance by Batelco of an Order submitted by the OLO.

**WLA Amended Service** means a WLA Service that is amended by the relocation within the Kingdom of Bahrain of the End User Premises end or by a change in throughput of the End User Connection.

**WLA Service** means dedicated local private leased circuit transmission capacity for digital point-to-point communications within the Kingdom of Bahrain (more particularly specified at Annex 1) between:

(a) two of the OLO’s Points of Presence;
(b) an OLO’s Point of Presence and its End User Premises; and
(c) an OLO’s Point of Presence and the Point of Presence of another OLO.

3. **TERMS**

3.1 **Forecasting**

At the beginning of each calendar month, the OLO shall supply a non-binding forecast of the WLA Service the OLO anticipates that it will require in each month of the twelve month period following the date of the forecast, in the form required by Batelco from time to time. The OLO shall use all reasonable endeavours to forecast accurately given Batelco is placing reliance on those forecasts.

3.2 **Supply of Service**
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

(a) The OLO must submit an Order to Batelco to request supply of the WLA Service in accordance with the WLA Service Agreement and in the form shown at Annex 2.

(b) Batelco will within two (2) Working Days advise the OLO if the Order is rejected, stating the required corrections. For the avoidance of doubt, if an Order is not rejected then it will be deemed accepted by Batelco. In the event an Order is rejected more than twice then Batelco must provide the OLO with the reasons for the rejection within two (2) Working Days of the third rejection and clearly identify the changes required to enable the Order to be accepted.

(c) Within seven (7) Working Days from the date of the acceptance of the Order, Batelco will advise the OLO if the Order cannot be delivered in the standard time scales shown in Annex 3. In circumstances where the service cannot be delivered by the standard time scale, Batelco will give notice of the date for the provision of the WLA Service which is defined for the purposes of this paragraph 3.2 as the “Exceptional Delivery Date”.

(d) Subject to the OLO fulfilling all of its obligations, Batelco will provide and the OLO will acquire the WLA Service either within the standard time scales or by the Exceptional Delivery Date as appropriate which shall include actual orders not being greater than or equal to 30% over the forecast Order supplied in accordance with clause 3.1.

(e) The WLA Service is available at the speeds and prices set out in Schedule 3 to this Reference Offer.

(f) Withdrawal of a speed as a result of any amendments to this Service Description approved by the Regulator will not affect the unexpired portion of any Fixed Service Period of a WLA Service unless Batelco is willing to upgrade the service for the same price.

(g) The technical specifications applicable to the WLA Service are set out in Annex 4 to this Service Description.

(h) Batelco shall notify the OLO when installation is complete and ready for use within 2 Working Days on which the WLA Service is delivered. At the same time, Batelco shall advise the OLO of the test results for the WLA end-to-end test, such test to have been carried out in accordance with Annex 6.

3.3 Termination

(a) Where the Minimum Service Period has not expired, the OLO shall be entitled to terminate such WLA Service Agreement on at least three (3) month’s written notice to Batelco and will be liable to settle the fees up to the end of the Minimum Service Period.

(b) Where a WLA Service Agreement has a Fixed Service Period and provided the Minimum Service Period has expired, the OLO may terminate such WLA Service Agreement on at least three (3) month’s written notice to Batelco and will be liable to pay to Batelco by way of liquidated damages the monthly rental fees up to the end of the Fixed Service Period. In submitting an Order requesting a Fixed Service Period the OLO expressly acknowledges that liquidated damages as calculated above form a reasonable pre-estimate of the loss which Batelco would suffer as a result of early termination by the OLO. Such liquidated damages shall be Batelco’s sole and exclusive damages or monetary remedy for such early termination.

(c) Following the expiry of any Fixed Service Period or Minimum Service Period the WLA Service Agreement shall be automatically renewed for a Renewed Minimum Service Period unless terminated by the OLO, provided that the OLO supplies Batelco with a termination notice at least one (1) month prior to the expiry of the current Service Period.

3.4 Amendment to the WLA Service
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

(a) The OLO shall be entitled to amend a WLA Service Agreement by requesting a WLA Amended Service by providing notice to Batelco. Where the OLO requests a WLA Amended Service, then the Order procedure at paragraph 3.2 shall apply to that request. However, where the OLO requests an Upgrade that does not require any new network resources a new Minimum Service Period shall not commence and Batelco shall provide a WLA Amended Service for the remainder of the current Service Period.

(b) The OLO shall not be liable for any termination or additional recurring charges in respect of a request for a WLA Amended Service which is for a relocation. Batelco shall charge a once off charge for the relocation unless the OLO requires both End User Connections to be operational in parallel. For the avoidance of doubt, Batelco shall not terminate the End User Connection which is subject to relocation until the Service Commencement Date of the new End User Connection.

(c) If, following a WLA Amended Service request that is a downgrade of throughput for an End User Connection, the OLO shall pay to Batelco liquidated damages as follows;

\[ P = WC \]

where:

\[ WC = T \times X \]

\[ T = \text{remainder of the relevant Service Period, whichever is longer} \]

\[ X = \text{original Charge for WLA Service for the End User Connection} - \text{Charge for Amended WLA Service for the End User Connection} \]

3.5 OLO Obligations

(a) The OLO must provide Batelco with suitable space for, and access at all reasonable times to, any Batelco Equipment required to be located in any building in which the WLA Service is located within the control of the OLO. If consent is required from a third party, in this case the End User or building owner, the OLO shall procure such consent. Batelco is not required to pay the OLO for the preparation or use of, or access to, space provided pursuant to this sub-paragraph.

(b) If Batelco’s Equipment requires electricity supply and electricity connection points, they shall be supplied, in the location specified by Batelco, to the OLO at the OLO’s expense according to the equipment specification. Such electricity shall be available at the same level of supply, protection and continuity as that available to the OLO’s or End User’s Equipment, as appropriate.

(c) The OLO shall be solely responsible for any loss, theft or destruction of, or damage (reasonable wear and tear excepted) to Batelco’s Equipment required to be located in the building in which the WLA Service is located within the control of the OLO or End User, howsoever caused (unless caused by Batelco or its agents), occurring at any time while such Batelco Equipment is so located.

(d) The OLO must provide Batelco and any authorised employee, agent, affiliate or contractor of Batelco with all information and assistance that person may reasonably require to design, test, commission and maintain the WLA Service (which may include, without limitation, participation in testing procedures as and when reasonably requested by Batelco).

(e) For the avoidance of doubt the OLO may require their agent to be present during the installation, testing or commissioning done by Batelco but not so as to affect the Service Commencement Date.

3.6 Variation or Withdrawal

(a) Batelco may upon providing three (3) months’ written notice to the OLO and subject to the approval of the Regulator, vary the WLA Service or withdraw the WLA Service relating to these terms and Annex 3, or any part thereof, by issuing a revised Service Description. Annexes 1, 2 and 4 (circuit speeds, order form and technical
characteristics) can be varied in writing by Batelco upon issuing 10 Working Days written notice to the OLO.

(b) Notwithstanding paragraph (a) above, unless Batelco and OLO agree otherwise at the time, any withdrawal or variation of the WLA Service, or any amendment to the Charges payable for the WLA Service in accordance with this Service Description and Schedule 3 of this Reference Offer, shall also apply to existing WLA Service Agreements which shall continue in force in accordance with its terms and conditions until renewed or terminated in accordance with this Service Description or the Supply Terms.

(c) Notwithstanding the above, Batelco may suspend any WLA Service in order to carry out planned or emergency maintenance.

(d) In the case of planned maintenance, this will be carried out as far as possible during the night or at weekends or other quiet periods. Batelco will give ten (10) Working Days notice of each planned maintenance activity affecting a particular WLA Service or group of WLA Services. This will include the circuits affected, the date and time of the suspension and the likely duration of the suspension.

(e) In the case of emergency maintenance Batelco will advise the OLO as soon as possible after the emergency suspension of the service and in any case no more than five (5) hours after the emergency suspension. This advice will include the circuits affected and an estimate of the likely period of emergency suspension and in the case that the suspension is over then the reason for the emergency maintenance.

(f) In cases of emergency maintenance Batelco will advise the OLO within five (5) hours after service is restored with a report of the cause of the fault.

3.7 Maintenance

(a) Batelco shall provide maintenance and support services in respect of the WLA Service in accordance with Annex 3.

(b) The OLO will report a fault to the Batelco nominated contact point which shall be available twenty-four (24) hours per day every day. Batelco will record the fault using a unique reference which it shall pass to the OLO and both parties will agree the time of the report. Batelco will commence repair of the fault within four (4) clock hours of the time of the report and will restore the service within 1 Working Day of the report. Batelco will advise the OLO nominated contact point once the fault is clear and both parties will record the time of this clearance.

4. CHARGES

The OLO shall pay to Batelco the relevant Charges determined in accordance with Schedule 3 of this Reference Offer.

5. SERVICE LEVEL AGREEMENT

Batelco shall provide the WLA Services in accordance with the service level agreement at Annex 3 to this Service Description.
## 6.5 ANNEX 1 - CIRCUIT SPEEDS, DEFINED INTERFACES, MEDIA AND TOPOLOGY

<table>
<thead>
<tr>
<th>Speed</th>
<th>Interface</th>
<th>Connector</th>
<th>Topology</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Mbit/s to 1Gbit/s</td>
<td>1000 base LX</td>
<td>SC/LC</td>
<td>Ethernet service point-to-point or Ethernet service point-to-multipoint</td>
<td>Fibre</td>
</tr>
<tr>
<td></td>
<td>1000 base SX</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.6 ANNEX 2 - WLA ORDER FORM

**SERVICE AND LEASE OF ACCESS SERVICES ORDER FORM**

This Order Form should be read in conjunction with the attached Terms and Conditions for the provision of Wholesale Services in the Reference Access Order (RAO).

Request Type:  
- [ ] New  
- [ ] Upgrade  
- [ ] Cease  
- [ ] Internal Relocation (same floor)  
- [ ] External Relocation  
- [ ] Others:

1. CUSTOMER (OLO) DETAILS

Company Name  Division  
Business Type  CR No.  
Name of Representative  Title  
Tel No.  Fax No.  Email Add.  
Billing Address  
(for existing customer please fill in the below details)

Billing Account No.  (where applicable)

Distant End Customer  (for international connectivity only)

Company Name  
Location Address  
Contact Name  Title  
Tel. No.  Fax No.  Email Add.  
Distant End Carrier

2. SERVICE AGREEMENT DETAILS

Type of service required:  
- [ ] IPLC service  
- [ ] Local Leased Line POP service  
- [ ] Customer Access Tail service  
- [ ] WS MPLS  
- [ ] GE  
- [ ] Others

Central Site Address (A End):  (for additional site, please fill in the attached multiple site information sheet)  
Flat No.  Bldg./Hse No.  Road No.  Block No.  
Contact Name  
Cont. No.  Fax No.  Email Add.  
Total number of sites 1  Multiple site information sheet attached?  
[ ] Yes  
[ ] No

**Speed** (where applicable)

VLAN ID

Interface Type required: Based on Batelco Availability  
- [ ] Ethernet

Service Restoration (where available)  
- [ ] Required  
- [ ] Not Required

Existing circuit ID (where applicable)

Service Period (Contract Period)  
- [ ] Open ended  
- [ ] Fixed: 1 (Year/s)
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

3. For Batelco Internal Use Only

<table>
<thead>
<tr>
<th>Tag No.</th>
<th>Pre-Sales Ref (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circuit Designation (where applicable)</td>
<td></td>
</tr>
<tr>
<td>Service Commencement Date:</td>
<td>Billing Commencement Date:</td>
</tr>
<tr>
<td>Minimum Service Period (if other than 6 calendar months)</td>
<td></td>
</tr>
<tr>
<td>Details of Charges:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Gross Monthly charge</th>
<th>% Discount</th>
<th>Net Monthly Charge</th>
<th>Once-off Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Total: 0

(for foreign denomination where applicable)

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Gross Monthly charge</th>
<th>% Discount</th>
<th>Net Monthly Charge</th>
<th>Once-off Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Total: 0

Total amount (in words)

Account Representative: ___________________________ Signature: ___________________________

Cont. No. ___________________________ Fax No. ___________________________ email Add. ___________________________

Remarks: __________________________________________________________

4. Agreement

Collectively, this Order Form, which constitutes an integral part of the Agreement, has to be signed by customer when placing an order and to be counter-signed by Batelco. The Service Period will start as from the effective Date and will be valid for the requested duration period. By signing below, the Customer, declares that he/she has read, understood and accepted the terms and conditions of the Agreement.

For and on behalf of the Customer: ___________________________ Signature: ___________________________

Name: ___________________________ Title: ___________________________ Date: ___________________________

For and behalf of Batelco:

Signature: ___________________________ Name: ___________________________ Title: ___________________________ Date: ___________________________
## Access Services Order Form - End-user/OLO Information Sheet

### OLO/End-user (B end) Details:

<table>
<thead>
<tr>
<th>End-user Name</th>
<th>Type</th>
<th>Division</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Representative</th>
<th>CR/CPR No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flat No.</th>
<th>Bldg./Hse No.</th>
<th>Road No.</th>
<th>Block No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Name</th>
<th>Cont. No.</th>
<th>Fax No.</th>
<th>email Add.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This Site Circuit Speed

Interface Type required

- Ethernet

Existing circuit ID (where applicable)

<table>
<thead>
<tr>
<th>OLO Name</th>
<th>End-user Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signature</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date

---

### Access Services Order Form - End-user/OLO Information Sheet

<table>
<thead>
<tr>
<th>End-user Name</th>
<th>Type</th>
<th>Division</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Representative</th>
<th>CR/CPR No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flat No.</th>
<th>Bldg./Hse No.</th>
<th>Road No.</th>
<th>Block No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Name</th>
<th>Cont. No.</th>
<th>Fax No.</th>
<th>email Add.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This Site Circuit Speed

Interface Type required

- Ethernet

Existing circuit ID (where applicable)

<table>
<thead>
<tr>
<th>OLO Name</th>
<th>End-user Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signature</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date

---
6.7 ANNEX 3 – SLA

Definitions:

**Availability** means the amount of time (expressed as a percentage and calculated for a period of one (1) calendar month) during which the service does not suffer faults which result in the service not performing according to the QoS parameters.

**Outage** means the time between receiving a legitimate fault from the OLO until the WLA Service has been successfully restored.

**Rebate Cap** means the maximum rebate the OLO is entitled to, on a monthly basis, as a result of Batelco not meeting the Service Levels in this SLA. The Rebate Cap is set at 10 Service Credits per month.

**Response Time** means the time between receiving a fault from an OLO and the time at which a technician or responsible person is assigned to look into the fault raised.

**Restoration Time** means when a service is not performing according to the QoS parameters then it should be restored within an agreed timeline.

**Quality of Service (QoS)** means the level of service based on parameters defined in the QoS table below.

**Validation Time** means the time between the receipt of the Order for the WLA Service and the acceptance or rejection of that Order.

1. **Validation Time**

The maximum Validation Time and the service rebate for failure to meet the maximum Validation Time is as follows:

<table>
<thead>
<tr>
<th>Validation time</th>
<th>Service Rebate for each working day</th>
<th>Rebate cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Working Days</td>
<td>1 Service Credit</td>
<td>2 Service Credits</td>
</tr>
</tbody>
</table>

2. **Ready for Test**

The maximum RFT lead time and the service rebate for failure to meet the maximum RFT is as follows:

<table>
<thead>
<tr>
<th>RFT</th>
<th>Service Rebate for each working day</th>
<th>Rebate cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 Working Days</td>
<td>1 Service Credit</td>
<td>2 Service Credits</td>
</tr>
</tbody>
</table>
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

The maximum RFT lead time and the service rebate for failure to meet the maximum RFT shall not apply if:

(a) The OLO does not submit a forecast in accordance with clause 3.1; or
(b) The actual numbers of circuits ordered are greater than or equal to 30% over the number of circuits forecasted by the OLO, provided the total number of forecasted circuits in a calendar month is greater than four (4).

3. Service Availability

The WLA Service Availability is as follows:

<table>
<thead>
<tr>
<th>Uptime</th>
<th>Downtime</th>
<th>Down seconds/month</th>
<th>Down minutes/month</th>
<th>Down hours/month</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.70%</td>
<td>0.30%</td>
<td>7,776.00</td>
<td>129.60</td>
<td>2.16</td>
</tr>
<tr>
<td>99.50%</td>
<td>0.50%</td>
<td>12,960.00</td>
<td>216.00</td>
<td>3.60</td>
</tr>
<tr>
<td>99.00%</td>
<td>1.00%</td>
<td>25,920.00</td>
<td>432.00</td>
<td>7.20</td>
</tr>
</tbody>
</table>

* planned or emergency Outages are excluded from the WLA Service Availability uptime.

The WLA Service Availability is calculated according to the formula set out below:

\[
\text{Availability (\%)} = 100 - \left\{ 100 \times \left( \frac{\text{Outage in minutes}}{\text{No. of days in the month} \times 24 \times 60} \right) \right\}
\]

The WLA Service Availability rebate is as follows:

<table>
<thead>
<tr>
<th>99.5% - 99.69%</th>
<th>99.0% - 99.49%</th>
<th>98.0% or lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Service Credit</td>
<td>2 Service Credits</td>
<td>4 Service Credits</td>
</tr>
</tbody>
</table>

Batelco shall be responsible for arranging service availability reports for the OLO within five (5) Working Days upon request.

4. Quality of Service

The WLA service QoS parameters are as follows:

<table>
<thead>
<tr>
<th>Jitter</th>
<th>Latency</th>
<th>Packet loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 ms</td>
<td>15 ms</td>
<td>1%</td>
</tr>
</tbody>
</table>

In case the WLA Service is below the QoS parameters the OLO shall report a fault.
Batelco will offer the following service level rebates:

**Packet Loss**

<table>
<thead>
<tr>
<th>Standard KPI</th>
<th>Standard Rebate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=1%</td>
<td>1 Service Credit</td>
</tr>
</tbody>
</table>

**Latency**

<table>
<thead>
<tr>
<th>Standard KPI</th>
<th>Standard Rebate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 10 ms</td>
<td>1 Service Credit</td>
</tr>
</tbody>
</table>

**Jitter**

<table>
<thead>
<tr>
<th>Standard KPI</th>
<th>Standard Rebate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 5 ms</td>
<td>1 Service Credit</td>
</tr>
</tbody>
</table>

5. **Response Time and Restoration Time**

<table>
<thead>
<tr>
<th>Time</th>
<th>Response time</th>
<th>Restoration time</th>
</tr>
</thead>
<tbody>
<tr>
<td>During working hours</td>
<td>2 working hours</td>
<td>8 working hours</td>
</tr>
<tr>
<td>Outside working hours</td>
<td>4 working hours</td>
<td></td>
</tr>
</tbody>
</table>
### 6.8 ANNEX 4 – TECHNICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Service Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Physical Interface</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Speed</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mode</strong></td>
</tr>
<tr>
<td></td>
<td><strong>MAC Layer Supported</strong></td>
</tr>
<tr>
<td></td>
<td><strong>MAC Address Learning</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Frame Size</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Class of Service</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Maximum Number of CE-VLANs</strong></td>
</tr>
<tr>
<td></td>
<td><strong>CE-VLAN - PE-VLAN ID Map</strong></td>
</tr>
<tr>
<td></td>
<td><strong>CE-VLAN ID Preservation</strong></td>
</tr>
<tr>
<td></td>
<td><strong>CE-VLAN COS Preservation</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Unicast Traffic Limit</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Multicast Traffic Limit</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Broadcast Traffic Limit</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Protocol Treatment</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Ethernet service point-to-point or Ethernet service point-to-multipoint (Pseudowire Ethernet tagged mode with port-based aggregation or virtual aggregation) providing guaranteed symmetrical bandwidth
6.9 ANNEX 5 – AGGREGATION LINK TECHNICAL DIAGRAM AND SPECIFICATIONS

**Aggregation Link (Zoomed)**

**Aggregation Link** (technical specifications): fibre link(s) with optical interface / gig ethernet / modular / LC connector at the CPE. Customer will need to provide VLAN tag to Batelco service team in order to ensure the correct mapping between Batelco CPE and OLO equipment.

The OLO may require additional Aggregation Links for (a) passive protection purposes, or (b) where additional capacity is required at the same OLO Premises in cases where the existing Aggregation Link is full or peaking at 80% capacity and Batelco agrees to provide these at time and material rates plus monthly rental.
## ANNEX 6 – PROVISIONING VALIDATION TEST

<table>
<thead>
<tr>
<th>Provisioning Validation Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Testing Methodology</strong></td>
</tr>
<tr>
<td><strong>Testing Mode</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Parameters tested</strong></td>
</tr>
<tr>
<td><strong>Tester Speed Setting</strong></td>
</tr>
<tr>
<td><strong>Tester Frame Size</strong></td>
</tr>
<tr>
<td><strong>Acceptance criteria</strong></td>
</tr>
<tr>
<td><strong>Test Results</strong></td>
</tr>
</tbody>
</table>

29 Layer 1-2 contains MAC layer and data
Q5. Please provide your comments on the WLA service description and annexures submitted by Batelco on 26 June 2012.
Draft Order on the wholesale MPLS service
Annex – Order Legal Basis and Reasoning

List of questions

Q1. Please provide your comments on the legal basis on which the Authority is issuing this draft Order.

Q2. Please provide your comments on the Authority’s overview of the WLA service.

Q3. Please provide your comments on the non-price terms of the WLA service and the Authority’s setting of fair, reasonable and non-discriminatory non-price terms for the WLA service.

Q4. Please provide your comments on the price terms of the WLA service and the Authority’s setting of fair, reasonable and non-discriminatory price terms for the WLA service, including the one-off charges.

Q5. Please provide your comments on the WLA service description and annexures submitted by Batelco on 26 June 2012.