



هيئة تنظيم الاتصالات
Telecommunications Regulatory Authority
Kingdom of Bahrain - مملكة البحرين

Determination of Significant Market Power and Determination of Dominant Position in the Markets for Provision of Broadband Internet Access Services from a Fixed Location

Final Determination

27 March 2014

Ref: MCD/03/14/018

Public Version

(Confidential information has been replaced by [X])

Purpose: To define the relevant retail and wholesale markets for provision of broadband internet access services from a fixed location in the Kingdom of Bahrain and to determine whether any Licensed Operator holds Significant Market Power or a Dominant Position in those markets.

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DETERMINATION OF SIGNIFICANT MARKET POWER

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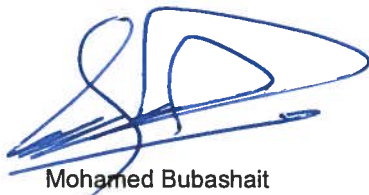
HAVING REGARD TO THE LEGISLATIVE DECREE NO. 48 OF 2002 PROMULGATING THE TELECOMMUNICATIONS LAW, THE COMPETITION GUIDELINES ISSUED BY THE TELECOMMUNICATIONS REGULATORY AUTHORITY OF THE KINGDOM OF BAHRAIN ON 18 FEBRUARY 2010, ALL ADMISSIBLE EVIDENCE AND THE SUBMISSIONS MADE BY INTERESTED PARTIES, THE TELECOMMUNICATIONS REGULATORY AUTHORITY OF THE KINGDOM OF BAHRAIN HEREBY MAKES THE FOLLOWING DETERMINATION:

1. For the reasons set out in the Annex to this Determination, the Telecommunications Regulatory Authority of the Kingdom of Bahrain (the 'Authority') has identified and defined the following relevant markets:
 - a. the retail market for the supply of mass-market broadband internet access services from a fixed location; and
 - b. the retail market for the supply of business broadband internet access services from a fixed location.
2. The Authority has identified and determines that:
 - a. No licensee has a position of Significant Market Power in the retail market for the supply of mass-market broadband internet access services from a fixed location; and
 - b. Batelco has a position of Significant Market Power in the retail market for the supply of business broadband internet access services from a fixed location.
3. This Determination will be reviewed when market conditions, as determined by the Authority, warrant it.
4. This Determination is without prejudice to the Authority's powers under the Telecommunications Law, promulgated by the Legislative Decree No.48 of 2002, the Competition Guidelines, issued by the Authority on 18 February 2010, the Access Regulation, approved by Regulation No. 1 of 2005, and the outcome of any on-going or future investigation, consultation or other regulatory process or measure carried out pursuant to such powers, all or any of which may result in the application of different terms and/or findings than those of this Determination, including the Determination and definition of new markets and the designation of Significant Market Power and Dominance.
5. This Determination shall come into effect from the date of its issuance.

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6. This Determination supersedes the Determination of Significant Market Power in certain relevant retail markets issued by the Authority on 3 June 2008 only to the extent that that Determination relates to the broadband internet access market.

Signed on 26/3/2014



Mohamed Bubashait
General Director
Telecommunication Regulatory Authority
Manama, Kingdom of Bahrain

Final Determination
DETERMINATION OF DOMINANT POSITION

DETERMINATION OF A DOMINANT POSITION

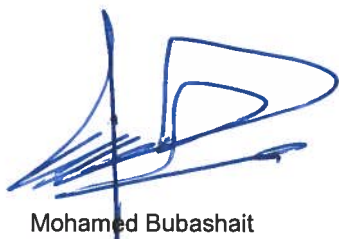
HAVING REGARD TO THE LEGISLATIVE DECREE NO. 48 OF 2002 PROMULGATING THE TELECOMMUNICATIONS LAW, THE COMPETITION GUIDELINES ISSUED BY THE TELECOMMUNICATIONS REGULATORY AUTHORITY OF THE KINGDOM OF BAHRAIN ON 18 FEBRUARY 2010, ALL ADMISSIBLE EVIDENCE AND THE SUBMISSIONS MADE BY INTERESTED PARTIES, THE TELECOMMUNICATIONS REGULATORY AUTHORITY OF THE KINGDOM OF BAHRAIN HEREBY MAKES THE FOLLOWING DETERMINATION:

1. For the reasons set out in the Annex to this Determination, the Telecommunications Regulatory Authority of the Kingdom of Bahrain (the 'Authority') has identified and defined the following relevant markets:
 - a. the wholesale physical network infrastructure access market for the supply of mass-market broadband internet access services from a fixed location;
 - b. the wholesale physical network infrastructure access market for the supply of business broadband internet access services from a fixed location;
 - c. the wholesale broadband access market for the supply of mass-market broadband internet access services from a fixed location; and
 - d. the wholesale broadband access market for the supply of business broadband internet access services from a fixed location.
2. The Authority has identified and determines that:
 - a. no licensee holds a Dominant Position in the wholesale physical network infrastructure access market and in the wholesale broadband access market for the supply of mass-market broadband internet access services from a fixed location; and
 - b. Batelco holds a Dominant Position in the wholesale physical network infrastructure access market and in the wholesale broadband access market for the supply of business broadband internet access services from a fixed location.
3. This Determination will be reviewed when market conditions, as determined by the Authority, warrant it.
4. This Determination is without prejudice to the Authority's powers under the Telecommunications Law, promulgated by the Legislative Decree No.48 of 2002, the Competition Guidelines, issued by the Authority on 18 February 2010, the Access Regulation, approved by Regulation No. 1 of 2005, and the outcome of any on-going or future investigation, consultation or other regulatory process or measure carried out pursuant to such powers, all or any of which may result in the application of different terms and/or findings than those of this Determination, including the determination and definition of new markets and the designation of Significant Market Power and Dominance.
5. This Determination shall come into effect from the date of its issuance.

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6. This Determination supersedes the Determination of Dominance in Wholesale Broadband Markets, issued by the Authority on 14 September 2009.

Signed on 26/3/2014

A handwritten signature in blue ink, consisting of a large, stylized 'B' with a vertical line through it and some horizontal strokes at the bottom.

Mohamed Bubashait

General Director

Telecommunication Regulatory Authority

Manama, Kingdom of Bahrain

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Annex – Reasoning for the Final Determination

Annex - Reasoning for the Final Determination

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List of acronyms and definitions

APN	Access Point Name
ARPU	Average Revenue Per User
Batelco	Bahrain Telecommunications Company B.S.C
BD	Bahraini Dinar
CR	Commercial Registration
DSL	Digital Subscriber Line
EC	European Commission
FTTx	Fibre to the x (home, cabinet, node etc.)
Gbps	Gigabits per second
GCC countries	Gulf Cooperation Council countries
IP	Internet Protocol
Kbps	Kilobits per second
LAN	Local Area Network
LLU	Local Loop Unbundling
LTE	Long Term Evolution
Mbps	Megabits per second
NBN	National Broadband Network
NFWS	National Fixed Wireless Service
NGA	Next Generation Access
NGN	Next Generation Network
NRA	National Regulatory Agency
Ofcom	Office of Communications (UK communications regulator)
OLO	Other Licensed Operator
QoS	Quality of Service
RIO	Reference Interconnection Offer
RTN	Retail Tariff Notification
SLA	Service Level Agreements
SMP	Significant Market Power
SSNIP	Small but Significant Non-transitory Increase in Price
TRA	Telecommunications Regulatory Authority of the Kingdom of Bahrain
UK	United Kingdom
WDSL	Wholesale Digital Subscriber Line

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1 Background

1.1 Introduction and purpose of this Annex

1. This Annex sets out the underlying reasoning for the adopted market definitions and conclusions regarding Significant Market Power ('SMP') and Dominant Position in the supply of broadband internet access services from a fixed location at the retail and wholesale levels in the Kingdom of Bahrain (referred to hereafter as "broadband services")^{1 2}. The purpose of this Annex is to identify the relevant markets in which broadband services are supplied at the retail and wholesale level, and to assess whether any Licensed Operator has SMP or holds a Dominant Position in those markets.
2. An SMP designation in respect of retail services and a dominance designation in respect of wholesale services provide the legal basis whereby regulatory obligations deemed necessary and/or mandated by the provisions of the Telecommunications Law promulgated by the Legislative Decree No. 48 of 2002 (the 'Telecommunications Law') can be defined and implemented.
3. In the Kingdom of Bahrain, broadband services are delivered at the retail level using the following technologies:
 - a. xDSL (a family of technologies based on the copper "Digital Subscriber Line");
 - b. WiMax;³
 - c. FTTx (a family of technologies based on fibre access networks); and
 - d. mobile broadband.⁴
4. Of these, DSL, WiMax and mobile broadband are used most widely. Fibre is still in the nascent stages of deployment.
5. Alternative operators supplying DSL services rely on Batelco's access network, whereas all other services are provided over separate infrastructures.
6. In this background section, the Authority provides an overview of:
 - a. previous SMP and dominance Determinations by the Authority on broadband services;

¹ The Authority defines broadband in line with the ITU as internet connections at speeds of at least 256kbps in one or both directions. For more details, see <http://www.itu.int/ITU-D/ict/publications/hhmanual/2009/material/HHManual2009.pdf>.

² For simplicity, the Authority uses the terms 'broadband services' and 'broadband products' interchangeably throughout this document. The Authority also uses the terms 'broadband internet access services from a fixed location' and 'broadband access services' or 'broadband services' interchangeably throughout this document.

³ For simplicity, the Authority uses the terms 'fixed wireless' and 'WiMax' interchangeably throughout this document. The Authority recognises that fixed wireless operators are gradually migrating away from WiMax towards LTE technology and that the terminology used might need to be revisited in future market reviews.

⁴ At the time of the last review in 2008, there were also providers of satellite broadband. According to the Authority's market intelligence, satellite-based broadband services were negligible in Bahrain by the end of 2012, and as such, satellite-based services are not considered in this review.

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- b. a summary of the regulation of broadband services in the Kingdom of Bahrain; and
- c. a summary of broadband market developments since the last Determinations.

1.2 Previous Determinations on broadband markets in the Kingdom of Bahrain

- 7. The Authority has previously considered the markets in which broadband services are supplied in the Kingdom of Bahrain:
 - a. on 3 June 2008, the Authority determined that Batelco held SMP in the retail market for broadband internet access services from a fixed location;⁵ and
 - b. on 14 September 2009, the Authority found that Batelco was dominant in the wholesale physical network infrastructure access market and the wholesale broadband access market.⁶
- 8. Each of the 2008 and 2009 Determinations relating to broadband services are summarised below.

1.2.1 2008 SMP Determination – Retail broadband internet access services from a fixed location

- 9. When the 2008 SMP Determination was made, most of the broadband services available in the Kingdom of Bahrain were based on Digital Subscriber Line (DSL) technology. Two National Fixed Wireless Service (NFWS) licences had been issued in January 2007 and WiMax services were launched by these licensees from late 2007 onwards. However, such services were still in their infancy throughout 2008.
- 10. Despite this, WiMax services were considered in the 2008 SMP Determination to be part of the same relevant product market as DSL-based services. Nevertheless, the impact of market entry by WiMax operators was difficult to predict with any accuracy and it was believed that the ability of WiMax operators to provide an effective competitive constraint on Batelco would be limited by the technological capabilities of their networks. For limited incremental costs, Batelco's network was capable of delivering download speeds of up to 8Mbps using ADSL2 and up to 20Mbps if ADSL2+ were to be implemented⁷. Whilst in theory, WiMax networks could attain sustainable bit rates approaching 8Mbps, substantial incremental investment would be required in order to maintain acceptable quality of service levels. Therefore, the ability of WiMax facility-based competitors to compete with Batelco on quality of services was considered to be constrained at the time of the 2008 SMP Determination.

⁵ The Authority, "Significant market power designation in certain relevant retail markets", 3 June 2008 (the "2008 SMP Determination").

⁶ The Authority, "Dominance Determination in Wholesale Broadband Markets", 14 September 2009 (the "2009 Dominance Determination").

⁷ According to the ITU definition of ADSL2+ services, speeds of up to 24Mbps can be achieved.

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11. Additionally, the Authority found that satellite-based broadband provided only a limited competitive constraint in the retail broadband internet access market at the time of the 2008 SMP Determination. Satellite broadband had only a marginal share of the market and suffered from significant cost and quality disadvantages compared to other broadband delivery mechanisms, such as DSL. As a result, satellite broadband was not found to be well suited to compete in the mass retail broadband market.
12. The Authority had also considered the extent to which mobile data services were likely to form part of the same market as fixed internet access.⁸ The Authority noted that although internet access using mobile handsets was available, such access was not seen as being comparable to fixed internet access in terms of download speeds, user experience or price. In light of these differences, the Authority concluded that it was appropriate to define separate economic markets for fixed and mobile broadband services.
13. The Authority therefore defined the market for the provision of broadband services from a fixed location to include DSL and WiMax services. This was defined as a single geographic market across the Kingdom of Bahrain.
14. The Authority also considered the case for having a separate broadband internet access market for residential and business customers, reflecting the significant differences in prices for services offered to these two groups, and the differences in the quality of services offered (e.g. lower contention ratios for business offers). However, further segmentation of the retail market along these lines would not have affected the outcome of the competition assessment, as Batelco had a market share for each customer type well in excess of 90%.⁹ The Authority therefore decided to retain a single market for broadband internet access for both residential and non-residential (business) customers.
15. Given the stage of evolution of each of these technologies, the Authority was of the view that competition was not effective and that Batelco had SMP in this market. Although competition was emerging, with the entry of two WiMax-based operators and with some competition from OLOs using Batelco's regulated access products, the Authority concluded that Batelco had SMP in the retail market for broadband internet access services.¹⁰

1.2.2 2009 Dominance Determination – Dominance Determination in Wholesale Broadband Markets

16. In the 2009 Dominance Determination, the Authority examined competition in the wholesale physical network infrastructure access market and the wholesale broadband access market. The Authority distinguished between these two wholesale markets on the basis of the different features of access to the local loop and

⁸ The Authority, "Strategic and Retail Market Review", public consultation, 27 August 2007, page 144.

⁹ The Authority, 2008 SMP Determination, paragraph 85.

¹⁰ *ibid*, paragraph 231.

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bitstream, noting that this approach was also consistent with the approach followed by the EC.¹¹

17. The wholesale physical network infrastructure access market was defined to:
 - a. include LLU (access to the copper local loop and all the ancillary services);
 - b. include self-supply by Batelco;
 - c. exclude wholesale access to existing NFWS local loops and fibre local loops;
 - d. exclude wholesale access to other local loop infrastructure (satellite);
 - e. exclude Bitstream (as well as the Wholesale DSL product);
 - f. exclude access to ducts.¹²
18. The Authority defined the wholesale broadband access market to:
 - a. include Batelco's Bitstream product;
 - b. include access to the WiMax networks of the NFWS licensees;
 - c. exclude access to other local loop infrastructure access (fibre, satellite);
 - d. include self-supply by Batelco and WiMax products;
 - e. include Batelco's Wholesale DSL product;
 - f. exclude LLU.¹³
19. The Authority defined the geographic boundaries of both markets to be the Kingdom of Bahrain. Batelco was found to be dominant in both of the defined markets.¹⁴

1.3 Summary of existing regulation of broadband services in the Kingdom of Bahrain

1.3.1 Retail regulation

20. Article 58 of the Telecommunications Law states that a licensed operator with SMP shall be subject to tariff controls specified by the Authority through regulations.
21. Following the 2008 SMP Determination and the issuance of the Retail Tariff Notification (RTN) Regulation in 2010, the services that Batelco supplies in the retail fixed broadband market are subject to the RTN Regulation. As a result, any changes to Batelco's tariffs for these services must be notified to the Authority before their introduction, with Batelco required to confirm that such tariff changes adhere to a set of tariff controls. The tariff controls set out in the RTN Regulation are designed to ensure that the proposed tariffs do not give rise to anticompetitive practices, including

¹¹ The Authority, 2009 Dominance Determination, paragraphs 32-33.

¹² *ibid*, paragraph 181.

¹³ *ibid*, paragraph 230.

¹⁴ *ibid*, paragraph 283.

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but not limited to undue discrimination, excessive pricing, margin squeezes, predatory pricing, or abusive tying or bundling.¹⁵

1.3.2 Wholesale regulation

22. According to Article 57 of the Telecommunications Law, where the Authority has determined that an operator has a dominant position, that operator must provide network access on terms which are fair, reasonable, and non-discriminatory, with tariffs that are based on forward-looking incremental costs or by benchmarking such tariffs against tariffs in comparable telecommunications markets. Such proposed terms are to be submitted by the dominant operator in the form of a Reference Offer for the Authority's approval.
23. As a result of the 2009 Dominance Determination, Batelco is obliged to offer wholesale broadband access in the form of Wholesale DSL services, wholesale Bitstream access services and access to its copper local loop, through a local loop unbundling (LLU) service. The current terms of access relating to these wholesale services were set in the Authority's Reference Offer Order issued on 14 May 2012.¹⁶ The LLU Reference Offer Order¹⁷ sets the terms and conditions and charges of Batelco's LLU and ancillary services.

1.4 Description of the retail and wholesale markets for broadband services and summary of market developments since the previous reviews

1.4.1 Retail market for broadband services and developments since 2008

24. Since the previous reviews in 2008 and 2009, the broadband market in the Kingdom of Bahrain has undergone a significant transformation. Most notably, the availability of broadband services has increased substantially, driven by a rapid growth of wireless broadband technologies, and mobile broadband in particular. As discussed further below, the entry and expansion of infrastructure-based competitors such as the WiMax-based networks of Zain and Menatelecom and the mobile network of VIVA have been important competitive developments in relation to the provision of broadband services in the Kingdom of Bahrain.
25. Figure 1 shows the number of broadband subscribers and the broadband penetration rate in Bahrain over the period from 2006 to 2013, taken from the Authority's Telecommunications Market Indicators report dated September 2013¹⁸ and the Authority's Quarterly Market Indicators report (Q4 2013) (reporting data as of the end

¹⁵ The Authority, "Retail Tariff Notification Guidelines", 18 February 2010 (Ref: MCD/02/10/018), paragraph 22.

¹⁶ The Authority, "An Order issued by the Telecommunications Regulatory Authority on the Reference Offer of the Bahrain Telecommunications Company B.S.C" (Ref: MCD/05/12/072), 14 May 2012.

¹⁷ The Authority, "An Access Order Relating to the Local Loop Unbundling and Ancillary Services Terms and Conditions in the Reference Offer of the Bahrain Telecommunications Company B.S.C. ("Batelco")" (Ref: MCD/05/11/0550), 05 May 2011.

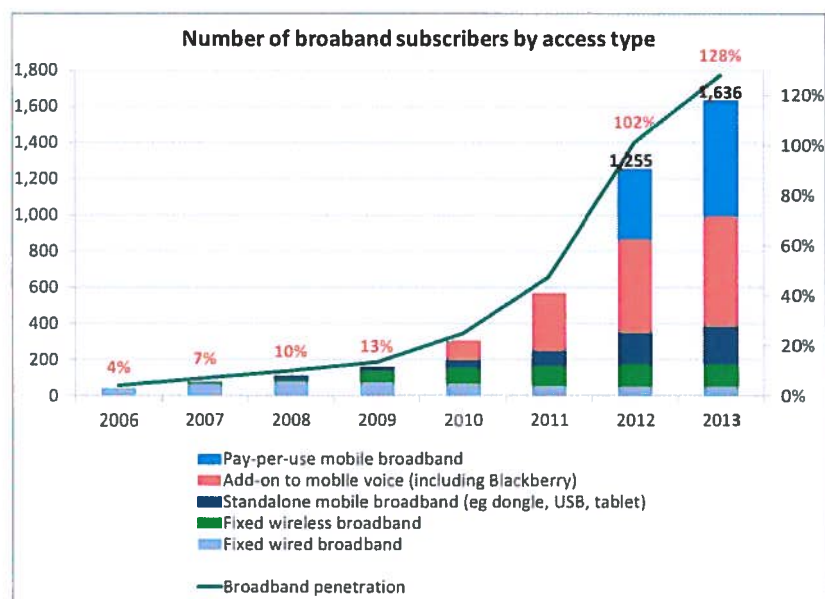
¹⁸ The Authority "Telecommunications markets indicators in the Kingdom of Bahrain", September 2013.

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of 2013).¹⁹ There were approximately 1.63 million internet subscribers (including subscribers of mobile broadband) in the Kingdom of Bahrain at the end of 2013, all of whom were broadband subscribers.²⁰ This amounted to broadband penetration of 128%, up from 10% in 2008, meaning broadband penetration in the Kingdom of Bahrain is amongst the highest in the region. Most of the growth in broadband subscribers has been driven by mobile broadband subscribers – at the time of the 2008 SMP Determination, there were fewer than 12,000 mobile broadband subscribers in Bahrain, representing 12% of total broadband subscribers. By the end of 2013, there were in excess of 1.46 million mobile broadband subscribers (equivalent to 89% of all broadband subscribers).

Figure 1: Broadband subscriptions and penetration rate 2006-2013



Note: Comprehensive pay-per-use mobile broadband figures are not available for 2011 and earlier.

Source: Telecommunications Market Indicators, September 2013; and Quarterly Market Indicators (Q4 2013 report).

26. Revenues earned from the provision of all broadband services amounted to BD 32.5 million in 2009 and approximately BD 42 million in 2012²¹. Revenues have increased by approximately 29% since 2009.
27. Providers of broadband services in the Kingdom of Bahrain target two distinct groups of customers with broadband products: mass-market customers and business customers.

¹⁹ The Authority, "Quarterly Market indicators" Q4 2013 report.

²⁰ Note that the data used to carry out the market review has been updated between the draft and final Determination. Where this recent data affects the Authority's conclusions, this is reflected in the sections of this document entitled "Conclusions". In general, however, the Authority does not consider that the updated information affects its findings.

²¹ The broadband revenue figure for 2012 is an estimate due to incomplete information on mobile broadband revenues provided by one operator.

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- a. The mass-market broadband packages seem to be targeted at residential users and some smaller businesses, who do not require the same quality of service as larger businesses and for whom the quality of service offered on mass-market packages is sufficient.²²
 - b. In contrast, business broadband packages appear to be targeted at those businesses which do require higher quality broadband services with additional customer support, while at the same time do not need only a dedicated business connectivity solution (e.g. private circuits).
28. There were 14 active providers of broadband services in the Kingdom of Bahrain in 2012. Of these, the larger operators in terms of subscriber numbers (in alphabetical order) were Batelco, Menatelecom, VIVA and Zain.
29. DSL was the main technology used to provide broadband at the time of the 2008 SMP Determination and the 2009 Dominance Determination. This is no longer the case as only about 4% of total broadband connections²³ in the Kingdom of Bahrain were based on DSL at the end of 2013. Even if mobile broadband subscribers are excluded, DSL-based broadband subscriptions still only represented 29% of fixed²⁴ broadband subscribers (DSL, WiMax, and fibre) as of Q4 2013²⁵. In comparison, DSL's share of fixed broadband subscribers in the EU has been around 75% as of July 2011.²⁶
30. Batelco is the main provider of retail DSL services with [X] subscribers at the end of 2013. It provides DSL services to both business and mass-market customers.
31. A number of operators (such as, and not limited to, Lightspeed, 2Connect and Etisalcom) also provide DSL services based on Batelco's wholesale access products (Wholesale DSL services and/or Bitstream services). These operators focus primarily on providing DSL services to business customers, with the exception of Lightspeed, which also targets mass-market broadband subscribers. Together, these licensees have over 4,000 subscribers. However, operators have not to date used Batelco's LLU service to supply commercial services to end users²⁷.
32. In addition, the deployment of WiMax-based networks has been an important competitive development in Bahrain since 2008. The NFWS and associated frequency licences were issued in January 2007 to Zain and Menatelecom. Whilst Menatelecom currently offers distinct business and mass-market WiMax products, Zain does not. When the last review was conducted during 2007 and 2008, WiMax

²² For the purpose of this review, these products will be referred to as "mass-market" broadband products hereafter

²³ These broadband connections include all mobile broadband connections, both standalone dedicated mobile (e.g. dongles, routers) and confined connectivity mobile (e.g. smartphones). For reasons discussed in Section 3.2.3, the Authority will analyse standalone mobile and confined connectivity separately and in turn as part of the market definition and competition assessment exercise.

²⁴ Please note that 'fixed broadband' refers to the type of technology and is not a synonym for the term 'from a fixed location' used throughout this document.

²⁵ The Authority "Quarterly Market indicators", Q4 2013 report.

²⁶ Figure 8, "Broadband access in the EU: situation at 1 July 2011", Communications Committee, Working Document. Available at http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/cocom_broadband_july_2011.pdf

²⁷ According to market statistics, there has been a negligible number of trial local loops that have been unbundled.

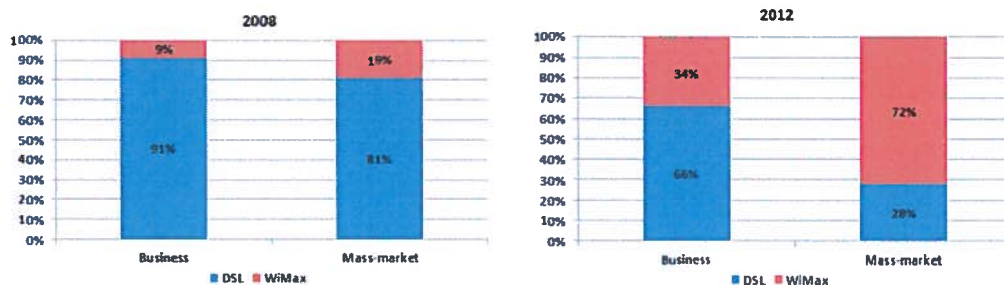
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was included in the retail market for broadband services but was still in the early stages of development. It is now one of the more prominent technologies used to provide broadband internet access services in the Kingdom of Bahrain. WiMax subscribers represented 8% of total broadband subscribers in Bahrain at the end of 2013, and 71% of fixed broadband subscribers²⁸.

33. Figure 2 shows the relative take-up of DSL and WiMax services for each customer group since 2008.

Figure 2: Split between DSL and WiMax for customers of fixed broadband



Source: The Authority's analysis of operator data

34. Mobile broadband was at a nascent stage at the time of the 2008 SMP Determination and 2009 Dominance Determination. Since then, it has become more important, with around 89% of broadband subscribers in the Kingdom of Bahrain using mobile broadband connections in Q4 2013.²⁹ Mobile broadband services can themselves be divided into two categories: standalone mobile broadband and confined connectivity. Standalone mobile broadband refers to internet accessed via dongles, tablets, modems, USBs, etc, which provide a user experience most similar to a DSL or WiMax connection. Confined connectivity refers to internet access via handset devices, including add-ons to voice packages, smart phones, Blackberries, etc.³⁰
35. In Bahrain, Batelco, VIVA and Zain offer mobile broadband services. Batelco and VIVA have separate business and mass-market products. Zain does not distinguish between its mass-market and business customers in the provision of mobile broadband services.
36. FTTx (fibre) technology was launched in Bahrain in February 2007 and has around 1,200 subscribers, primarily supplied by Nuetel in the Amwaj area. Table 1 summarises the number of broadband subscribers in Bahrain by technology as of Q4 2013.

²⁸ The Authority "Quarterly Market indicators", Q4 2013 report.

²⁹ The Authority "Quarterly Market indicators", Q4 2013 report.

³⁰ The boundary between "standalone" and "confined connectivity" mobile broadband services may become increasingly blurred, for example as devices such as laptops can be tethered to handsets.

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Table 1: Number of broadband subscribers (mass market and business) by technology

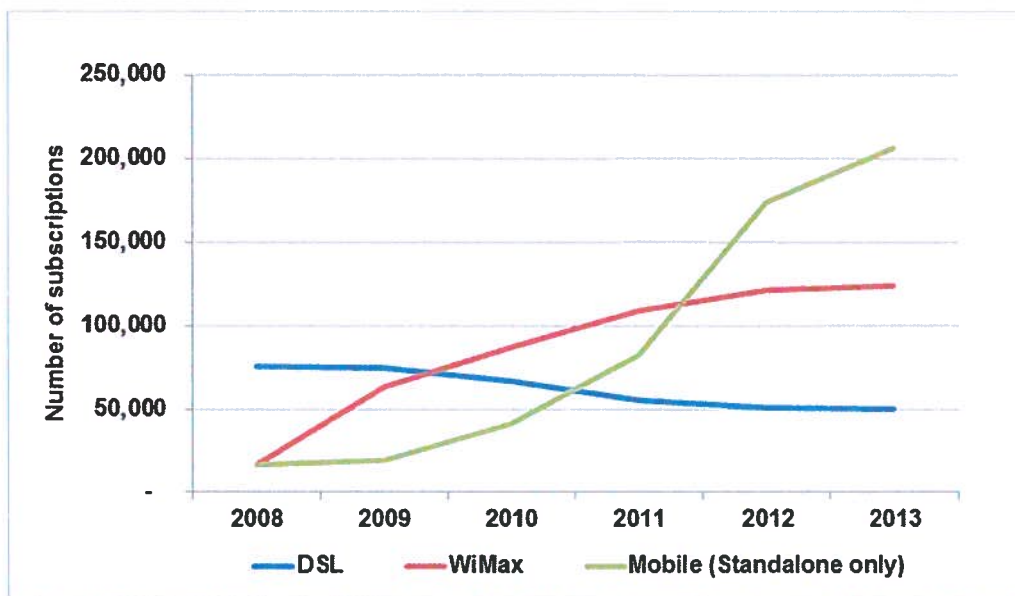
Technology	Number of Subscribers (2013)
DSL	51,168
WiMAX	123,811
Mobile	1,461,194
Fibre	1,222

Source: The Authority's analysis based on operator data.

Note: Number of Fibre subscriptions and OLOs DSL subscriptions is based on 2012 data

37. The rapid take-up of WiMax and standalone mobile broadband (3G) technologies since 2009 can be seen from Figure 3. Over this period, there has been a noticeable decline in the number of DSL connections in the Kingdom of Bahrain and an increase in the number of WiMax and mobile broadband connections.

Figure 3: Evolution of total subscriber numbers across technologies



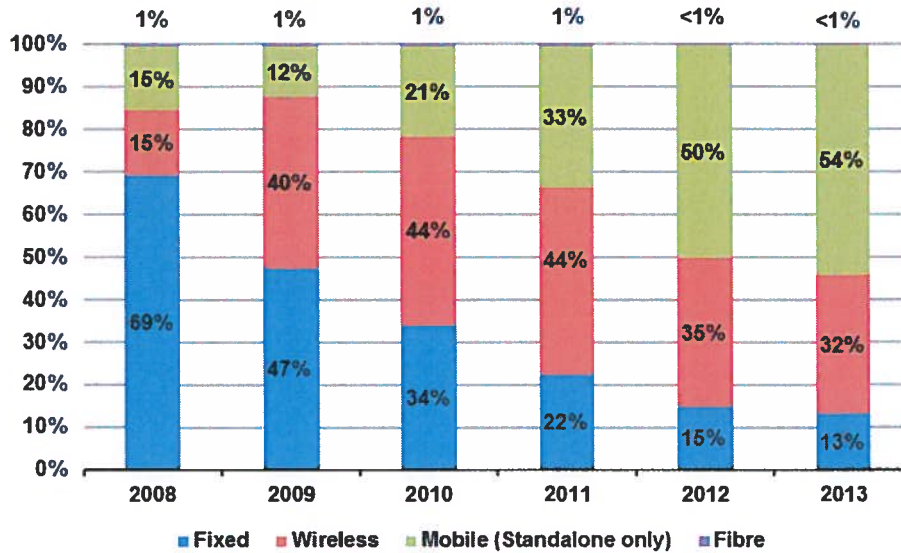
Source: The Authority's analysis based on operator data

38. As further evidence of this trend, Figure 4 below shows the share of DSL connections as compared to WiMax and standalone mobile broadband connections. DSL's share has been declining steadily, from 69% of all connections (including standalone mobile broadband) at the end of 2008, to approximately 13% in 2013. Whilst the share of WiMax broadband connections has also declined from its peak of 44% in 2011 to approximately 32% as of Q4 2013, the share of standalone mobile broadband connections has increased rapidly from around 12% in 2009 to more than 50% in 2013.

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Figure 4: Evolution of subscriber market³¹ shares of technologies



Source: The Authority's analysis based on operator data

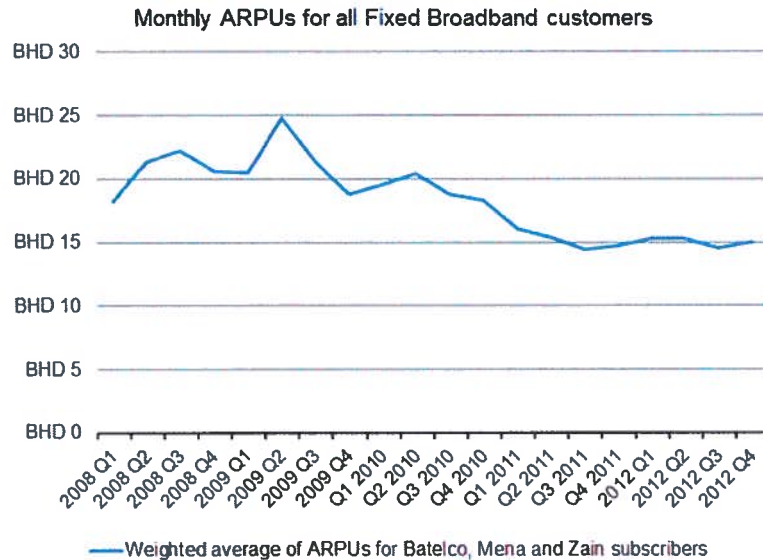
39. The declining share of DSL connections suggests there could be increasing competitive pressure in the retail market for broadband services from WiMax and mobile broadband services.
40. The declining prices of broadband are a further potential demonstration of the increase in competition. As illustrated in Figure 5 below, the average revenue per user (ARPU) of fixed broadband services has declined from around BD 25 in 2009 to approximately BD 15 at the end of 2012. Declining ARPUs can be indicative of falling prices and in this case, the Authority believes this decline has been driven primarily by reductions in prices for mass-market products. Further evidence for this is provided in Section 3.1.

³¹ Where the market includes both mass-market and business customers.

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Figure 5: Decline in ARPUs



Source: The Authority's analysis based on operator data

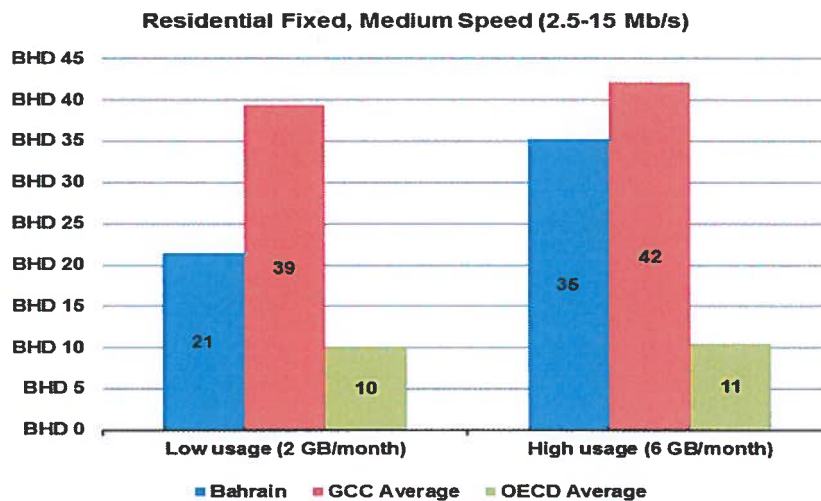
41. Fixed broadband prices in the Kingdom of Bahrain remain below the average of GCC countries, as show in Figure 6 below. However, average prices in the Kingdom of Bahrain are still significantly above the OECD average, although this may, to some extent, reflect higher costs of international connectivity.³²

³² According to estimates from Datamena, the cost of international connectivity in the GCC countries was 5-10 times more expensive than in 'developed hubs', such as London or New York. See "Closing the content gap – the Internet challenge for the Middle East", slide 6, available at http://www.itu.int/ITU-D/arb/ARO/2012/Survey-Assessment-QAT/Presentations/Hassan_Internet-challenges.pdf

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Figure 6: Comparison of prices with the GCC average



Source: Price Benchmarking Report for Arab Countries, 2012

42. There is also some evidence of innovation in both the mass-market and business market segments and improvements in the quality of broadband services in the Kingdom of Bahrain since the last market review. For instance, data caps/allowances on broadband products have been increasing over time and some operators now offer unlimited data as part of their broadband offerings.³³
43. Additionally, the download and upload speeds of broadband products have increased over time, both for fixed and mobile broadband services. For example, the maximum speed offered by Batelco on its DSL products was 2 Mbps in 2008. In contrast, in February 2014, the maximum speed offered by Batelco's DSL was 16Mbps³⁴. There is also evidence that customers have migrated to higher speeds over the 5 year period between 2008 and 2013.³⁵
44. Furthermore, VIVA, Zain and Batelco³⁶ are currently offering LTE-based mobile broadband services with the capability to support headline download speeds of up to 150Mbps³⁷. Batelco also offers fibre based broadband services for mass-market

³³ For instance, Zain offers unlimited broadband packages based on its WiMax technology, see http://www.bh.zain.com/ZainPortal/Personal_InternetPlans_HomeBroadband.jsp (accessed on 12 February 2014).

³⁴ See <http://portal.batelco.com/personal-broadband-services/residential-broadband-packages/> (accessed 12 February 2014).

³⁵ The Authority's analysis of operator data.

³⁶ According to VIVA's website <http://www.viva.com.bh/4G/index.html> the operator has launched LTE services offering up to 10 times faster download speeds and 3 times faster upload speeds than 3G.

³⁷ See the operators' websites at <http://www.viva.com.bh/4G/index.html>; <http://www.bh.zain.com/ZainPortal/4GLTE.jsp>; <http://portal.batelco.com/personal-mobile-services/4g-lte-2/> (accessed 18 March 2014).

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customers, offering download speeds of up to 100Mbps^{38 39}. The Authority recognises that the actual speeds experienced by end-users are likely to be substantially lower than these advertised headline speeds. Nevertheless, this is still a significant improvement to operators' 3G offerings, for which headline download speeds do not exceed 42Mbps.⁴⁰

45. Broadband services are therefore being offered to retail end users in Bahrain over an increasingly diverse range of infrastructures. A key part of the Authority's assessment of competition in this draft Determination has been an evaluation of the extent to which these different infrastructures are able to deliver broadband services which are an adequate substitute for DSL services (see Section 3.2).

1.4.2 Mass-market and business broadband products at the retail level

46. As discussed above, most providers of broadband services in the Kingdom of Bahrain offer two distinct groups of broadband services: mass-market products and business products.
47. There are significant differences between the main characteristics of business and mass-market products, in particular for the most popular products offered by Batelco over its DSL infrastructure:
- a. business products are available only to business entities (based on a CR number);
 - b. business products typically offer unlimited data allowances, whereas mass-market DSL products usually include a monthly data threshold beyond which the speed of the service is throttled;
 - c. business products offer lower contention ratios, compared to mass-market DSL products. For example, Batelco's business DSL services are based on a 1:8 contention ratio, while its mass-market DSL services are based on a contention ratio of 1:15. This means that customers of business services have a greater degree of certainty over the download speeds available; and
 - d. business products offer additional value-added services, e.g. dedicated customer service, email servers, fixed IP address etc.
48. Consistent with the overall size of the mass-market segment, the retail market developments described above seem to be primarily driven by competitive dynamics in the larger segment of mass-market products. The declining share of DSL technology and falling ARPU in the mass-market segment is likely to reflect the increasing propensity of residential and small business customers to regard WiMax

³⁸ While the proportion of subscribers on higher speeds is increasing over time (for example, 43% of fixed broadband subscribers were on speeds of 2Mbps or more in 2012, compared with 15% in 2010), this is still fairly low compared to the EU.

³⁹ See Batelco's press release from 2 January 2012 <http://portal.batelco.com/blog/2012/01/02/batelco-successfully-tests-100mbps-fixed-broadband-speeds-batelco-rolls-out-fiber-network-with-capability-for-triple-play-solution-2/> and Batelco's website <http://portal.batelco.com/personal-broadband-services/residential-broadband-packages/> (accessed 18 March 2014)

⁴⁰ See operator websites: for instance VIVA <http://www.viva.com.bh/content/viva-postpaid-broadband>, <http://www.viva.com.bh/content/viva-prepaid-broadband> (accessed on 18 March 2014).

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and mobile broadband services as good substitutes for DSL. Further evidence of this is provided in Section 3.2

1.4.3 Wholesale market for broadband services

49. At the wholesale level, Batelco offers regulated access services through its Reference Offer. These services comprise Wholesale DSL, Bitstream and LLU. They are described briefly below and illustrated in Figure 7:

- a. Wholesale DSL (WDSL hereafter) is a resale DSL product, whereby Batelco provides the end-to-end connectivity to the internet (including access and domestic and international transmission);
- b. Batelco's Bitstream product is an access service that enables OLOs to provide high-speed services to end-users via a digital pathway (made up of an ADSL link and an aggregation link (backhaul)) across Batelco's network. OLOs can use a bitstream service to differentiate their retail services from those of Batelco by, for example, proposing different thresholds for data volumes (maximum amount of data in GB that can be downloaded per month). With Bitstream, OLOs are responsible for the provision of internet connectivity and lawful intercept;⁴¹
- c. The LLU product is a set of basic and ancillary services provided by Batelco to OLOs so that they can connect their active exchange equipment and core network to Batelco's copper local loop. LLU offers greater scope for product differentiation than Bitstream but this comes at the cost of greater investment by the OLO in its own infrastructure.⁴² The ability to differentiate product offerings and provide higher quality of service is likely to increase further with the deployment of more advanced technologies based on copper infrastructure, such as VDSL and VDSL2.⁴³

⁴¹ The Authority, "2009 Dominance Determination".

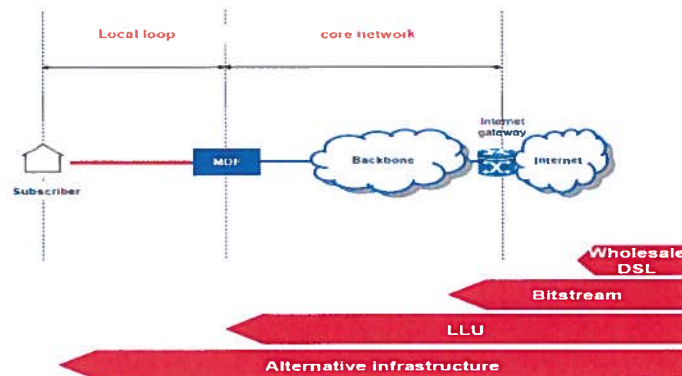
⁴² The Authority, "2009 Dominance Determination".

⁴³ A work group, on the introduction of VDSL2 in Batelco copper access network was formed and conducted tests in 2012. Results were reviewed by an independent contractor that concluded that VDSL2 could be deployed in the Kingdom of Bahrain, which would allow higher speeds on short copper loops.

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Figure 7: Positioning of the different “broadband inputs” in the xDSL value chain



Source: The Authority

50. Bitstream has a greater take-up in the Kingdom of Bahrain in comparison to WDSL. As of the end of 2012, Bitstream represented approximately 85% of wholesale broadband services supplied by Batelco, with WDSL accounting for the remainder. The volume of Bitstream services supplied by Batelco to OLOs increased from 2008 to 2011, before plateauing in 2012. WDSL, on the other hand, grew slowly between 2008 and 2010, and has seen a small decline since 2010, as seen in Figure 8 below.

Figure 8: Evolution of Bitstream and WDSL take-up

[X]

Source: Telecommunications markets indicators in the Kingdom of Bahrain, September 2013

51. By the end of 2012, there were [X] Bitstream and WDSL services purchased by OLOs from Batelco, an increase of only 0.5% compared to 2011. The number of Bitstream and WDSL services purchased from Batelco represented 8.5% of Batelco's DSL broadband connections (retail and wholesale).
52. The relative importance of Bitstream as an input into serving business customers can be seen from Figure 9. At the end of 2012, the number of business broadband subscribers who took a service which used Batelco's Bitstream services represented more than 25% of Batelco's total (retail and wholesale) business DSL subscribers. In contrast, the number of business subscribers who took a service which used Batelco's WDSL services represented less than 10% of Batelco's total (retail and wholesale) DSL customer base at the end of 2012.

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53. At the same point in time, the number of mass-market broadband subscribers who took a retail service which used Batelco's Bitstream services represented less than 5% of Batelco's total retail and wholesale mass-market DSL subscribers, while the number of mass-market subscriptions based on Batelco's WDSL services represented less than 0.5% of its customer base.

Figure 9: Bitstream and WDSL in the business and mass-market segments

[X]

[X]

Source: Telecommunications markets indicators in the Kingdom of Bahrain, September 2013

1.4.4 National Broadband Network plan

54. The Authority recognises that the Government in its Third National Telecommunication Plan has called for the creation of a National Broadband Network (NBN).^{44 45}
55. The Authority also acknowledges that the creation of the NBN will likely have a significant impact on the deployment of fibre technology in Bahrain and subsequently on the competitive situation in the broadband markets. The Authority will therefore continue to monitor the development of the NBN, and it might need to revisit its current findings once more detailed NBN plans become available or at a later stage once the NBN is operational.

1.5 Summary

56. The Authority last reviewed the market for broadband internet access from a fixed location in 2008 at the retail level⁴⁶ and in 2009 at the wholesale level⁴⁷.
57. Batelco was found to have SMP at the retail level and was found to be dominant at the wholesale level. As a result of this, Batelco has faced a number of regulatory obligations on the supply of retail and wholesale broadband services such as Retail Tariff Notification obligations and obligatory provision of Bitstream, WDSL and LLU products over its copper infrastructure.
58. Since 2008, there have been a number of developments in the broadband market. There has been an increase in the take-up of WiMax and mobile broadband. Also, competition has evolved differently in the business and mass-market segments, with access-based competitors having a stronger standing in the market for business products rather than mass-market products.

⁴⁴ The Council of Ministers, "Resolution No. (39) of the year 2012: Promulgating the Third National Telecommunications Plan", pp. 10-12.

⁴⁵ In February 2014, the Communications Affairs Ministry signed a Memorandum of Understanding (MoU) with Batelco regarding the development of the NBN. See <http://www.gulf-daily-news.com/NewsDetails.aspx?storyid=370924> (accessed on 18 March 2014).

⁴⁶ The Authority, 2008 SMP Determination.

⁴⁷ The Authority, 2009 Dominance Determination .

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59. The following sections set out the Authority's views on whether these developments warrant a change in the definition of the market at the retail and wholesale level and the subsequent findings of SMP and dominance.

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2 Analytical framework

60. To determine whether a licensed operator or operators hold SMP and/or dominance in a relevant market, the Authority adopts a three-step process:
- definition of the relevant market(s);
 - analysis of competition in the relevant market(s); and
 - identification of operator(s) who have SMP / dominant⁴⁸ position, if any.
61. At each step, the Authority relies on well-established economic principles and tests to define markets and assess competition. For example, in defining relevant markets, the focus is to ensure that the market boundary includes those services that are considered by users to be close economic substitutes for one another (demand-side substitution) and between which suppliers could easily switch production (supply-side substitution). To assess demand- and supply-side substitution, the hypothetical monopoly test⁴⁹ can be a useful tool. The Authority's market definitions focus on the markets in which broadband services are supplied.
62. The identification of relevant markets is not an end in itself, but is a critical step in assessing the extent to which any firm or firms in those markets have market power. Defining markets and assessing competition within those markets involves a degree of judgment, with the overarching purpose being to ensure that all relevant competitive constraints operating in a market (from both existing and potential competitors) are identified.
63. Throughout the three-step process, the Authority applies an analytical framework that is consistent with the Telecommunications Law and the Authority's Competition Guidelines.⁵⁰ The tools and principles employed by the Authority are similar to those employed by other regulators and competition authorities, including the European Commission and national telecommunications regulatory authorities of the European Union.
64. When identifying relevant wholesale markets, the Authority will take into account the nature of competitive conditions at the retail level. Where operators compete at the retail level using their own infrastructure, it may be appropriate to have regard to that supply at the wholesale level, even if some of those competitors do not actively offer wholesale services. Their presence at the retail level may be sufficient to constrain those operators who do offer wholesale services. One way of testing this constraint is to examine whether substitution at the retail level provides an indirect constraint on

⁴⁸ Note that the Authority considers the terms "dominance" and "dominant position" equivalent and uses them interchangeably through the document.

⁴⁹ As set out in the Authority's Competition Guidelines, the "hypothetical monopoly test" identifies a group of products which are sufficiently close substitutes to be regarded as being in the same market. The approach is to assume that the products are supplied by a hypothetical monopolist. If the monopolist is able to profitably maintain a "small but significant non-transitory increase in price" ("SSNIP") for those products, then the appropriate market boundary has been defined (i.e. to include only those products), as no other products are regarded as being close demand-side or supply-side substitutes.

⁵⁰ The Authority, "Competition Guidelines: Guidelines issued by the Telecommunications Regulatory Authority", 18 February 2010 (Ref: MCD/02/10/019).

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the pricing of wholesale products. This is done by asking whether a hypothetical monopolist (absent regulation) could profitably sustain a SSNIP at the wholesale level, given the potential impact this could have in the retail market.⁵¹

65. Having identified the relevant markets, the Authority then looks at relevant factors to determine the level of competition in those defined markets, such as barriers to entry and expansion, and market shares. The purpose of this competition assessment is to identify any constraints, such as those from existing competition, potential competition, and any countervailing buyer power, that may limit the ability of an incumbent supplier of retail and wholesale broadband services to act independently of its competitors or customers and exercise market power.
66. The Telecommunications Law refers to two concepts of market power, namely a Dominant Position and SMP. Findings of dominance and SMP impart different ex ante regulatory obligations on the affected operators:
 - a. Article 57 of the Telecommunications Law states that an operator with a dominant position in a market shall make available access and interconnection services by way of a Reference Offer, with tariffs, terms and conditions that are fair, reasonable, non-discriminatory and based on forward-looking incremental costs; and
 - b. Article 58 of the Telecommunications Law states that operators with SMP shall be subject to tariff controls as specified by the Authority by way of Regulation or Licence conditions.
67. Article 1 of the Telecommunications Law defines both SMP and a Dominant Position. An operator with SMP is defined as holding a share of 25% or more of the relevant market as determined by the Authority.⁵² However, in determining whether an operator has SMP, the Authority must also take into account a number of other factors, including the ability of the Licensed Operator to influence market conditions, its turnover relative to the size of the market, its control over access to end users, its financial resources, and its experience of providing products and services in the market. The Authority may determine that a Licensed Operator has SMP even if its market share is less than 25%, or that it does not hold SMP even though its market share exceeds 25%. The SMP assessment is thus carried out for all operators based on their market shares.
68. According to the Telecommunications Law, a Dominant Position is defined as "the Licensee's position of economic power that enables it to prevent the existence and continuation of effective competition in the relevant market through the ability of the Licensee to act independently – to a material extent – of competitors, Subscribers and Users."⁵³ Although there is no threshold for Dominance in the Telecommunications Law (as there is for SMP), best practice in other jurisdictions provides some guidance. For instance, European case law has established a presumption of dominance where an operator has a market share above 50%.⁵⁴ It is

⁵¹ The Authority, 2009 Dominance Determination, para 193.

⁵² Telecommunications Law of the Kingdom of Bahrain, page 8.

⁵³ *ibid*, page 7.

⁵⁴ see <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61986J0062:EN:HTML>

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still possible to find a firm is dominant with a market shares less than 50%, although there are a few cases where this has occurred when the operator's market share is below 40%.⁵⁵

69. In practice, the Authority considers that the concepts of SMP and dominance are similar and seek to capture similar types of behaviour,⁵⁶ namely the ability of a firm to act independently of its competitors, its customers and ultimately of consumers, for example by sustaining prices above the competitive level.⁵⁷ However, the legal definition of SMP in the Telecommunications Law places special emphasis on market shares while recognising the need to consider carefully the ability of an operator to influence market conditions, i.e. to act independently.
70. The Authority notes that the aim of undertaking an *ex ante* assessment of market power is to understand how competitive the market currently is and whether this is likely to change within a reasonable timeframe. As noted in the Competition Guidelines, the Authority typically takes the following factors into account when undertaking such a forward-looking competition assessment:⁵⁸
- a. the market shares of individual entities;
 - b. competitive constraints arising from existing competitors, potential competitors, barriers to entry and expansion, and the degree of countervailing buyer power; and
 - c. evidence on behaviour and pricing.
71. In its competition analysis, the Authority assumes that existing regulations remain in place, with the exception of the regulation of retail and wholesale broadband services.⁵⁹ This approach is consistent with the so-called Modified Greenfield approach. For instance, when analysing competition in a retail market for broadband services, the Authority would first assume that there is no retail regulation in place. In addition, the Authority would then consider the impact of the existing wholesale regulation on the competitive outcomes at the retail level. In its analysis, the Authority specifically identifies which existing regulations impact its findings (and how).
72. In reaching its conclusion, the Authority has considered relevant facts and information, including information that the Authority has gathered through its periodic market data questionnaires⁶⁰, as well as specific questionnaires that were issued for the purpose of this market review⁶¹.
73. In the following sections, the Authority defines the relevant retail and wholesale markets relating to the provision of broadband services (Sections 3 and 4

⁵⁵ see the Authority, "Competition Guidelines", 18 February 2010 (Ref: MCD/02/10/019), paragraph 96.

⁵⁶ *ibid*, paragraph 92.

⁵⁷ For example, the regulatory framework governing the EU telecommunications sector considers the concept of SMP to be equivalent to that of dominance.

⁵⁸ See the Authority, Competition Guidelines, paragraph 93.

⁵⁹ *ibid*, Section 3.3.

⁶⁰ For example, the Authority's letter to Licensees, "Article 53 Request: Periodic Telecommunications Markets data request", 12 February 2013 (Ref: MCD/02/13/013).

⁶¹ Letter from the Authority to Licensed Operators, "Broadband Market Review – Request for Information under Article 53 of the Telecommunications Law", 1 July 2013 (Ref: MCD/06/13/069).

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respectively). The Authority then evaluates whether any Licensed Operator has SMP in the relevant retail markets (Section 5), and whether any Licensed Operator holds a Dominant Position in the relevant wholesale markets (Section 6).

74. Each section is structured as follows:
- a. Analysis from the Draft Determination, updated with more recent data where available;
 - b. Summary of the responses and cross-responses from operators that responded to the draft Determination (namely, Batelco, VIVA, Zain and 2Connect);
 - c. The Authority's analysis of the responses; and
 - d. Final conclusions.

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3 Identification of the relevant retail markets

75. The relevant market in which a service is supplied will include a number of dimensions that capture the space in which competition occurs. In particular, markets are typically defined in relation to the relevant customer, product, functional and geographic dimensions.
76. In considering the relevant retail market in which broadband services are supplied, the Authority has taken DSL services as a starting point for its analysis. It considers this to be appropriate given previous SMP findings and the current regulation of retail DSL services.
77. The Authority has then considered which other services are likely to be regarded by retail customers as close economic substitutes for DSL services, considering all the relevant market dimensions mentioned above. The issue of economic substitutability will be influenced by the technical features and pricing of alternative services. The Authority has considered these price and non-price features in defining the relevant retail markets below.

3.1 Relevant customer market

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78. In considering the relevant customer dimension of the market in which broadband services are supplied, the Authority has examined whether there is significant price discrimination or differences in the quality of service supplied to different types of customers.⁶²
79. As explained in Section 1.4, there are two distinct groups of broadband products offered at the retail level in the Kingdom of Bahrain - mass-market and business broadband products:
- a. Mass-market products primarily target customers that appear to be price sensitive (evidence from surveys showed high willingness to switch, discussed further in Section 3.2.3) with more limited requirements on the quality of services. This customer group would likely include residential customers and small businesses.
 - b. Business products, on the other hand, target customers that are looking for high-end solutions offering specific product characteristics unavailable to mass-market products, such as lower contention ratios, dedicated customer support and additional services. This customer group is likely to include small to medium businesses requiring higher quality of broadband services, but for

⁶² The Authority followed a similar approach in the 2008 SMP Determination, although concluded that the precise definition of the retail market would not affect the outcome of the competition assessment at the time. See the Authority, "Determination of Significant Market Power designation in certain relevant retail markets", 3 June 2008, paragraph 85. For the reasons set out below, the Authority considers that current market conditions are such that competitive conditions are now likely to differ between residential and business segments.

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which tailored business connectivity solutions (i.e. leased line accesses with additional subscription of dedicated internet connectivity) are not appropriate.

80. As a result, there are important price and non-price differences between the main characteristics of business and mass-market products.
81. In terms of pricing, business products are priced at a significant premium in comparison to mass-market products. This is shown in Table 2 which compares Batelco's prices for mass-market and business DSL products.⁶³

Table 2: Mass-market DSL and Business DSL Pricing (BD per month)

Download/Upload speed	Mass-market		Business	
	no contract	contract	no contract	contract
1Mbps/512kbps	12	10	60	45
2Mbps/1Mbps	20	-	100	60
4Mbps/1Mbps	30	15	150	100
8Mbps/2Mbps	60	30	200	130
10Mbps/2Mbps	80	60	250	150
16Mbps/2Mbps	100	80	300	200

Source: Batelco's website (accessed September 2013)

82. To some extent, the pricing differentials shown above may reflect differences in the underlying costs of supplying mass-market and business broadband services. However, as discussed in Section 5.2.1, Batelco's business DSL pricing contains significantly higher margins.
83. In terms of the non-price features of mass-market and business DSL products:
 - a. business products are available only to registered business entities that have a Commercial Registration (CR) number;
 - b. business products offer a higher quality of service, as they operate with a lower contention ratio of 1:8, in comparison to mass-market product that usually have a contention ratio of 1:15;
 - c. business products offer dedicated customer support;
 - d. business products offer an unlimited data allowance;⁶⁴ and

⁶³ In March 2014, Batelco introduced new prices for its residential and business fixed broadband services. For the reasons discussed at paragraph 116 below, the Authority considers that Batelco's new prices do not affect the Authority's conclusions on the relevant customer markets for this Determination.

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- e. business products offer additional value-added services, such as email servers, dedicated static IP addresses etc.
84. In light of the above differences in prices and the quality of services, the Authority has further considered whether separate markets should be defined for business and mass-market products.
85. For the purpose of this draft Determination, the Authority has defined business and mass-market products in terms of product characteristics rather than the identity of the end-user or product-name.
86. This approach is broadly consistent with a recent study undertaken for the European Commission on the proposed definition of markets subject to ex-ante regulation, where it explicitly distinguishes between retail mass-market catering mostly to residential customers and small business customers, and non-residential business grade products targeting business customers who have higher demands on quality.⁶⁵
- a. *"For the reasons given above, no clear segmentation exists between demand for connectivity from residential customers and from non-residential customers. A rather more meaningful segmentation exists between mass-market broadband products and bespoke connectivity products"; and*
 - b. *"We conclude that the different retail markets can be defined for mass-market broadband services and for bespoke (business grade) broadband services. The first category of services is generally demanded by residential end-users and small firms. The second category of services is generally demanded by non-residential end-users. Non-residential users often demand higher and more customised quality features. As such, there seems to be a continuum of quality grades within the bespoke segment. Furthermore, the non-residential users often demand a bundle of multiple communication services at various locations".*
87. As a first step, the Authority has therefore assessed whether business and mass-market products form part of the same market. Following the standard framework for demand-side substitutability, the Authority evaluates below whether a hypothetical small but significant non-transitory increase in price (SSNIP) of business products would lead to sufficient switching to mass-market products to make the price increase unprofitable.
88. The Authority does not consider that such switching would occur, for the following reasons:

⁶⁴ DSL mass-market packages would typically include a cap on the amount of data downloaded per month. The same would hold in the past for mass-market packages delivered via alternative infrastructures. The Authority recognizes that this trend might be changing with recent introduction of 'unlimited' mass-market packages (e.g. Zain offers unlimited broadband packages based on its WiMax technology, see http://www.bh.zain.com/ZainPortal/Personal_InternetPlans_HomeBroadband.jsp (accessed on 21 October).

⁶⁵ A study on the "Future electronic communications markets subject to ex-ante regulation" on September 18, 2013 for the European Commission DG Connect which defines separate markets for mass-market and business products based on product characteristics (hereinafter "The EC study"), pages 128 and 134, available at: http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

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- a. First, the significant qualitative differences between mass-market and business products described above suggest that a typical mass-market product might not be able to meet the specific needs of a business user;
 - b. Second, the existing significant price differential between business and mass-market DSL products (as shown in Table 2) implies that customers of business products are less price-sensitive and that a 5-10% increase in the price of business products would be unlikely to lead to a sufficiently strong switching response by the business customers to make this price increase unprofitable;
 - c. Third, there are additional barriers to switching between business and mass-market products. The ability of operators to link the use of business products with a specific CR number limits the extent to which business customers can switch to mass-market products (and vice versa)⁶⁶;
 - d. Finally, the Authority understands that certain value-added services (e.g. email servers or dedicated static IP addresses) are not fully transferable between mass-market and business products and thus represent an additional barrier to switching.
89. Based on the above, the Authority's preliminary view is that there is only limited demand side substitutability between mass-market and business products. This conclusion seems to be consistent with the evolution of competition in the two customer segments:
- a. While the overall market trends show significant take up of mobile broadband services, the demand for mobile broadband services to date is predominantly focused in the segment for mass-market products;
 - b. The penetration of WiMax technology in the business segment is significantly lower than in the mass-market segment, which suggests that WiMax operators have been less able to compete in the business customer segment;
 - c. There is a significant price premium on business products in comparison to mass-market broadband products. Batelco has also sustained significantly higher profit margins on the business DSL products, compared to mass-market DSL products.
90. The Authority has also considered the extent to which there is supply side substitutability between business and mass-market products. In examining this, the Authority is seeking to understand whether there are any additional constraints placed on the hypothetical monopolist by the potential entry of providers of mass-market products into the market for business products. The Authority takes into account the ability of potential entrants to enter the market in question quickly and at low cost, given their existing position in the supply of alternative products.

⁶⁶ The Authority understands that in certain instances, businesses use a residential address to acquire a mass-market package and then extend the cable to their non-residential premises. These tend to be small businesses and for the purpose of this review, such subscribers would fall into the market for mass-market products because the market is defined along product characteristics rather than the end-user, as outlined in paragraph 27.

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91. The Authority believes that there is limited scope for providers of mass-market products to enter the market for business products in response to a SSNIP applied to business products, for the following reasons:
- a. First, there are only a small number of operators that focus on the provision of mass-market products and they operate primarily over their own wireless infrastructure. The Authority is of the view that these wireless networks might not currently allow for the provision of business products of a comparable quality to Batelco's business DSL products. The Authority recognizes that this might change with the wider rollout of LTE networks, but this will require time and additional investment. Therefore, the ability of wireless operators to enter the business segment successfully is still uncertain and the Authority considers it appropriate to assess this question at a later point in time when LTE technology is spread more widely in the Bahrain market⁶⁷;
 - b. Second, there are additional factors that determine the ability of an operator to successfully target the users of business products. In particular, the ability to offer complementary value-added services and provide more extensive and timely customer care would likely play an important role for users of business products. In addition, the ability to offer bundles of different telecommunication services is likely to be another important factor. These represent additional barriers to entry and would generate significant costs for a potential entrant into the business customer segment;
 - c. Third, it can be expected that the brand and reputation of a business product provider would play a role in its ability to attract and retain retail customers. Building reputation takes time and this further limits the ability of potential entrants to enter the market for business products in a sufficiently timely manner to make the hypothetical price increase unprofitable.
92. Similarly, providers of business products might find it difficult to profitably enter the mass-market segment. This segment is characterised by lower margins, so a new operator would need to gain a substantial number of customers in order to make the entry profitable. This would be impeded by the considerable investment in marketing that would be necessary to win customers from the better-established current operators. Such customer acquisition costs would further raise the costs of entry.
93. Thus, the Authority's view is that there is also limited supply-side substitutability between mass-market and business products at the retail level. This conclusion is further supported by the evidence from the market, as outlined below.
- a. The majority of DSL wholesale-access seekers focus primarily on business products, which suggests that there might be significant differences in business models focusing on mass-market and business products individually.
 - b. Secondly, the operators providing both business and mass-market products tend to be more successful in one of the segments rather than both segments.

⁶⁷ The Authority recognizes that there are already some indications of business services based on LTE technology becoming available, see for instance Mena Business 4G LTE available at <http://www.menatelecom.com/en/business/internet-services2/menabusiness.html> or VIVA's 4G LTE Business Broadband Plans available at <http://www.viva.com.bh/content/broadband-1> (accessed on 21 October 2013)

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This holds for wholesale-access seekers relying on Batelco's DSL network as well as the operators using their own infrastructure. For example, [X] has managed to secure a reasonably large share in the segment of business products, while its position in the mass-market segment remains negligible.

94. For these reasons, the Authority's preliminary view is that there are separate markets for mass-market and business products.
95. The Authority's preliminary view is that any retail broadband service that fulfils at least one of the following criteria would be susceptible to be considered part of the business product market:
- a. a service that is offered under the label 'business', 'business customer' or similar;
 - b. a service that is only offered to customers who are able to present a valid CR number and hence which is not available to mass-market users;
 - c. a service that is offered with dedicated customer support, such as with a dedicated account manager;
 - d. a service that is offered with more stringent key performance indicators or service level agreements than what is typically offered with mass-market broadband products;
 - e. a service which has a lower contention ratio than what is typically offered by mass-market broadband products; or
 - f. a service that includes additional functionality not available to end users of mass-market broadband products, such as domain names, email servers etc.

Preliminary conclusion

96. For the reasons stated above, the Authority considers the definition of the relevant product, geographic and functional markets and the subsequent competitive assessment separately for the business and mass-market groups of products.⁶⁸

Responses to the Draft Determination

97. In its response to the Draft Determination, Zain agreed with the Authority's preliminary view that mass-market and business broadband products fall into separate customer markets, and supported the distinction between business and mass-market segments based on product characteristics. According to Zain, such an approach is both practical and appropriate for enforcing access obligations at the wholesale level. Zain also agreed with the Authority's criteria to identify a business product but suggests a slight amendment, namely that criteria b, as outlined in

⁶⁸ The Authority is of the view that this distinction has an important impact on the results of the competitive analysis and preliminary conclusions of this review. This is in contrast with the situation in 2008, when the Authority found there might be reason to believe residential and non-residential products fall into separate markets, but it concluded that it would make no difference to the outcome of the competitive assessment whether these two segments were analysed separately or not. See the Authority, "Determination of Significant Market Power designation in certain relevant retail markets", 3 June 2008, paragraph 85.

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paragraph 95, be as follows: *“a service that is only offered to customers who are able to present a valid CR number”*.

98. VIVA also agreed with the Authority's view, recognising that this approach has been adopted in the EC study⁶⁹ on its review of relevant markets.
99. 2Connect agreed with the Authority's preliminary view that mass-market and business broadband products fall into separate customer markets, but submitted that the Authority's proposed definition does not consider sub-segments for certain groups of mass-market customers, such as gamers, that require higher quality broadband connections (e.g. low latency and jitter).
100. In contrast, Batelco stated that while a distinction between mass-market and business customers exists, the Authority's definition based on product characteristics would lead to narrow markets wherein Batelco would have an artificially high market share.
101. Batelco suggested on page 8 of its response that a user-based market definition should be upheld:
 - a. Mass-market to be defined based on the population of Bahrain
 - b. Business market to be defined based on active CRs in Bahrain.
102. In Batelco's view, a distinction between business and mass-market as per the Authority's definition is not as clear-cut in reality because of both non-price and price-related reasons.
103. The non-price related reasons outlined by Batelco in their response included the following:
 - a. While businesses are required to show their CR when buying a business broadband product, providers of mobile and WiMax have no visibility over the end-user of the product. Consequently, a business could buy a residential product using a CPR.
 - b. The criterion of contention ratios in the definition used by the Authority is only applicable to Batelco's wholesale broadband customers and may not be sustainable in the face of competition from WiMax and mobile broadband.
 - c. Batelco offers premium support, such as the VIP Support Bolt On, to mass-market customers subject to an additional charge.
 - d. Some WiMax operators offer residential packages with unlimited data.
 - e. Value added services (VAS) are no longer restricted to business customers. For instance, some WiMax packages offer fixed IP addresses. Also, new VAS are moving towards being independent from the Internet Service Provider.
104. Batelco noted that the price differentials between business and mass-market products highlighted by the Authority relate to the differences in cost of provision, to some extent. In addition, Batelco asserted that business customers are also price

⁶⁹ The EC Study, "Future electronic communications markets subject to ex-ante regulation" on September 18, 2013 available at: http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

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sensitive, with [X] subscribing to packages with speeds of less than 2 Mbps. According to Batelco, if business customers were not price sensitive, they would subscribe to higher speeds.

105. Batelco further argued that, in response to a SSNIP on Batelco's business broadband products, it would expect to see sufficient switching to the options highlighted below, to render this price increase unprofitable:

- a. switching to other independent platforms;
- b. switching to wholesale broadband providers;
- c. switching to mass-market products by registering as a residential customer;
- d. cessation; or
- e. downgrading to cheaper Batelco business products.

Batelco therefore considered mass-market and business products to be in the same market.

106. Batelco further argued that enforcing the mass-market and business distinction at the wholesale level would not be possible as wholesale customers would be able to circumvent the distinction.

107. Finally, Batelco did not view the Authority's definition as scalable enough because any wholesale remedy would not have an impact due to the definition of the business market being too narrow.

108. In their cross-responses, VIVA and 2Connect disagreed with Batelco's arguments. VIVA emphasised in paragraph 2(d) on page 3 of its cross-response that Batelco having higher margins on business products than mass-market products is indicative of their dominant position in the business market. 2Connect, on page 2 of their cross-response, reiterated their view that Batelco holds some market power in the business segment because its customers have not switched away despite Batelco's business broadband prices being high. Both VIVA and 2Connect also responded to Batelco arguments on the differences between mass-market and business products. For example, VIVA noted on page 2 of its cross response that although dedicated customer support is available to residential customers, it is offered as an optional extra at a surcharge, whereas it is a standard feature of business packages. According to 2Connect on page 2 of its cross response, residential packages are not truly unlimited, as a Fair Usage Policy is typically applied. The Authority's final analysis

109. The Authority notes the responses of VIVA, 2Connect and Zain as being broadly in favour of its proposed definition.

110. Batelco's suggestion that the mass-market be defined based on the population of Bahrain and the business market be defined based on the number of active CRs in Bahrain does not reflect best-practice approach to market definition and if applied, would lead to incorrect conclusions.

111. A market is defined based on the actual users of the products. The entire population of Bahrain and the population of active CRs may not be an accurate reflection of actual broadband users. Consequently, defining the market as proposed by Batelco could overestimate the size of the market and thereby underestimate each operator's market share, especially in the business segment. Such an approach is also unlikely

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to reflect the different competitive pressures relating to the supply of retail broadband services actually supplied across the base of CR holders, and in particular is likely to disguise the lack of alternatives facing those business customers who require a higher quality broadband service.

112. With respect to Batelco's view that there is no clear distinction between mass-market and business segments,⁷⁰ the Authority emphasises that the distinguishing features used in the Draft Determination to highlight the differences between these segments (such as contention ratios, data caps or dedicated customer support) were the same features highlighted by Batelco in their response to the Article 53 Information Request from July 2013 (Article 53 Information Request hereinafter) when asked what distinguished business and residential retail services.⁷¹
113. Notwithstanding the inconsistency between Batelco's submission on the draft and the information supplied by Batelco in responding to the Article 53 Information Request, the Authority addresses each in turn:
- a. Misclassification based on CR/CPR: The Authority recognises the possibility of this occurring. In fact, one of the reasons that the market has been defined as "mass-market" rather than "residential" is to recognise the fact that some small businesses subscribe to residential products. In order to increase the accuracy of classifying a product as business or mass-market, the Authority has outlined 6 criteria, fulfilling any one of which could define a product as being a business product. The use of a CR rather than a CPR when purchasing the product is just one of these criteria.
 - b. Contention ratios: Batelco identified contention ratios as one of the distinguishing features between business and mass-market products in its response to Q5 of the Article 53 Information Request and OLOs have agreed with this criterion in the Authority's definition. Whilst contention ratios might become less important in the future, the Authority is of the view that it currently remains one of the key distinguishing features between business and mass-market products, and that differences in contention ratios at the wholesale level are relevant at the retail level, as the wholesale access products are used as inputs into retail broadband services.
 - c. Dedicated customer support: Dedicated or premium support is only offered to mass-market customers upon the payment of an additional fee, whilst it is commonly included as a standard feature of business packages. Therefore, it continues to act as a distinguishing feature between business and mass-market products.
 - d. Unlimited data on WiMax packages: The Authority had already recognised in its draft Determination that there may be a trend towards having unlimited data plans for mass-market products. At the same time, the Authority notes that these mass-market products are significantly cheaper than Batelco's business

⁷⁰ See pages 5 to 7 of Batelco's response to the Draft Determination

⁷¹ Batelco's response to Q5 of the Article 53 Information Request

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offerings.⁷² Thus, Batelco's reiterating the point on unlimited data packages does not change the Authority's conclusions.

- e. VAS being offered independently of the ISP: While this may be true, it does not undermine the evidence that VAS are regarded as important features of fixed broadband services for business customers, as in fact submitted by Batelco in their response to the Article 53 Information Request.

114. On Batelco's list of potential outcomes in the event of a SSNIP:

- a. The Authority's evidence shows that switching to independent platforms has not occurred in the business market to the same extent as in the mass-market segment. Evidence in the market as of today suggests that mobile broadband has not been as successful with business customers as with mass-market customers. Whilst this may change in the future, and is addressed fully in the analysis of responses to the Authority's definition of the relevant product market after Section 3.2.3, the Authority continues to believe that wireless technologies and mobile broadband in particular, may not offer the same degree of substitutability for business DSL customers as for mass-market customers.⁷³
- b. Wholesale DSL suppliers are effectively alternate suppliers of DSL services at the retail level and have been accounted for when defining the relevant market at the retail and wholesale level.
- c. Switching to mass-market products may not be an option for business customers because of the differences in product characteristics, as highlighted above. This is because, for instance, larger businesses might value the specific features that come with business products and they would not consider mass-market products to be substitutes.
- d. Cessation may not be a practical option for many business customers as a broadband connection has become increasingly vital for businesses.
- e. Downgrading to cheaper Batelco products may also involve compromising on speed, which may not be acceptable for some businesses. Moreover, as Batelco pointed out, 71% of their customers subscribe to speeds of less than 2 Mbps. With most business DSL customers already subscribing to cheaper, low speed products, there may not be alternative Batelco products for them to switch to in response to a SSNIP (see Table 2 above).

115. As a consequence, it is possible that some businesses are unable to switch away from Batelco's business products, which seems to be consistent with Batelco sustaining higher margins in business than mass-market segment. Thus, overall, the evidence presented by Batelco is not sufficient for the Authority to change its view

⁷² The Authority notes that Batelco's Business DSL package, with unlimited data and a 10 Mbps download speed is priced at BD 125 (and until recently, BD150). This compares with BD 40 for Mena's unlimited data package with 10 Mbps speed, as per the evidence offered by Batelco.

⁷³ This is supported by the relatively low take-up of WiMax-based services by business customers, despite the lower prices of the 'unlimited' WiMax-based business packages referred to in Batelco's submission (see footnote 72 above).

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that there are separate markets for mass-market and business products based on differences in product characteristics.

116. The Authority acknowledges that Batelco has recently introduced new prices for its fixed broadband services. For example, Batelco's price for a 16Mbps Business DSL service under a one-year contract dropped from BD200 per month to BD150 per month in March 2014, while the price for a 16Mbps Home DSL broadband service under a one-year contract was reduced from BD80 per month to BD60 per month. As a result, Batelco's new business DSL price for a 16Mbps service is 2.5 times the price of its new residential 16Mbps price, which is the same relativity as under its previous pricing which was referred to in the Draft Determination. The significant margin that remains between Batelco's business and residential DSL prices supports the view that distinct customer segments are appropriate.
117. In addition, the Authority does not believe there is cause for concern regarding the possibility of Batelco's wholesale customers circumventing the regulation, as suggested by Batelco. This is because, firstly, the wholesale mass-market DSL products have higher contention ratios than the wholesale business DSL products. As a result, an OLO purchasing a mass-market Bitstream service would not be able to provide a retail product of the same quality as Batelco's retail business product. Secondly, the price of wholesale business products is higher than wholesale mass-market products, which is likely to make it commercially unattractive for OLOs to purchase business Bitstream to serve retail mass-market customers. Furthermore, this concern becomes less relevant since Batelco has stated in paragraph 20 of its cross-response to the draft Determination that it will continue to offer mass-market Bitstream services after deregulation of the mass-market segment.
118. With regards to 2Connect's suggestion to further subdivide the mass-market segment, the Authority is of the view that it may not be practical to define or enforce such a further delineation, and 2Connect does not provide any evidence to support the need for further segmentation of the market. Further, with LTE beginning to offer low latency similar to fixed broadband⁷⁴, gamers would have the same alternate technologies available to them as other mass-market customers, thereby eliminating the need to define a separate market for gamers. The Authority will, however, continue to monitor the development of the mass-market segment.

Conclusion

119. Having considered the responses from the operators, the Authority remains of the view that there are separate markets for mass-market and business broadband products from a fixed location, and that the distinction between these markets should be based on product characteristics. As was stated in the draft Determination, this is

⁷⁴ "LTE brings a new capability to mobile: How might it enable a range of cross-sector services? - A report for Ofcom", PA Consulting, November 2013. Available at http://stakeholders.ofcom.org.uk/binaries/research/technology-research/2013/Ofcom_Future_LTE_Services_Study.pdf

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in line with the EC study's findings⁷⁵ as well as the 2009 decision by the Austrian regulator to delineate customer broadband markets.⁷⁶

120. In defining the relevant customer market, the Authority takes note of the operators' responses and has made some amendments to the list of criteria, concluding that any retail broadband service that fulfils at least one of the following criteria could be considered part of the business product market:
- a. a service that is offered under the label 'business', 'business customer' or similar;
 - b. a service that is only offered to customers who are able to present a valid CR number;
 - c. a service that is offered with dedicated customer support, such as with a dedicated account manager, as a standard part of the product (rather than as an optional extra upon the payment of an additional fee);
 - d. a service that is offered with more stringent key performance indicators or service level agreements than what is typically offered with mass-market broadband products;
 - e. a service which has a lower contention ratio than what is offered by mass-market broadband products; or
 - f. a service that includes additional functionality not available to end users of mass-market broadband products, such as domain names, email servers, static IP address etc.

3.2 Relevant product market

Draft Determination

121. In considering the product dimension of the market in which DSL services are supplied to retail customers, the Authority is interested in identifying any other retail services which may be regarded as being close economic substitutes in the view of those customers who use a DSL product for their broadband service. Potential

⁷⁵ "For the reasons given above, no clear segmentation exists between demand for connectivity from residential customers and from non-residential customers. A rather more meaningful segmentation exists between mass-market broadband products and bespoke connectivity products"; and "We conclude that the different retail markets can be defined for mass-market broadband services and for bespoke (business grade) broadband services. The first category of services is generally demanded by residential end-users and small firms. The second category of services is generally demanded by non-residential end-users. Non-residential users often demand higher and more customised quality features. As such, there seems to be a continuum of quality grades within the bespoke segment. Furthermore, the non-residential users often demand a bundle of multiple communication services at various locations". The EC Study, "Future electronic communications markets subject to ex-ante regulation", September 18, 2013, page 128 and 134. Available at http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

⁷⁶ See RTR's press release from 9 December 2009: "European Commission endorses RTR's amended definition of wholesale broadband access market", available at <https://www.rtr.at/en/pr/PI09122009TK>

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alternative services include retail broadband services based on WiMax, fibre and mobile broadband technologies.⁷⁷

3.2.1 Retail broadband services using fixed wireless (WiMax) technology

3.1.1.1 Mass-market products

122. The starting point for this analysis is the 2008 SMP Determination which found WiMax to be part of the same retail market as DSL.
123. Since then, there has been significant take up of WiMax services in the Kingdom of Bahrain and a decline in the use of DSL services, indicating possible substitutability between DSL and WiMax.
124. There are no substantial differences between the DSL and WiMax mass-market broadband products in terms of speed and quality (data caps, contention ratios, coverage etc.), providing further evidence of the substitutability between them. Table 3 compares DSL and WiMax offers at different price points.

Table 3: Comparing mass-market DSL and WiMax offers at different price points

Operator	Monthly Price	Speed	Data Cap
Batelco	BD 15	4 Mbps	8 GB
Mena	BD 16	4G LTE	15 GB
Batelco	BD 30	8 Mbps	30 GB
Mena		4G LTE	30 GB
Batelco	BD 60	10 Mbps	100 GB
Mena		4G LTE	100 GB

Note: the Authority understands that Menatelecom's 4G LTE plans offer speeds of up to 60 Mbps.
Source: Operator's websites

125. Consequently, the Authority's preliminary view is that WiMax continues to be part of the same retail market for mass-market products as DSL.

3.1.1.2 Business products

126. In the Authority's 2008 SMP Determination, WiMax and DSL were found to be in the same retail product market.
127. WiMax, as a technology, allows qualitative differentiation between mass-market and business products at the retail level through contention ratios, data caps and speeds. WiMax business products are currently being offered in the market and there has been some take-up of these products.
128. However, this take up seems to have been limited, in particular when compared with the share of WiMax in the mass-market segment. This might suggest less

⁷⁷ The Authority does not consider dial-up Internet services as a part of this market review. This legacy technology is not offered anymore in Bahrain. The Authority has also excluded domestic leased line services from this market review, on the basis that domestic leased line services provide guaranteed bandwidth at prices that are considerably higher than business DSL prices. The Authority is undertaking a separate market review of domestic leased line services.

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substitutability between WiMax and DSL in the segment of business products. An operator providing WiMax stated as part of their response to the Authority's request for information that business users had a preference for wired solutions over wireless, although there has been a move towards WiMax in recent years.

129. Nevertheless, it is the Authority's preliminary view that WiMax should remain in the same retail market for business products as DSL.

3.2.2 Retail broadband services using fibre technology

3.1.1.3 Mass-market products

130. Retail broadband connections based on fibre technology can deliver speeds and quality that are at least as good as DSL.

131. Because of this similarity in quality and the use of DSL and fibre services, the Authority considers that there would be likely to be a reasonable degree of demand-side substitutability between fibre and DSL services. This indicates that fibre-based services are supplied in the same market as DSL. This is in line with findings in other jurisdictions, where fibre is more widely deployed than in the Kingdom of Bahrain⁷⁸, and it is in line with the Next Generation Access Recommendations of the European Commission.⁷⁹

132. Given that fibre is still in the early stages of deployment, whether or not it is considered to be part of the same product market as DSL would have no significant impact on the outcome of the competitive analysis.

133. Consequently, the Authority considers that mass-market fibre-based services are in the same market as DSL, but it does not expect this to have any significant impact on the conclusions of the market analysis. The Authority might, however, re-evaluate its conclusion to include fibre at a later stage when this technology is deployed on a more widespread basis in the Kingdom of Bahrain.

3.1.1.4 Business products

134. As was the case in the mass-market segment, fibre broadband has product characteristics that are similar if not superior to DSL. Therefore, the Authority considers that business products based on fibre technology would likely fall into the same market as business DSL products on the basis of demand-side substitutability.

135. This approach is again consistent with the views taken by other regulators in other markets at the time when fibre was in an early stage of deployment.⁸⁰

136. However, the Authority recognises that there is currently limited availability of fibre broadband products for business customers.

⁷⁸ See for instance the analysis of Austrian regulator RTR "Definition for the market for broadband wholesale access" from December 2009 available at https://www.rtr.at/en/komp/KonsultationTKMVO2003/Marktabgrenzung%20Breitband_nat%20Konsultation.pdf

⁷⁹ See COMMISSION RECOMMENDATION of 20 September 2010 on regulated access to Next Generation Access Networks (NGA) available at <http://eur-lex.europa.eu/LexUriServ/?uri=OJ:L:2010:251:0035:0048:EN:PDF>

⁸⁰ See for instance Ofcom "Review of the wholesale broadband access markets" from December 2010 available at <http://stakeholders.ofcom.org.uk/binaries/consultations/wba/statement/wbastatement.pdf>

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137. While the Authority's preliminary view is that fibre technology is in the same market as DSL for business products, the Authority might, however, re-evaluate its conclusion to include fibre at a later stage when this technology is deployed more widely.

3.2.3 Retail broadband services using mobile broadband technologies

138. There are significant differences between mobile broadband products currently offered in the Kingdom of Bahrain. The Authority distinguishes between two groups of products:

- a. Standalone connections: This refers to subscriptions whose primary function is to access broadband services. Such subscriptions are purchased on a standalone basis (i.e. separately from voice services), and are based on a data sim-card that enables broadband services through devices such as dongles and tablets,⁸¹
- b. Confined connectivity: This refers to subscriptions where broadband access is an important but not central feature. In such cases, broadband access is through devices such as smartphones.⁸²

139. In this market definition analysis, the Authority has first focused on standalone mobile broadband services (referred to hereafter as standalone mobile broadband), analysing to what extent these services can be considered a substitute to DSL and WiMax broadband services. Only if standalone mobile broadband is considered part of the relevant product market will the Authority explore the possibility of including confined connectivity as well. This is because, based on the features of the products currently on offer in the Kingdom of Bahrain (such as speed, data caps and usage patterns), standalone mobile broadband is likely to be a better substitute for fixed broadband services than confined connectivity services. This is described in greater detail in the following section. Thus, if the Authority does not consider standalone mobile broadband to be in the same market as other broadband services, it would be unlikely that confined connectivity would form part of the relevant broadband market⁸³.

⁸¹ This is consistent with the modem/dongle subset of the ITU's definition of dedicated mobile data connections 'subscriptions to dedicated data services over a mobile network which are purchased separately from voice services either as a stand-alone service (modem/dongle) or as an add-on data package to voice services which requires an additional subscription' see http://www.itu.int/ITU-D/ict/material/TelecomICT_Indicators_Definition_March2010_for_web.pdf

⁸² This is broadly consistent with ITU definition of standard mobile broadband 'standard mobile subscriptions (only included with active use): Includes mobile subscriptions with advertise data speeds of 256 kbit/s or greater and which have been used to make an Internet data connection via IP in the previous 3 months'. see http://www.itu.int/ITU-D/ict/material/TelecomICT_Indicators_Definition_March2010_for_web.pdf

⁸³ Note that in carrying out the assessment of fixed-mobile substitutability, the Authority has relied on similar criteria to that adopted by other regulators, such as Ofcom and RTR, including comparability of mobile and DSL speeds, data caps, prices, coverage and market shares. <http://stakeholders.ofcom.org.uk/binaries/consultations/wba/summary/wbacondoc.pdf> and https://www.rtr.at/en/komp/KonsultationTKMVO2003/Marktabgrenzung%20Breitband_nat%20Konsultation.pdf

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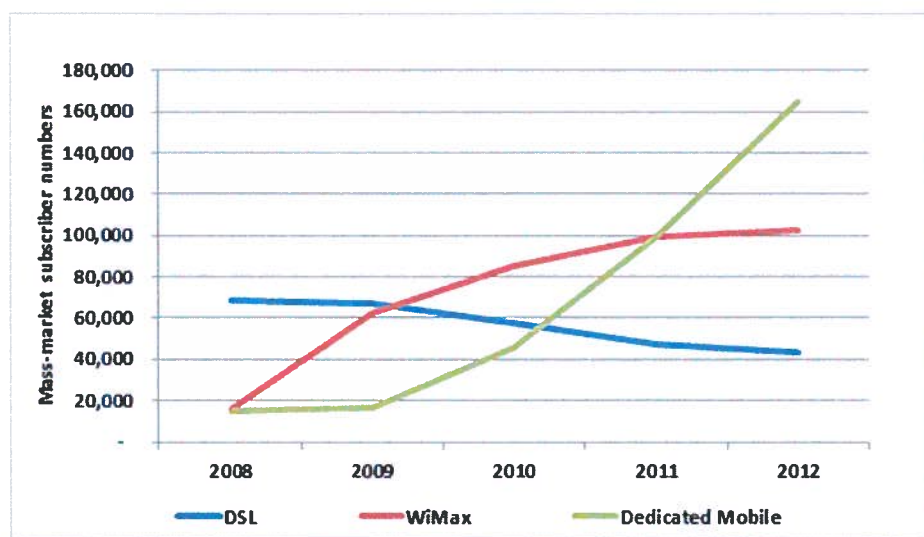
3.1.1.5 Mass-market products

Standalone mobile broadband

140. In considering whether standalone mobile broadband services are likely to be regarded as a close economic substitute for DSL services, the Authority has looked at the various demand factors, such as trends in take-up, the purpose and location of broadband usage, the usage patterns of mobile vs. fixed customers, differences in price/quality and switching, etc. Based on these factors, there is evidence to suggest that standalone mobile broadband is a good substitute for DSL services in Bahrain.

141. Firstly, the take-up of mobile broadband services has grown significantly in recent years, as can be seen in Figure 10 below, and its importance could further increase with LTE rollout. A large share of mobile broadband customers use this as their primary connection from a fixed location. For example, according to the Authority's residential survey conducted in 2011, respondents who had both fixed and mobile broadband services at home relied more heavily on their mobile broadband service (56% of the time, up from 20% in 2007). This indicates that mobile broadband is more likely to be a substitute for fixed broadband services rather than a complement.

Figure 10: Evolution of mass-market subscriber numbers



Source: The Authority's analysis of operator data

142. Secondly, mobile broadband is similar to DSL services in terms of product characteristics, offering comparable speeds and data caps. For example, data caps available on mobile services have increased significantly since 2008, with one operator now offering a mobile broadband product with a monthly data allowance of 1TB.⁸⁴

⁸⁴ See for instance Zain's recent LTE offers available at <http://www.bh.zain.com/ZainPortal/4GLTE.jsp> (accessed on 21 October).

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143. Third, the Authority's Quality of Service report in 2012 found that VIVA achieved average throughput using a dongle of around 6-7 Mbps, which was approximately twice the weighted average advertised DSL speed for Q4 2012⁸⁵.

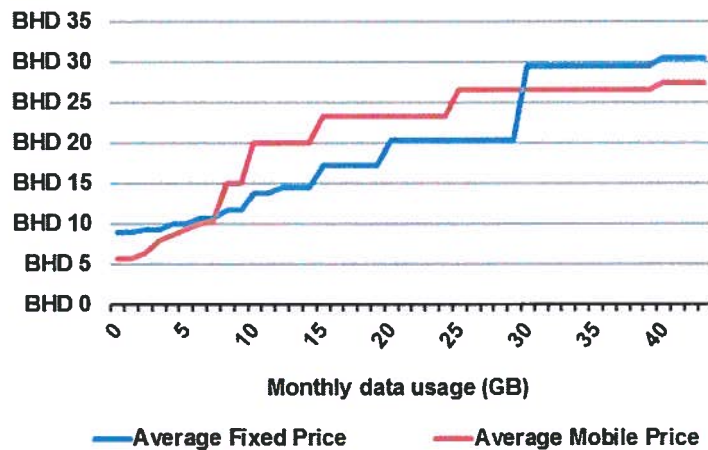
144. Furthermore, mobile broadband products are priced competitively compared to DSL products, as shown in Table 4 and Figure 11 below. This also holds true for the LTE products that have been launched to date in Bahrain.

Table 4: Comparison of a selection of recent mobile broadband LTE and DSL offers (February 2014)

Operator and package	Monthly Price	Headline Speed (Mbps)	Monthly Data Cap (GB)
Zain 4G LTE 40	BD 40	25	250
Zain 4G LTE 80	BD 80	100	1,000
VIVA Multi-SIM Broadband 55	BD 55	42	150
Batelco Unlimited LTE Mobile Broadband 50GB	BD 35	100-150	50
Batelco Professional Value Package (DSL)	BD 80	16	120

Source: Operator's websites

Figure 11: Comparison of fixed and mobile prices per usage in 2012



Source: The Authority's analysis of operators' data

⁸⁵

Quality of Mobile Services, Kingdom of Bahrain, 2012-

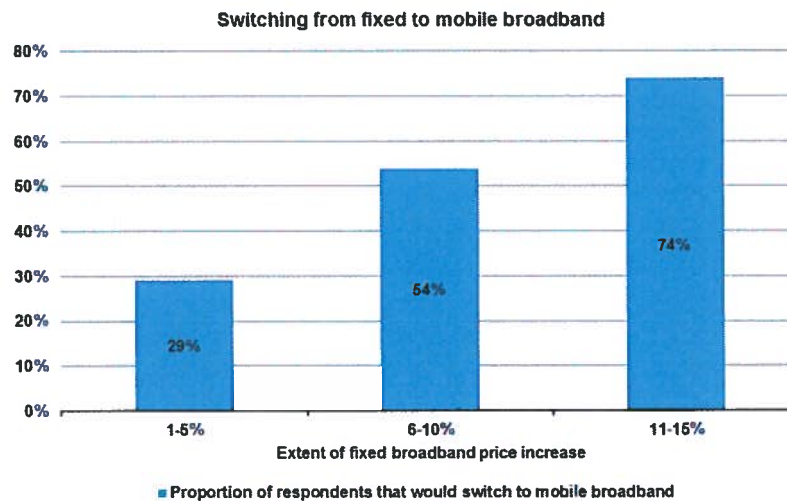
<http://www.tra.org.bh/en/pdf/QualityofMobileServices2012.pdf>. The reference to the weighted average advertised DSL speed is based on analysis by the Authority of the distribution of DSL customers by speed.

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145. There is also evidence from the Authority's 2011 residential survey data that fixed broadband customers (i.e. DSL or WiMax customers), in particular mass-market customers, show a very high willingness to switch to mobile broadband products, in the event of a price increase for fixed services. This is shown in Figure 12. Although surveys can overstate the degree of switching which may actually take place and thus should be interpreted with care, a large proportion of respondents (54%) indicated that they would switch to mobile broadband if faced with a SSNIP by a hypothetical monopolist of DSL services, which would suggest that such a SSNIP would likely be unprofitable as a result of consumer switching⁸⁶.

Figure 12: Willingness to switch from fixed to mobile broadband



Source: the Authority's analysis of 2011 residential survey data

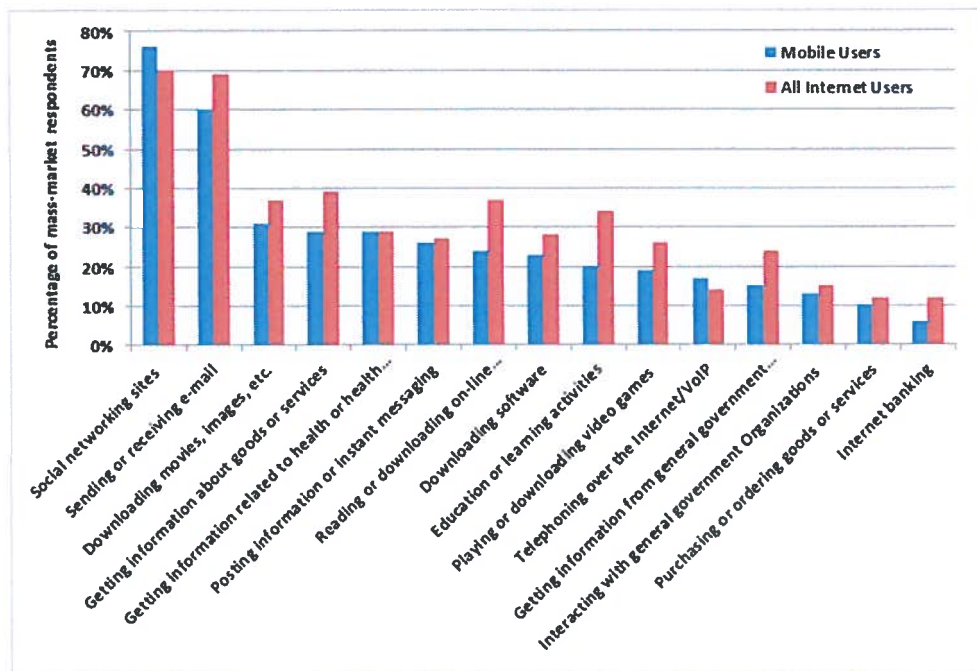
146. Finally, mobile broadband subscribers have similar usage patterns to fixed broadband customers, as shown in Figure 13.

⁸⁶ To put the results in Figure 12 in context, the Austrian regulator RTR found that 8% of ADSL consumers would switch to mobile broadband in the event that their fixed broadband prices increased by a SSNIP (10%), and concluded that this level of switching was sufficient for mobile broadband to be regarded as an adequate substitute for ADSL and should therefore be placed in the same market. See http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1684019 page 16.

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Figure 13: Comparing usage patterns between fixed and mobile customers



Source: The Authority's analysis of survey data

147. The above evidence suggests that there is likely to be a significant degree of substitutability between DSL services and standalone mobile broadband in Bahrain. The Authority recognises that this substitutability might be potentially limited by the fact that DSL users have, in the past, downloaded a larger amount of data on average⁸⁷. Nevertheless, this difference might have been caused by a small number of heavy data users on the fixed network and so may not provide an accurate representation of the usage patterns of an average DSL subscriber. In addition, it is possible that LTE rollout will lead to further increases of data caps and the average data usage of mobile data subscribers.

148. In their responses to the Authority's request for information, the majority of broadband operators (including those supplying fixed broadband services) said that LTE represented a significant competitive threat over the next 3 years. An operator also said that there had been significant switching from fixed mass-market broadband to dongle based mobile broadband (standalone mobile broadband) in the recent past.

149. Thus, the Authority's preliminary view is that standalone mobile broadband services are likely to be regarded as a good economic substitute for mass-market DSL services and should therefore be included in the same market.

⁸⁷ The Authority's analysis of operator's data

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150. Nevertheless, the Authority recognises that while standalone mobile broadband might impose sufficient constraints on the pricing of fixed broadband products to justify including it in the relevant product market, the reverse may not be true in that the constraint imposed by fixed broadband on mobile broadband products are likely to be weaker. This is because standalone mobile broadband products offer broadband services from a fixed location of a comparable quality to mass-market fixed broadband products. The same does not hold vice versa, as fixed broadband services are not able to offer additional the 'nomadic' features of standalone mobile broadband services. Therefore, the Authority believes that the price constraint between standalone mobile and fixed broadband services is primarily one-directional.
151. The Authority recognises that the current situation might change if there is a widespread rollout of fibre technology, allowing a provision of superfast broadband services of a quality that LTE and wireless technologies might not be able to match. This is consistent with the view of regulators in other countries.
152. For instance, in Austria, the regulator (RTR) has defined two separate retail markets for residential broadband services and business broadband services, with the residential market defined to include mobile broadband⁸⁸. However, in commenting (reviewing) the RTR's decision, the EC made the following statement:
- "The Commission called on RTR to monitor fibre roll out in Austria in order to review the market as soon as the incumbent plans the launch of a commercial product based on this technology".*⁸⁹
153. Under these circumstances, the Authority would need to review its market definition once fibre technology is more widely available and carefully consider the substitutability between fixed and wireless broadband services.

Confined connectivity mobile broadband

154. The Authority also believes that there may be some evidence to suggest that confined connectivity might belong to the same product market as DSL, WiMax and standalone mobile broadband. This is explored below.
155. Confined connectivity has gained popularity as a way of accessing internet services in recent years. Looking forward, there is likely to be an increase in the number of LTE-compatible smartphones available in Bahrain and these in turn are likely to drive the take up of LTE services. Indeed, Zain, Batelco and VIVA have recently launched LTE mobile broadband offerings⁹⁰.

⁸⁸ IRG Expert Group Report, Phase II investigation Pursuant to Article 7(4) of Directive 2002/21 EC, Case AT/2009/0970 – Wholesale broadband access, available at http://www.irk.eu/streaming/IRG%20%2909%29%2027%20Case%20AT-2009-0970%20-%20Wholesale%20broadband%20access.pdf?contentId=546520&field=ATTACHED_FILE

⁸⁹ "Telecoms: Commission endorses amended version of Austrian broadband access market definition", available at http://europa.eu/rapid/press-release_IP-09-1888_en.htm?locale=en

⁹⁰ Zain's LTE offer available at <http://www.bh.zain.com/ZainPortal/4GLTE.jsp>
Batelco's LTE offer available at <http://portal.batelco.com/personal-mobile-services/4g-lte-2/>
VIVA's LTE offer available at <http://www.viva.com.bh/4G/index.html> (accessed on 12 February 2014)

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156. The improving functionality of smart-phones (e.g. better CPUs, larger displays, tethering functionality, etc.) is likely to make the user experience similar to that of standalone mobile broadband and WiMax, thereby reducing the distinction between 'standalone' and 'confined connectivity' over time, and increasing the degree of substitutability between DSL and confined connectivity.
157. Furthermore, there is strong potential for supply-side substitutability between confined and standalone connectivity, illustrated by the fact that all mobile operators offer both standalone and confined connectivity products and that both groups of products rely on broadly comparable inputs (e.g. common network elements).
158. There are, however, also some factors suggesting that confined connectivity might not be part of the same market:
- a. A large share of confined connectivity users are more likely to use this as their secondary broadband connection, making it a complement to fixed and standalone mobile broadband rather than a substitute; and
 - b. According to information provided by operators as part of this review, the average data usage of confined connectivity subscribers tends to be well below what is observed for standalone mobile broadband customers. As a case in point, the average amount of data used by Zain's standalone mobile subscribers was around [X] times that of its confined connectivity subscribers in 2012.⁹¹
159. Taking account of this evidence, the Authority believes it is not possible to reach a definitive conclusion at this stage on whether confined connectivity should form part of the broadband market.
160. However, the Authority notes that the inclusion (or exclusion) of confined connectivity in the relevant product market would be unlikely to have any impact on the outcome of the competitive analysis which is presented below. Therefore, the Authority has chosen not to include confined connectivity in the same product market as other mass-market broadband services. It will, however, continue to review this position as services develop.

3.1.1.6 Business products

161. Whilst mobile business products are currently offered by Batelco and VIVA, 3G based mobile broadband does not allow for qualitative differentiation between business and mass-market products. This is evidenced by the fact that the differences in the current offerings are based on package features and prices, not quality of service. The nomadic nature of mobile broadband also makes it difficult to differentiate between business and mass-market customers on the basis of the actual quality of broadband service provided, e.g. lower contention ratios for business customers.
162. The Authority therefore believes that a SSNIP of business DSL products would not lead to sufficient switching to business mobile products to cause this price increase to be unprofitable for a hypothetical monopolist. On that basis, the Authority's preliminary view is that business mobile broadband is not in the same relevant market

⁹¹ The Authority's analysis of operator data.

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as business DSL.⁹² This is consistent with the view of the Austrian regulator RTR that excluded mobile broadband from the relevant market for retail business products.⁹³

163. The Authority recognizes that there are changes in the market occurring at this very point in time with the launch of new LTE products by operators. However, it is the Authority's view that it is still too early to tell if this LTE rollout will aid qualitative differentiation between business and mass-market products.

Preliminary conclusion

164. The Authority's preliminary view is that the relevant product market for mass-market retail broadband services should include DSL, WiMax, fibre and standalone mobile broadband technologies.
165. The Authority's preliminary view is that the relevant product market for business retail broadband services should include DSL, WiMax and fibre technologies.

Responses to the Draft Determination

166. In their responses, some operators argued for a broader product market definition while others argued for a narrower definition.
167. Batelco agreed with the inclusion of DSL, WiMax, Fibre and mobile broadband in the mass-market for broadband services. However, Batelco also argued that the Authority had defined the business segment too narrowly by excluding mobile broadband and that this resulted in artificially inflating Batelco's market share.
168. Batelco thus argued for the inclusion of mobile broadband in the market for business products. According to Batelco, MNOs could provide differentiated quality of service (which is a key feature for business services) through traffic management. Mobile corporate or dedicated Access Point Name (APN) could be used to provide remote access over mobile networks to a private Local Area Network (LAN).
169. VIVA asserted that mobile broadband is not an appropriate substitute for businesses in urban areas because whilst the APN could be configured to access a LAN, it would significantly affect the Quality of Service (QoS) provided to other customers, meaning mobile operators would not use this technique in practice. Further, this technique is only available for users who are relatively close to the base-station.
170. 2Connect submitted that there should be separate markets for fixed and wireless technologies. As evidence, 2Connect pointed out that because the market size has expanded without there being a significant decline in DSL subscriber numbers, fixed and wireless technologies are not substitutes.
171. VIVA also proposed that there should be separate markets for wired and wireless technologies on the basis that wireless broadband products do not offer the same level of throughput, latency and contention management as fibre-based access platforms.

⁹² This is consistent with the above mentioned response from an operator providing that business users had a preference for wired solutions over wireless, see paragraph 128.

⁹³ RTR "Definition for the market for broadband wholesale access" from December 2009 available at https://www.rtr.at/en/komp/KonsultationTKMVO2003/Marktabgrenzung%20Breitband_nat%20Konsultation.pdf

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172. According to VIVA, less bandwidth is allocated to each customer of a wireless interface because spectrum is shared among customers in the same cell area. The quality of services over a wireless network is affected by customer mobility, topography, building penetration, weather, distance of the customer from the base-station, etc., and as such, mobile and fixed do not offer comparable levels of QoS.
173. VIVA provided further evidence of what it claimed is a lack of fixed-wireless substitutability by quoting a Cisco study which finds that wireless technologies are not direct substitutes for fixed-line broadband.
174. Zain's cross-response agreed with VIVA that fibre is superior to wireless technologies but submitted that the Authority's business segment captures fibre. However Zain appeared to be concerned that high-end mass-market users of fibre may be left exposed because they are reliant on only Batelco's network. In the event that the mass-market were to be deregulated, Batelco could exploit this position by raising the price of or restricting wholesale access to fibre, etc.
175. Batelco, in its cross-response, disagreed with VIVA's assertion that there is lack of fixed-wireless substitutability and provided evidence of fixed-mobile substitutability with a quote from a report by Plum Consulting⁹⁴. The report finds that the rollout of LTE will likely increase cross-platform competition and act as a competitive constraint on fixed broadband. Batelco also pointed out that countries in the EU, most notably Austria, find evidence of fixed-wireless substitutability.
176. Batelco provided further evidence of fixed-wireless substitutability by pointing to the increasing market share of wireless users in Bahrain. Batelco also pointed out that the QoS provided by fixed technologies is also affected by distance from customers.

The Authority's final analysis

Fixed-wireless substitutability for the mass-market segment

177. The Authority has considered the arguments provided by VIVA and 2Connect that fixed and wireless technologies should be defined separately. However, the Authority is not persuaded that the arguments in the 2Connect and VIVA submissions are sufficient to support distinct product markets for mass-market broadband services in Bahrain. In the Authority's view, the proposals by 2Connect and VIVA to define separate fixed and wireless product markets for mass-market broadband services is also inconsistent with the evidence that was referred to in the draft Determination.
178. For instance, VIVA's cross-response outlines that the quality of service from wireless broadband varies depending on a range of different factors.⁹⁵ While this may be true in theory, the evidence outlined in the draft Determination found that the prices, speeds, purpose of use and quality of service offered by WiMax and mobile broadband in Bahrain are comparable to that offered by mass-market DSL products.

⁹⁴ Relevant Markets in the Telecoms Sector: The Times They are a'Changin', Plum Consulting, June 2013. Available at http://www.plumconsulting.co.uk/pdfs/Plum_June2013_Relevant_Markets_in_the_Telecoms_Sector_-_The_Times_They_are_a-Changin.pdf

⁹⁵ See page 4 of VIVA's cross-response to the Draft Determination

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179. This is evidenced by the fact that both WiMax and mobile broadband have seen increased take-up whilst DSL take-up has declined since the last review in 2009, when only WiMax was included in the market definition. Further, survey data found that a SSNIP in DSL would lead to significant customer switching to mobile broadband services in the mass-market segment.
180. VIVA also referenced a 2011 Cisco study which found fixed and wireless technologies to be complementary.⁹⁶ Whilst this may be true in several developed markets, the evidence suggests that this is not the case in Bahrain. Also, the Authority notes that in 2009, the Austrian regulator (RTR) found mobile broadband to be a substitute for DSL in the Austrian mass-market.⁹⁷
181. Furthermore, the arguments put forth by VIVA contradict the fact that they identified fixed wireless as a “major competitive threat to existing technologies” in their response to Q15 of the Article 53 Information Request. VIVA further stated that the launch of LTE would enable operators to offer “even faster speeds over fixed wireless and pose an even greater challenge to fixed technologies such as ADSL and FTTx”. Zain also identified fixed wireless, LTE and LTE Advance as competitive threats to existing technologies in the coming 1-2 years in its response to Q15 of the Article 53 Information Request.
182. 2Connect argued that the number of DSL subscribers has remained unchanged since 2009.⁹⁸ However, this is incorrect. There has been a decline of approximately 35% in the number of DSL subscribers between 2008 and 2012. WiMax and standalone mobile subscribers, on the other hand, have increased by over 8 times in the same time period. [3]. This supports the view that mobile broadband services (such as those supplied by VIVA) compete with fixed broadband services (such as those supplied by 2Connect).
183. Thus, having considered all of the above, the Authority continues to be of the view that the relevant product market for mass-market retail broadband services should include DSL, WiMax, fibre and standalone mobile broadband technologies.

Fixed-mobile broadband substitutability for the business segment

184. The Authority is not convinced by Batelco's assertion that mobile broadband would be an adequate substitute for DSL in the retail broadband market for business products.⁹⁹
185. In commenting on the Draft Determination, Batelco claimed that mobile operators have the ability to offer differentiated quality of service using traffic management techniques.¹⁰⁰ However, as was found in the Draft Determination, the nomadic nature of mobile broadband makes it less suitable for business users. Further, it is not practical to allow qualitative differentiation for business services without

⁹⁶ See page 5 of VIVA's response to the Draft Determination

⁹⁷ See RTR's press release from 9 December 2009: “European Commission endorses RTR's amended definition of wholesale broadband access market”, available at <https://www.rtr.at/en/pr/PI09122009TK>

⁹⁸ See point 4 under Q2 in 2Connect's response to the Draft Determination

⁹⁹ See page 9 of Batelco's response to the Draft Determination

¹⁰⁰ See page 9 of Batelco's response to the Draft Determination

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compromising on quality. VIVA also emphasised this point in its response to Batelco's submission.

186. The Authority does recognise, however, that LTE is becoming more widespread in the Kingdom of Bahrain.¹⁰¹ There is the possibility that as a result of this, there will be greater take-up of mobile broadband in the retail market for business broadband products in the future than there has been in the past. However, it is also likely to be the case that as LTE penetration increases and the LTE networks become more heavily loaded, the quality of service experienced could decline, and that this is likely to have a more pronounced effect on the ability of LTE networks to offer high-quality business broadband services. The Authority will continue to monitor the development of LTE services, and will consider whether these should form part of the business market in future market reviews.

Conclusion

187. For the purposes of this review, the Authority maintains that the relevant product market for business retail broadband services should include DSL, WiMax, and fibre technologies.

3.3 Relevant functional market

188. The relevant functional dimension of the defined market is the retail level, because retail broadband services are supplied by operators to retail mass-market and business customers.

3.4 Relevant geographic market

Draft Determination

189. In considering the relevant geographic dimension of the market, focus on demand-side substitution is likely to result in very narrow geographic markets, as demand for retail broadband services is location-specific. A customer requiring a broadband service at a fixed location (e.g. at home) is unlikely to regard broadband services offered in a different geographic location (e.g. other city) as an economic substitute.
190. The geographic market for telecommunications services is therefore typically defined having regard primarily to whether there are likely to be variations in the intensity of competitive conditions across different regions. The geographic area across which uniform prices are set is also a relevant consideration.¹⁰²
191. Batelco's fixed infrastructure over which it offers DSL services, both mass-market and business is national in scope. Whilst there are some examples in other jurisdictions of sub-national markets being defined for some broadband services, these markets have typically been defined where several localised competitors have become

¹⁰¹ For instance, both VIVA and Mena have introduced LTE-based business products.
<http://www.menatelecom.com/en/business/internet-services2/> and <http://www.viva.com.bh/node/2739>

¹⁰² See the Authority, "Competition Guidelines", 18 February 2010, paragraph 58.

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established (such as competitors who have installed their own equipment in the incumbent's local exchanges in order to access unbundled local loops).

192. The Authority also notes that Batelco's pricing of DSL services does not exhibit geographic variations throughout the Kingdom of Bahrain. The same holds for other broadband providers, e.g. Zain, Mena, VIVA. This indicates that localised competition has not emerged, and that competitive conditions are likely to be relatively uniform across the country, with the noticeable exception of Amwaj and Durrat Al Bahrain areas.

Preliminary conclusion

193. The Authority's preliminary view is that the relevant geographic market for the supply of domestic retail broadband services is national, with the exception of the Amwaj Island and Durrat Al Bahrain, where Batelco does not currently have fixed infrastructure in place.

Responses to the Draft Determination

194. With regards to the geographic market definition, Batelco requested the Authority to define the market as national with the exception of areas where Batelco does not have infrastructure such as Diyar Al Muharraq, Delmonia, Reef Island, etc., in addition to Amwaj Island and Durrat Al Bahrain.
195. Further, Batelco asked the Authority to define a separate wholesale and retail market for Amwaj as a basis for potential regulatory intervention in that area.
196. The cross-response from 2Connect noted that only Batelco is allowed to lay out infrastructure between areas that they have suggested for exclusion. According to 2Connect, excluding these areas from the geographic market definition may therefore pose competition problems in the future.
197. According to VIVA's cross-response, Batelco's suggested geographic exclusions have either not been completed or have low population density, and are therefore unlikely to affect the outcome of the market review.

The Authority's final analysis

198. The areas suggested by Batelco for exclusion from the geographic market definition are private developments which are primarily residential.¹⁰³ Excluding them from the definition would have no significant impact on the outcome of the competitive assessment and so the Authority has not excluded all these areas at the time of the current market review.
199. The Authority recognises that broadband operators present in the Amwaj Island are different to the rest of the Kingdom of Bahrain, mainly because Batelco does not have fixed infrastructure on the island. At the same time the Authority recognizes that this itself is not evidence of significant differences in competitive conditions between Amwaj and the rest of the country, in particular due to the presence of WiMax and mobile operators on the island.

¹⁰³ See page 10 of Batelco's response to the draft Determination

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200. Furthermore, Amwaj is mainly residential in nature and will therefore have primarily mass-market customers. WiMax and mobile broadband act as a competitive constraint on each other as well as fixed technologies (DSL and fibre) in the mass-market segment in the rest of Bahrain. There is no evidence to suggest that this is not true for Amwaj as well, despite Batelco's absence of fixed infrastructure.
201. Thus, while the competitive environment may be slightly different on the island of Amwaj, the Authority does not consider the difference sufficient to justify a separate geographic market. Defining it as a separate market would not constitute an appropriate and proportionate response and would be unlikely to lead to a finding of SMP. With regards to other black spots, the Authority does not consider it practical to allow exemptions for these black spots and then carry out an additional market review should a competition concern arise in the future. As things stand in this review, Batelco would not be subject to ex-ante regulation for the provision of mass-market services in Bahrain, including the black spots (which are primarily residential). Consequently, excluding or including these areas does not have an impact on Batelco's operations in the Kingdom.
202. However, the Authority recognises potential concerns around Nuetel being the only fixed operator on the island of Amwaj, and therefore reserves the right to monitor and review the competitive situation and intervene if there is a competition concern in the future.

Conclusion

203. For the purpose of this review, the Authority thus continues to define the relevant geographic market for the supply of domestic retail broadband services as national, with the exception of the Amwaj Island and Durrat Al Bahrain, where Batelco does not currently have fixed infrastructure in place.

3.5 Final conclusions on the relevant retail markets

204. Having reviewed the submissions received on the Draft Determination, the Authority has defined the following retail markets for the purposes of this Determination:
- a. The retail market for mass-market broadband services from a fixed location in the Kingdom of Bahrain, excluding Amwaj Island and Durrat al Bahrain, which comprises DSL, WiMax, fibre and mobile broadband technologies.
 - b. The retail market for business broadband services from a fixed location in the Kingdom of Bahrain, excluding Amwaj Island and Durrat al Bahrain, which comprises DSL, WiMax, and fibre.

4 Identification of the relevant wholesale markets

205. As was the case with the relevant retail market, the Authority has taken the portfolio of wholesale DSL access services, i.e. the range of wholesale access services currently offered by Batelco at different levels of its copper infrastructure, as a starting point for defining the relevant market. The Authority then considers which other services are likely to be regarded by wholesale customers as close economic

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substitutes for those wholesale services. The issue of economic substitutability will again be influenced by the technical features and pricing of alternative services at the wholesale level. The Authority has considered these price and non-price features in defining the proposed wholesale markets below.

206. Based on the previous Determination, the Authority considers two separate wholesale markets:

- a. a wholesale physical network infrastructure access market (in which LLU services are currently supplied); and
- b. a wholesale broadband access market (in which Bitstream and WDSL services are currently supplied).

207. As illustrated earlier in Figure 7, the wholesale services supplied in these markets represent inputs at different functional levels within the broadband value chain. The level of investment required by an OLO increases as the OLO moves from the WDSL service to the Bitstream service, as the OLO must arrange for internet connectivity (including international transmission). A move from the Bitstream service to the LLU service requires further significant incremental investment by the OLO in domestic transmission and the electronic equipment that is located in the local exchange.¹⁰⁴ The Authority has taken these factors into account in defining the relevant wholesale markets below.

208. In line with the market definition at the retail level, the Authority also considers that there are separate markets for business and mass-market products at the wholesale level.

4.1 Wholesale physical network infrastructure access market

Draft Determination

209. Consistent with the 2009 Dominance Determination, the starting point for the identification of the relevant market at the level of wholesale physical network infrastructure is the smallest possible set of services, in this case where access is provided to Batelco's copper local loop.

210. As there is currently no merchant market for LLU services, the Authority considers a notional market for the LLU product based on the reasons outlined in 2009 Dominance Determination.¹⁰⁵ In particular:

- a. The Telecommunications Law explicitly refers to LLU in Section 40 and the Access Regulation explicitly allows for the possibility to require a dominant operator to give access to unbundled local loops; and

¹⁰⁴ As noted at paragraph 49, such investment provides the OLO with greater flexibility to offer differentiated and innovative services to its downstream customers.

¹⁰⁵ The Authority, 2009 Dominance Determination, paragraphs 42 and 43.

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- b. The Authority notes that there is potential demand for LLU based on information provided by operators to the Authority as part of this market review¹⁰⁶.
211. Taking Batelco's LLU service as a starting point of the notional wholesale market for the provision of mass-market broadband services, the Authority considers that, for wholesale customers, potential substitutes to the LLU product are:
- a. at the same functional level: access to existing alternative local loops;
 - b. downstream: Bitstream or WDSL; and
 - c. upstream: building a new alternative local loop (fixed or wireless) or access to ducts.
212. The Authority also considers whether copper local loops used for the provision of mass-market broadband products (mass-market LLU hereinafter), fall into the same relevant market as local loops used for the provision of business broadband products (hereinafter business LLU).
213. Therefore, in its analysis of demand and supply side substitutability to define the boundaries of the relevant market, the Authority considers the following questions:
- a. Is mass-market LLU part of the same market as business LLU?
 - b. Is wholesale access to existing local loops based on alternative technologies (WiMax, mobile broadband, fibre) a substitute to the LLU product?
 - c. Are Bitstream and WDSL substitutes for the LLU product?
 - d. Would wholesale customers switch away from the LLU product by building their own local loop?
 - e. Is access to ducts a substitute for the LLU product?
 - f. Should self-provision of access to the copper local loop be part of the relevant market?

4.1.1 Is mass-market LLU part of the same market as business LLU?

214. LLU is a basic input into the provision of Bitstream, WDSL and retail DSL services. Batelco does not differentiate between mass-market and business LLU. However, the Authority is of the view that this does not imply that LLU products used to deliver mass-market and business products to end customers fall into the same relevant market.
215. In order to assess appropriately the boundaries of the relevant product market, the Authority considers whether a hypothetical monopolist providing business LLU would be able to sustain a 10% price increase, or whether it would be directly or indirectly constrained by competition from providers of mass-market broadband services.
216. With regards to demand-side substitutability, the Authority is of the view that there would be only limited switching from business LLU to mass-market LLU. In other words, a wholesale customer purchasing LLU to deliver a business retail product to

¹⁰⁶ Responses to Article 53 information request dated 1 July 2013.

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the end user would be unlikely to switch to the provision of mass-market products, as a result of the hypothetical price increase, for the reasons discussed in more detail above (see Section 3.1). Therefore, there are only limited direct constraints on the pricing of a business LLU product coming from a mass-market LLU product.

217. In terms of a potential indirect pricing constraint, the Authority notes that even if an increase in the LLU price were to be fully passed on to retail customers, the resulting increase in the retail price of the business product would be relatively small, given that the LLU cost represents a small share of the total cost of a business DSL product. Taking into account also the limited substitutability from business to mass-market retail broadband products, such a price increase would be unlikely to trigger sufficient switching of retail business customers to mass-market products to make the increase in the LLU price unprofitable. Therefore, there are also limited indirect constraints imposed on the pricing of business LLU products.
218. With regards to supply side substitutability, the Authority has considered whether a hypothetical price increase of business LLU would trigger an OLO providing mass-market LLU services to enter the market for the provision of business LLU services.
219. Given the significant competition from other infrastructures at the retail level, it is important to consider whether an OLO using its own (most likely wireless) infrastructure to target mass-market customers at the retail level would be able to enter the LLU market segment and start offering access to its wireless local loops in response to the hypothetical price increase.
220. The Authority believes this is unlikely, as it is not clear if the provision of LLU services over a wireless local loop would be technically feasible. Even if the provision would be technically feasible, it is unlikely that such an entry strategy would be economically feasible and sufficiently timely to render the price increase unprofitable in the short to medium term (1-2 years). The mass-market and business customers tend to be in distinct geographical locations. This will reduce the extent of supply side substitution at the retail level because a wireless supplier of mass-market products would need to incur significant sunk costs and take the time to build out its network (e.g. building new masts or its own wireline infrastructure) in order to compete against a supplier of business products (and vice versa). This would be unlikely to lead to effective supply side substitution over the short to medium term.¹⁰⁷
221. In addition, the Authority has taken into account the operators' views based on meetings in July 2013, that the substitutability between business DSL products and business products based on wireless technologies might be limited.
222. Therefore, the Authority is of the view that there is limited demand and supply-side substitutability between wholesale LLU services used to deliver business and mass-market broadband products. On that basis, the Authority concludes that there are separate markets for mass-market and business LLU wholesale products, which are analysed separately below.

¹⁰⁷ This is consistent with the Authority's view expressed in Strategic and Retail Market Review consultation from 27 August 2007, p123.

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223. It should however be noted that the segmentation of the LLU market into mass-market and business does not have an impact on the outcome of the competition assessment.

4.1.2 *Is wholesale access to existing local loops based on alternative technologies (WiMax, mobile broadband, fibre) a substitute to the LLU product?*

224. The Authority now considers the extent to which alternative technologies are able to impose constraints, either directly or indirectly on the pricing of the LLU product. The Authority evaluates this separately for mass-market and business LLU products, as there are significant differences in the development of these two market segments at both retail and wholesale level. This implies that the results of this analysis might differ for the two segments and could possibly lead to different conclusions in relation to the market definition in product terms.

4.1.2.1 Mass-market products

225. Batelco is currently the only provider of mass-market LLU based on DSL technology. There is currently no operator offering wholesale access to existing local loops based on alternative technologies. For that reason, the Authority concludes that there are no direct constraints on Batelco's pricing of mass-market LLU coming from alternative wholesale providers.

226. At the same time, Batelco faces strong competition from alternative infrastructures in the retail mass-market market. As explained above (Section 3.1), this is likely to impose significant indirect constraints on Batelco's ability to increase prices in the notional market for mass-market LLU products.

227. The Authority believes that the level of competition at the retail level justifies including self-supply of alternative providers of mass-market products in the same market as mass-market LLU. This includes self-supply of mass-market products based on WiMax, mobile broadband and fibre technologies, in line with the product market for mass-market products at the retail level.

4.1.2.2 Business products

228. As Batelco is currently the only provider of business LLU based on DSL technology, the Authority concludes that there are no direct constraints on Batelco's pricing of business LLU coming from alternative wholesale providers.

229. With regards to indirect constraints from alternative platforms, the Authority recognises that these are likely to be limited in comparison to mass-market products. This is because a larger share of competition in the business segment comes from wholesale access-seekers relying on Batelco's infrastructure. In line with the Authority's proposed retail market definition, the main competitive constraint in the business LLU segment is likely to come from WiMax and potentially fibre technology.

230. With regards to fibre technology, the Authority recognizes that retail products based on fibre offer product characteristics that are similar if not superior to DSL, which could lead to strong demand-side substitutability. In addition, fibre networks could offer economically feasible alternatives to local loop unbundling, which could also lead to supply-side substitutability.

231. On that basis, the Authority's preliminary view is that fibre technology should be in the same product market as DSL at the wholesale level. Nevertheless, the Authority

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recognizes that there is currently limited availability of fibre broadband products for business customers and might therefore re-evaluate its conclusion to include fibre at a later stage when this technology is deployed more widely. The Authority notes that the inclusion or exclusion of fibre is not expected to make any significant difference to the outcome of the competitive assessment in this market.

232. With regards to WiMax, the Authority recognises that this technology has been more successful than mobile broadband in competing with DSL in the retail market for business products. Nevertheless, WiMax-penetration in this segment is still limited in comparison to mass-market products. One operator has suggested¹⁰⁸ that this could be because businesses have a preference for wired solutions over wireless solutions, although this trend is changing over time.

233. It is not clear if the indirect constraints imposed by WiMax are sufficient to consider the technology to be a part of the same market as DSL at the wholesale level. This is because:

- a. The competitive pressure from WiMax at the retail level is substantially weaker for business products compared to mass-market products, which is illustrated by a significantly lower proportion of business broadband services based on WiMax technology; and
- b. Significantly higher retail prices of business products imply that a hypothetical monopolist would be more likely to sustain a price increase of business LLU without causing switching of retail customers towards WiMax products. This is because the business LLU price represents a much smaller proportion of the retail price for business DSL services.

234. Therefore, the Authority's preliminary view is that it is unclear whether constraints imposed by business WiMax services at the retail are sufficient to justify including this technology in the relevant market for business LLU. The Authority notes that the inclusion or exclusion of WiMax is not expected to make any significant difference to the outcome of the competitive assessment in this market.

235. The Authority's preliminary view is thus that the relevant product market for business LLU includes DSL and fibre technologies.

4.1.3 *Are wholesale Bitstream and WDSL substitutes to the LLU product?*

236. The Authority considers whether wholesale Bitstream and WDSL are substitutes to the LLU product.

237. With regards to demand-side substitutability, the Authority believes there is only limited substitutability between Bitstream and LLU products, primarily due to a greater ability of operators purchasing LLU to differentiate their services compared to operators purchasing Bitstream. In addition, even if one assumed LLU and Bitstream would allow an operator to offer similar retail services, it is unlikely that an operator who invested in LLU rollout would be willing to forgo that investment and switch to Bitstream in the event of a SSNIP in LLU prices. Similarly, it is unlikely a Bitstream

¹⁰⁸ In its response to The Authority's request for information under Article 53.

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user would be willing to undertake the necessary investment in LLU as a result of a SSNIP in Bitstream prices.¹⁰⁹

238. With regards to supply-side substitution, the Authority believes that it is unrealistic to assume a hypothetical Bitstream provider would be able to enter the LLU market by building its own local loop infrastructure in response to a SSNIP in LLU prices.¹¹⁰ As such, the Authority does not consider these products to be supply-side substitutes.

239. The EC study¹¹¹ found Bitstream and LLU to be complements by virtue of their being vertically related, as the Bitstream product is an explicit or implicit part of the LLU access product¹¹².

240. The Authority's preliminary view is that Bitstream is not part of the same market as LLU, in line with the conclusions in the 2009 Dominance Determination. The same holds for the WDSL product, due to its similarities with the Bitstream service and given the fact that Bitstream and LLU are not substitutable. The Authority considers these conclusions to hold equally for mass-market and business LLU products.

4.1.4 *Would wholesale customers substitute the LLU product by building their own local loop?*

241. The Authority is of the view that in response to a SSNIP in the LLU price, wholesale customers would not be able to build their own alternative local loop in the relevant timeframe of the analysis.

242. The primary reason for this is that building its own local loop with significant coverage in the Kingdom of Bahrain within the timeframe of the analysis would be unfeasible due to the high sunk costs involved and high entry barriers.¹¹³

243. The Authority considers this conclusion to hold equally for business and mass-market LLU products.

4.1.5 *Is access to ducts a substitute to the LLU product?*

244. The Authority is of the view that the access to ducts will not be a close substitute to LLU within the timeframe of the current analysis and it is therefore excluded from the market analysis. The Authority considers this conclusion to hold equally for business and mass-market LLU products.

245. The Authority recognizes that effective access to ducts would improve the business case for the deployment of local loops compared to the case without access to ducts. The Authority also notes that access to ducts is an important remedy to address problems with physical network access. Nevertheless, the Authority is still of the view

¹⁰⁹ For more details, please see 2009 Dominance Determination, paragraphs 126-129.

¹¹⁰ For more details, please see 2009 Dominance Determination, paragraph 130.

¹¹¹ The EC study, "Future electronic communications markets subject to ex-ante regulation" on September 18, 2013, available at http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

¹¹² Page 22, the EC study, "Future electronic communications markets subject to ex-ante regulation", September 18, 2013 http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

¹¹³ For more details, please see 2009 Dominance Determination, paragraphs 54-70

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that despite access to ducts, an OLO would need to incur prohibitively high costs to enter the LLU market in response to a SSNIP in the LLU price.¹¹⁴

4.1.6 *Should self-provision of access to the copper local loop be part of the relevant market?*

246. The Authority is of the view that the self-provision of Batelco's LLU should be included in the relevant market, in particular because:

- a. Batelco is the only operator in a position to provide a local loop access product;
- b. There is no fundamental technical difference between the LLU service based on the copper local loop and the services that Batelco provides to its retail arm.

247. Moreover, if self-provision were not included, it would not be possible to assess market share in this notional market.¹¹⁵

248. The Authority considers that its conclusion to include self-supply holds equally for business and mass-market LLU products.

4.2 Relevant functional market

249. The relevant functional level of the market is the wholesale level, because access to physical network infrastructure is an input provided by operators to other operators for the provision of downstream services. This holds for both mass-market and business LLU products.

4.3 Relevant geographic market

250. For the reasons given in the earlier section on the relevant geographic boundaries for the retail market (Section 3.4), the Authority's preliminary view is that the relevant geographic market for the supply of LLU services, both business and mass-market, is national, with the exception of the Amwaj Island and Durrat Al Bahrain where Batelco does not currently have fixed infrastructure in place.

Preliminary conclusions on the wholesale physical infrastructure access market

251. For the reasons set out above, the Authority considers that the relevant market is the wholesale physical network infrastructure access market for the supply of broadband services from a fixed location, which:

- a. for mass-market products:
 - i. includes LLU (access to the copper local loop and all the ancillary services);

¹¹⁴ For more details, please see 2009 Dominance Determination, paragraphs 71-90

¹¹⁵ For more details, please see 2009 Dominance Determination, paragraphs 140-153

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- ii. includes wholesale access to local loops based on WiMax, mobile broadband and fibre technologies;
 - iii. includes self-supply by Batelco (both copper and fibre);
 - iv. excludes Bitstream (as well as the WDSL product); and
 - v. excludes access to ducts.
- b. for business products:
- i. includes LLU (access to the copper local loop and all the ancillary services);
 - ii. includes self-supply by Batelco (both copper and fibre);
 - iii. includes wholesale access to local loops based on fibre technologies;
 - iv. excludes wholesale access to local loops based on WiMax and mobile broadband technologies;
 - v. excludes Bitstream (as well as the WDSL product); and
 - vi. excludes access to ducts.
253. The geographic dimension of the market, for both mass-market and business LLU is the Kingdom of Bahrain, with the exception of the Amwaj Island and Durrat Al Bahrain where Batelco does not currently have fixed infrastructure in place.

Responses to the Draft Determination

253. In its submission on the Draft Determination, Zain agreed with the Authority's preliminary views on the definition of the wholesale physical infrastructure (LLU) market.
254. The responses of those operators that disagreed with all or part of the Authority's proposed wholesale market definitions centred on a few key issues. In order to facilitate clarity in this Final Determination, the Authority has grouped the operators' views on these issues.

Access to wireless local loops

255. Batelco disagreed with the market definition on the basis that it failed to take into account actual and prospective alternative infrastructure in Bahrain. Batelco referred to its response to the 2009 consultation in which it had called for the inclusion of wireless local loops and duct access in the market definition for LLU.
256. In the context of this consultation this would appear to suggest that Batelco disagrees with the exclusion of wholesale access to wireless local loops and access to ducts from the LLU market for business services.

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257. VIVA, in its response, disagreed with the Authority's preliminary views on the LLU market for the reasons it gave in relation to the relevant retail markets, namely that the markets for fixed (wired) and wireless products should be defined separately. For this reason, VIVA, in its cross-response, disagreed with Batelco's suggestion to include wireless local loops in the markets for LLU.

258. 2Connect submitted that the Authority has not taken into account the lack of regulated access to wireless or mobile broadband because operators such as Mena, Zain and VIVA have not been declared dominant or to have SMP, which would be the case if the market were defined separately for fixed and wireless products.

Access to ducts

259. As outlined above, Batelco disagreed with the exclusion of access to ducts from the LLU market for business services.

260. With regards to the market for LLU, VIVA considered that access to ducts should be included and more appropriate remedies should be imposed on Batelco such as LRIC-based pricing as well as non-discriminatory quality of service conditions and regulated access.

261. VIVA quoted the European Commission's 2010 Recommendation wherein the EC recognises that access to civil engineering infrastructure is crucial for the deployment of parallel fibre networks. VIVA pointed to the examples of France and Portugal where non-discriminatory and fair access to ducts led to lower prices, innovation and higher quality of service.

262. In its cross-response, Batelco's disagreed with VIVA's assertion that duct access should be provided on a LRIC basis as it stated this would destroy any potential investment incentive available to operators to roll out fibre.

263. Batelco submitted that VIVA's EC reference was out of date, and instead quoted from the EC's 2013 recommendation¹¹⁶:

"due to current demand uncertainty regarding the provision of very-high speed broadband services it is important in order to promote efficient investment and innovation, to allow those operators investing in NGA networks a certain degree of pricing flexibility to test price points and conduct appropriate penetration pricing."

264. Zain in its cross-response, on the other hand, agreed with VIVA's suggestion that duct access be included and appropriate remedies be imposed.

265. 2Connect disagreed with the exclusion of wholesale access to local loops from the relevant product market.

¹¹⁶ "Commission recommendations on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment", September 2013, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:251:0013:0032:En:PDF>

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Geographic and customer market definition

266. Batelco referred to its comments on the relevant geographic market at the retail level.
267. Batelco also re-asserted that the customer market should be defined on a user-basis rather than being based on product-characteristics.

The Authority's final analysis

268. The Authority considers the main issues identified in the operator's responses and addresses each issue in turn.

Access to wireless local loops

269. Having reviewed the nature of the submissions on the Draft Determination, there appears to have been some uncertainty among respondents on the Authority's position on access to wireless local loops. Thus, for the avoidance of doubt, the Authority repeats that access to wireless local loops has only been excluded from the LLU market for business services.
270. This is based on the analysis of the degree of substitutability offered by WiMax for DSL in the retail market for business products. WiMax has not seen the same degree of take-up in the business market compared to the mass-market for broadband services. While it is the Authority's judgement that WiMax imposes enough of a constraint on DSL at the retail level to be included in the retail market definition for business, it is unclear if the indirect constraints from WiMax at the wholesale level are adequate to justify its inclusion in the market definition for LLU and WBA.
271. As stated in the Draft Determination, given that the inclusion or exclusion is not likely to affect the outcome of the competitive assessment, the Authority remains of the view that access to wireless local loops be excluded from the LLU and WBA market for business products at the time of this market review.

Access to ducts

272. The Authority does not consider duct access to be part of the relevant LLU markets and will therefore not address it explicitly in this review.
273. At the same time, the Authority understands operators' concerns over duct access, in particular when it comes to providing backhaul services necessary to deliver broadband services considered in this review. The Authority is considering duct access separately as a remedy in the review of the market for Domestic Data Connectivity Services.

Geographic market definition and separate markets for fixed and wireless products

274. Operators' concerns on these subjects have been addressed in the Authority's responses to submissions on the relevant retail markets. These have not been repeated here.¹¹⁷

¹¹⁷ See the Authority's analysis of and conclusion on operator's responses to Sections 3.2 and 3.4.

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Conclusion

275. Having reviewed the submissions received on the Draft Determination, the Authority has defined the following wholesale physical network infrastructure access market for the purposes of this Determination.
276. The wholesale physical network infrastructure access market for the supply of broadband services from a fixed location:
- a. for mass-market products:
 - i. includes LLU (access to the copper local loop and all the ancillary services);
 - ii. includes wholesale access to local loops based on WiMax, mobile broadband and fibre technologies;
 - iii. includes self-supply by Batelco (both copper and fibre);
 - iv. excludes Bitstream (as well as the WDSL product); and
 - v. excludes access to ducts.
 - b. for business products:
 - i. includes LLU (access to the copper local loop and all the ancillary services);
 - ii. includes self-supply by Batelco (both copper and fibre);
 - iii. includes wholesale access to local loops based on fibre technologies;
 - iv. excludes wholesale access to local loops based on WiMax and mobile broadband technologies;
 - v. excludes Bitstream (as well as the WDSL product); and
 - vi. excludes access to ducts.
277. The geographic dimension of the market, for both mass-market and business LLU is the Kingdom of Bahrain, with the exception of the Amwaj Island and Durrat Al Bahrain where Batelco does not currently have fixed infrastructure in place.

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4.4 Wholesale broadband access market

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278. As explained above, there are two wholesale markets related to the retail market for broadband services in the Kingdom of Bahrain: the wholesale physical network infrastructure access market and the wholesale broadband access market. While the first of the two is currently a notional market, there is a de facto wholesale broadband access market in Bahrain, because a number of OLOs purchase Bitstream and WDSL services from Batelco.
279. Batelco's Bitstream product is an access service that enables OLOs to provide high-speed services to end-users via a digital pathway – made up of an ADSL link and an aggregation link (backhaul) – across Batelco's network. The OLOs using Bitstream are responsible for the provision of internet connectivity. They can also differentiate their retail service from those of Batelco, for instance by offering different data allowances.
280. Only Batelco offers Bitstream and WDSL. WiMax operators, mobile broadband operators or fibre-based operators do not currently provide wholesale broadband access products.
281. A total of 21 Bitstream variations with different download speeds and contention ratios are available (see Table 5 below). There are significant qualitative differences between business and mass-market Bitstream products (specifically relating to the contention ratio) which are consistent with what is observed at the retail level. This might imply that there is limited demand and supply side substitutability between mass-market and business Bitstream products at the wholesale level. For that reason, the Authority will consider whether the relevant product, geographic and functional markets at the wholesale level should be defined separately for business and mass-market Bitstream.

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Table 5: Comparing the charges of residential and business Bitstream services in 2012

Residential	
Contention ratio 15:1	
Up to 256 kbit/s	3.065
Up to 512 kbit/s	3.191
Up to 640 kbit/s	3.254
Up to 1,024 Mbit/s	3.442
Up to 2.048 Mbit/s	3.945
Up to 3.072 Mbit/s	4.447
Up to 4.096 Mbit/s	4.950
Up to 6.144 Mbit/s	5.956
Up to 8.192 Mbit/s	6.961
Up to 10.240 Mbit/s	7.966
Up to 16.384 Mbit/s	10.982
Business	
Contention ratio 8:1	
Up to 256 kbit/s	3.065
Up to 512 kbit/s	3.411
Up to 640 kbit/s	3.529
Up to 1,024 Mbit/s	3.882
Up to 2.048 Mbit/s	4.824
Up to 4.096 Mbit/s	6.710
Up to 6.144 Mbit/s	8.595
Up to 8.192 Mbit/s	10.480
Up to 10.240 Mbit/s	12.365
Up to 16.384 Mbit/s	18.020

Source: Based on Schedule 3 of Batelco's Reference Offer (Operator's websites accessed in February 2014)

282. Consistent with the market definition principles set out above, the identification of the relevant market begins with the smallest service or set of services possible, in this case Batelco's Bitstream product. The Authority then considers potential substitutes in order to set the boundaries of the market. The Authority is of the view that the following questions need to be analysed:

- a. Is mass-market Bitstream part of the same relevant market as business Bitstream?

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- b. Should access to alternative technologies (WiMax, mobile broadband and fibre) be included in the relevant market?
- c. Should self-provision of Bitstream by Batelco be part of the relevant market?
- d. Is LLU a substitute for Bitstream?
- e. Is WDSL a substitute for Bitstream?

4.4.1 *Is mass-market Bitstream part of the same market as business Bitstream?*

283. In its current Bitstream offerings, Batelco differentiates between mass-market and business products, primarily on the basis of service quality by offering lower contention ratios for business Bitstream.
284. In order to appropriately assess the boundaries of the relevant product market, the Authority considers whether a hypothetical monopolist providing business Bitstream would be able to sustain a 10% price increase, or whether it would be directly or indirectly constrained by competition from providers of mass-market broadband services.
285. The Authority believes that there would be only limited direct constraints on the pricing of business Bitstream coming from providers of mass-market Bitstream services. This is because a wholesale customer purchasing business Bitstream to serve specific needs of retail end users would not be able to provide the same quality of service using mass-market Bitstream. Similarly, the Authority believes that the limited substitutability of business and mass-market products at the retail level, as discussed in Section 3.1 would weaken any indirect constraints imposed on the pricing of business Bitstream through switching at the retail level.
286. With regards to supply side substitutability, the conceptual question is again whether a hypothetical price increase in business Bitstream would trigger the entry of an alternative provider of mass-market Bitstream services. As Batelco is currently the only provider of both mass-market and business Bitstream services, this question relates to a potential entry of a vertically integrated OLO that currently offers mass-market broadband services at the retail level. In line with the arguments presented above (see Section 4.1) the Authority believes that such entry is unlikely to be economically feasible and sufficiently timely to make a hypothetical price increase unprofitable.
287. Therefore, the Authority is of the view that there is limited demand and supply-side substitutability between business and mass-market Bitstream products. On that basis, the Authority's preliminary view is that there are separate markets for mass-market and business Bitstream products.

4.4.2 *Should access to alternative technologies (WiMax, mobile broadband and fibre) be included in the relevant market?*

288. In this section, the Authority considers which technologies should fall in the relevant market for wholesale broadband services. The Authority considers this question separately for mass-market and business Bitstream products.

4.4.2.1 Mass-market products

289. Mass-market Bitstream products are purchased to provide mass-market DSL products to retail customers. Mass-market products provide a lower quality of service

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at significantly lower prices than business products and are therefore likely to target more price-sensitive retail customers that have lower quality of service requirements.

290. The starting point for the definition of the relevant product market is therefore Batelco's mass-market Bitstream products based on DSL technology. Batelco is the only operator currently offering Bitstream products. This implies that Batelco's mass-market Bitstream customers would not be able to switch to wholesale Bitstream products based on alternative technologies in the event that Batelco increased the price of its mass-market Bitstream product.

291. At the same time, there are a number of operators who have successfully entered the market by deploying their own wireless infrastructure. These operators effectively compete with Batelco in the provision of mass-market broadband at the retail level. Since the last Determination, these operators have managed to gain retail subscribers and in doing so have significantly reduced the share of Batelco and DSL technology in the market for mass-market retail products. These operators are vertically integrated and rely on 'self-supply' of wholesale inputs to deliver mass-market retail products. The Authority therefore needs to consider whether the self-supply of mass-market Bitstream services based on alternative technologies, i.e. WiMax, mobile broadband and fibre, should be considered part of the same market as mass-market Bitstream based on DSL technology.

292. From the evolution in the retail market for the provision of mass-market broadband services, the Authority believes that there is strong evidence that these alternative technologies impose sufficient constraints on Batelco's pricing of mass-market Bitstream and should therefore be considered part of the same product market. In particular:

- a. there has been a significant take-up of retail mass-market broadband products based on wireless technologies (WiMax and mobile broadband), and these technologies are likely to retain a significant share of mass-market broadband products in the next 1-2 years; and
- b. there seems to be a high willingness of mass-market retail customers to switch from DSL to mobile broadband services (see Figure 12)¹¹⁸.

293. This would likely imply that any hypothetical price increase in mass-market Bitstream would lead to an increase in retail prices of mass-market DSL products, causing switching of mass-market customers to alternative technologies. Based on the evidence from the retail mass-market broadband market, the Authority believes that this switching would be sufficient to make the price increase unprofitable.

294. The Authority therefore considers the relevant market for mass-market Bitstream to include DSL, WiMax, mobile broadband and fibre technologies, consistent with the relevant product market for mass-market products at the retail level.

4.4.2.2 Business products

295. Consistent with the analysis above, the starting point for the product market definition is Batelco's business Bitstream product.

¹¹⁸ The survey data refers to mobile broadband only, but the Authority believes similar results would be observable also for WiMax technology, given the similarity in product characteristics.

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296. As Batelco is currently the only provider of business Bitstream services, the Authority concludes that there are no direct constraints on Batelco's pricing of business Bitstream services coming from alternative wholesale providers.
297. Again, the key question is whether the relevant product market at the wholesale level should include the relevant alternative technologies used to deliver business products at the retail level, i.e. WiMax and fibre.
298. In line with the reasoning presented in Section 4.1, the Authority's preliminary view is that fibre technology should be in the same product market as DSL at the wholesale level. Nevertheless, the Authority recognises that there is currently limited availability of fibre broadband products for business customers and might therefore re-evaluate its conclusion to include fibre at a later stage when this technology is deployed more widely.
299. Similarly, the Authority's preliminary view is that it is unclear whether constraints imposed by business WiMax services at the retail are sufficient to justify including this technology in the relevant market for business LLU.
300. Again, the Authority notes that the inclusion or exclusion of fibre and WiMax is not expected to make any significant difference to the outcome of the competitive assessment in the market for business Bitstream services.
301. The Authority's preliminary view is thus that the relevant product market for business Bitstream includes DSL and fibre technologies.

4.4.3 *Should self-provision of Bitstream by Batelco be part of the relevant market?*

302. The Authority is of the preliminary view that it is appropriate to include self-supply by Batelco in the relevant market. With regards to mass-market Bitstream, the inclusion of Batelco's self-supply is consistent with the treatment of self-supply of other technologies (which do not provide wholesale broadband access to third parties). With regards to business Bitstream, Batelco's self-provision needs to be included in order to be able to assess market shares in this market¹¹⁹.

4.4.4 *Is LLU a substitute for Bitstream?*

303. This question has already been addressed above in the analysis of the LLU markets (Section 4.1.3). As per the arguments set out above, the Authority is of the preliminary view that LLU is not a substitute for Bitstream. This conclusion holds for both mass-market and business products¹²⁰.

4.4.5 *Is WDSL a substitute for Bitstream?*

304. The Authority's preliminary view is that the Bitstream and WDSL products are in the same wholesale market.
305. The Authority observes that Bitstream and WDSL products in the Kingdom of Bahrain are broadly comparable in qualitative terms (see Table 6 and Table 7 below). The key difference is that the WDSL product already includes the international connectivity, while a purchaser of Batelco's Bitstream needs to source international connectivity

¹¹⁹ For more details, please see 2009 Dominance Determination, paras 200-202

¹²⁰ For more details, please see 2009 Dominance Determination, paras 203-206

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separately. This gives OLOs using Bitstream more scope to differentiate their retail product, in comparison with OLOs using WSDSL. Nevertheless, the Authority does not believe these differences are sufficient to treat the two products as belonging to separate markets.

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Table 6: Comparing the charges of residential Bitstream and WDSL services in February 2014

Wholesale DSL		Bitstream	
Contention ratio	15:1	Contention ratio	15:1
Speed and data cap	Price (BD)	Speed	Price (BD)
Up to 256 kbit/s (2GB)	6.060	Up to 256 kbit/s	3.065
Up to 512 kbit/s (8 GB)	8.836	Up to 512 kbit/s	3.191
Up to 640 kbit/s (2 GB)	6.249	Up to 640 kbit/s	3.254
Up to 640 kbit/s (5 GB)	7.574	Up to 1,024 Mbit/s	3.442
Up to 1,024 Mbit/s (2 GB)	6.437	Up to 2.048 Mbit/s	3.945
Up to 1,024 Mbit/s (4 GB)	7.321	Up to 3.072 Mbit/s	4.447
Up to 1,024 Mbit/s (8 GB)	9.087	Up to 4.096 Mbit/s	4.950
Up to 1,024 Mbit/s (15 GB)	12.178	Up to 6.144 Mbit/s	5.956
Up to 2.048 Mbit/s (15 GB)	12.681	Up to 8.192 Mbit/s	6.961
Up to 2.048 Mbit/s (20 GB)	14.889	Up to 10.240 Mbit/s	7.966
Up to 3.072 Mbit/s (4 GB)	8.326	Up to 16.384 Mbit/s	10.982
Up to 3.072 Mbit/s (8 GB)	10.092		
Up to 4.096 Mbit/s (8 GB)	10.595		
Up to 4.096 Mbit/s (25 GB)	18.102		
Up to 6.144 Mbit/s (15 GB)	14.692		
Up to 8.192 Mbit/s (25 GB)	20.113		
Up to 8.192 Mbit/s (30 GB)	22.113		
Up to 8.192 Mbit/s (40 GB)	26.737		
Up to 8.192 Mbit/s (60 GB)	35.596		
Up to 8.192 Mbit/s (90 GB)	48.817		
Up to 10.240 Mbit/s (50 GB)	32.158		
Up to 10.240 Mbit/s (80 GB)	45.406		
Up to 10.240 Mbit/s (100 GB)	54.238		
Up to 10.240 Mbit/s (120 GB)	63.070		
Up to 16.384 Mbit/s (80 GB)	48.422		
Up to 16.384 Mbit/s (100 GB)	57.254		
Up to 16.384 Mbit/s (120 GB)	66.086		
Up to 16.384 Mbit/s (150 GB)	79.334		
Up to 25.600 Mbit/s (25 GB)	40.000		
Up to 51.200 Mbit/s (50 GB)	60.000		
Up to 102.4 Mbit/s (100 GB)	104.000		

Source: Based on Schedule 3 of Batelco's Reference Offer

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Table 7. Comparing the charges of business Bitstream and WDSL services in 2014

Wholesale DSL		Bitstream	
Contention ratio	8:1	Contention ratio	8:1
Speed and data cap	Price (BD)	Speed	Price (BD)
Up to 256 kbit/s Single User (2.5 GB)	5.898	Up to 256 kbit/s	3.065
Up to 256 kbit/s (5 GB)	11.002	Up to 512 kbit/s	3.411
Up to 512 kbit/s (10 GB)	13.555	Up to 640 kbit/s	3.529
Up to 1,024 Mbit/s (15 GB)	16.235	Up to 1,024 Mbit/s	3.882
Up to 2,048 Mbit/s (20 GB)	19.385	Up to 2,048 Mbit/s	4.824
		Up to 4,096 Mbit/s	6.710
		Up to 6,144 Mbit/s	8.595
		Up to 8,192 Mbit/s	10.480
		Up to 10,240 Mbit/s	12.365
		Up to 16,384 Mbit/s	18.020
Business Flat Rate (WDSL)			
Contention ratio	8:1		
Speed and data cap	Price (BD)		
Up to 256 kbit/s Single User	12.110		
Up to 256 kbit/s (Light)	8.110		
Up to 512 kbit/s Single User	9.561		
Up to 512 kbit/s	13.561		
Up to 512 kbit/s (Light)	9.341		
Up to 1,024 Mbit/s	21.770		
Up to 1,024 Mbit/s (Light)	17.330		
Up to 2,048 Mbit/s	41.371		
Up to 2,048 Mbit/s (Light)	36.491		
Up to 4,096 Mbit/s	85.702		
Up to 6,144 Mbit/s	111.475		
Up to 8,192 Mbit/s	115.691		
Up to 10,240 Mbit/s	135.704		
Up to 16,384 Mbit/s	185.706		

Source: Based on Schedule 3 of Batelco's Reference Offer

306. The Authority is of the view that a SSNIP applied to the WDSL price would make OLOs using the WDSL product switch towards the Bitstream product and vice versa, because of the low level of investment required to move from the WDSL product to the Bitstream product.

307. In addition, the Authority is of the view that there is a sufficient substitutability at the supply side. A SSNIP for the WDSL product would likely trigger a hypothetical

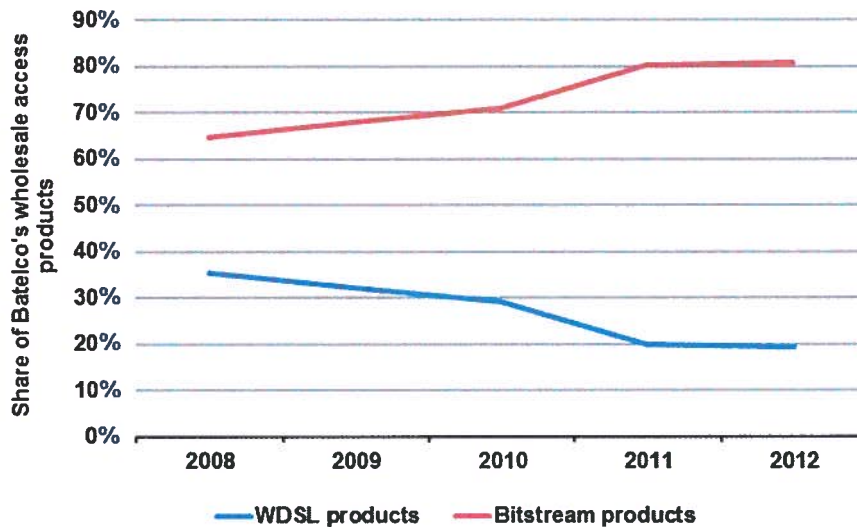
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Bitstream provider to switch into supplying WDSL services, because of relatively low levels of additional investment required to provide WDSL services.

308. The Authority therefore concludes preliminarily that Bitstream and WDSL are in the same wholesale market. This is further evidenced by the migration of almost all OLOs from WDSL to Bitstream services over time, see Figure 14.

Figure 14. Evolution of subscriber numbers on Batelco's WDSL and Bitstream products



Source: The Authority's analysis of operator data

309. This conclusion holds for both mass-market and business Bitstream products, i.e. mass-market Bitstream is in the same relevant market as mass-market WDSL and business Bitstream is in the same market as business WDSL.
310. Further, the wholesale market for mass-market Bitstream and WDSL products includes DSL, WiMax and mobile broadband, while the wholesale business market for Bitstream and WDSL products includes DSL and fibre technologies only¹²¹.

4.5 Relevant functional market

311. The relevant functional level of the market is the wholesale level, because wholesale broadband access is an input provided by operators to other operators for the provision of retail services. This holds for both mass-market and business Bitstream and WDSL products.

¹²¹ For more details, please see 2009 Dominance Determination, paras 207-216

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4.6 Relevant geographic market

312. For the reasons given in the earlier section on the relevant geographic boundaries for the retail market (Section 3.4), the Authority's preliminary view is that the relevant geographic market for the supply of Bitstream and WDSL services, both business and mass-market, is national, with the exception of the Amwaj Island and Durrat Al Bahrain where Batelco does not currently have fixed infrastructure in place.

Preliminary conclusions on the wholesale broadband access market

313. For the reasons set out above, the Authority considers that the relevant market is the wholesale broadband market for broadband internet access services from a fixed location, which

- a. for mass-market Bitstream products:
 - i. includes Batelco's Bitstream product (both copper and fibre based);
 - ii. includes wholesale access based on WiMax, mobile broadband and fibre technologies;
 - iii. includes self-supply by Batelco (both copper and fibre);
 - iv. includes Batelco's WDSL; and
 - v. excludes LLU.
- b. for business Bitstream products:
 - i. includes Batelco's Bitstream product (both copper and fibre);
 - ii. includes wholesale access based on fibre technologies;
 - iii. excludes wholesale access based on WiMax and mobile broadband technologies;
 - iv. includes self-supply by Batelco (both copper and fibre);
 - v. includes Batelco's WDSL; and
 - vi. excludes LLU.

314. The geographic dimension of the market, for both mass-market and business wholesale broadband access products, is the Kingdom of Bahrain.

Responses to the Draft Determination

315. In its submission on the Draft Determination, Zain agreed with the Authority's preliminary views on the definition of the wholesale broadband access (WBA) market.

316. The responses of those operators that disagreed with all or part of the Authority's proposed wholesale market definitions centred on a few key issues. In order to facilitate clarity in this Final Determination, the Authority has grouped the operators' views on these issues.

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Access to wireless local loops

317. As in its response in relation to the wholesale market for physical infrastructure, Batelco disagreed with the market definition on the basis that it failed to take into account actual and prospective alternative infrastructure in Bahrain. Batelco referred to its response to the 2009 consultation in which it had called for the inclusion of wireless local loops and duct access in the market definition for LLU. In the context of this consultation this would appear to suggest that Batelco disagrees with the exclusion of wholesale access to wireless local loops from the WBA market for business services.
318. Batelco further referred to the Authority's statement regarding the degree of competition in the wholesale market for mass-market products wherein the Authority states that "*the main competitors have effectively bypassed Batelco's wholesale access services and therefore are able to act as an independent competitive constraint*". According to Batelco, this also holds true for customers in the business segment, thereby appearing to suggest that its wholesale access services are not that important in this segment. Finally, Batelco advised against "taking an over-cautious forecasting of competitive developments in the context of a market review", making reference to the Authority's view on NFWS local loops in 2009.
319. VIVA disagreed with the Authority's preliminary views on WBA markets for the reasons it gave in relation to the relevant retail markets, namely that the markets for fixed (wired) and wireless products should be defined separately. For this reason, in its cross-response, VIVA disagreed with Batelco's suggestion to include wireless local loops in the WBA market. VIVA's cross-response pointed out that Batelco's wholesale access services do remain important for its competitors in the provision of more resilient and reliable broadband services to business customers.
320. Further, 2Connect repeated its response in relation to the wholesale market for physical infrastructure, submitting that the Authority has not declared operators such as Mena, Zain and VIVA dominant or to have SMP, which would be the case if the market were defined separately for fixed and wireless products.

Geographic and customer market definition

321. Batelco referred to its comments on the relevant geographic market at the retail level.
322. Batelco also re-asserted that the customer market should be defined on a user-basis rather than being based on product-characteristics.

The Authority's final analysis

323. The Authority considers the main issues identified in the operator's responses and addresses each issue in turn.

Access to wireless local loops

324. The analysis is the same as that conducted in response in relation to the wholesale market for physical infrastructure and is not repeated here.
325. In conclusion, as stated in the Draft Determination, and given that the inclusion or exclusion is not likely to affect the outcome of the competitive assessment, the Authority remains of the view that access to wireless local loops be excluded from the WBA market for business products at the time of this market review.

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Geographic market definition and separate markets for fixed and wireless products

326. Operators' concerns on these subjects have been addressed in the Authority's responses to submissions on the relevant retail markets. These have not been repeated here.¹²²

Conclusion

327. Having reviewed the submissions received on the Draft Determination, the Authority has defined the following wholesale markets for the purposes of this Determination.

328. The wholesale broadband market for broadband internet access services from a fixed location:

- a. for mass-market Bitstream products:
 - i. includes Batelco's Bitstream product (both copper and fibre based);
 - ii. includes wholesale access based on WiMax, mobile broadband and fibre technologies;
 - iii. includes self-supply by Batelco (both copper and fibre);
 - iv. includes Batelco's WDSL; and
 - v. excludes LLU.
- b. for business Bitstream products:
 - i. includes Batelco's Bitstream product (both copper and fibre);
 - ii. includes wholesale access based on fibre technologies;
 - iii. excludes wholesale access based on WiMax and mobile broadband technologies;
 - iv. includes self-supply by Batelco (both copper and fibre);
 - v. includes Batelco's WDSL; and
 - vi. excludes LLU.

329. The geographic dimension of the market, for both mass-market and business wholesale broadband access products, is the Kingdom of Bahrain, with the exception of the Amwaj Island and Durrat Al Bahrain where Batelco does not currently have fixed infrastructure in place.

¹²² See the Authority's analysis of and conclusion on operator's responses to Sections 3.2 and 3.4.

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4.7 Final conclusions on the definition of Wholesale physical network infrastructure access market and the Wholesale Broadband Access Market

330. Having reviewed the submissions received on the Draft Determination, the Authority has defined the following wholesale markets for the purposes of this Determination.

331. The wholesale physical network infrastructure access market for the supply of broadband services from a fixed location:

- a. for mass-market products:
 - i. includes LLU (access to the copper local loop and all the ancillary services);
 - ii. includes wholesale access to local loops based on WiMax, mobile broadband and fibre technologies;
 - iii. includes self-supply by Batelco (both copper and fibre);
 - iv. excludes Bitstream (as well as the WDSL product); and
 - v. excludes access to ducts.

- b. for business products:
 - i. includes LLU (access to the copper local loop and all the ancillary services);
 - ii. includes self-supply by Batelco (both copper and fibre);
 - iii. includes wholesale access to local loops based on fibre technologies;
 - iv. excludes wholesale access to local loops based on WiMax and mobile broadband technologies;
 - v. excludes Bitstream (as well as the WDSL product); and
 - vi. excludes access to ducts.

332. The geographic dimension of the market, for both mass-market and business LLU is the Kingdom of Bahrain, with the exception of the Amwaj Island and Durrat Al Bahrain where Batelco does not currently have fixed infrastructure in place.

333. The wholesale broadband access market for the supply of broadband services from a fixed location:

- a. for mass-market Bitstream products:
 - i. includes Batelco's Bitstream product (both copper and fibre based);
 - ii. includes wholesale access based on WiMax, mobile broadband and fibre technologies;
 - iii. includes self-supply by Batelco (both copper and fibre);
 - iv. includes Batelco's WDSL; and
 - v. excludes LLU.

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- b. for business Bitstream products:
 - i. includes Batelco's Bitstream product (both copper and fibre);
 - ii. includes wholesale access based on fibre technologies;
 - iii. excludes wholesale access based on WiMax and mobile broadband technologies;
 - iv. includes self-supply by Batelco (both copper and fibre);
 - v. includes Batelco's WDSL; and
 - vi. excludes LLU.

334. The geographic dimension of the market, for both mass-market and business wholesale broadband access products, is the Kingdom of Bahrain, with the exception of the Amwaj Island and Durrat Al Bahrain where Batelco does not currently have fixed infrastructure in place.

5 Assessment of whether there is SMP in the relevant retail markets

335. As discussed in Section 3, the Authority has defined two retail markets:

- a. the retail market for the supply of mass-market broadband services in Bahrain (including DSL, WiMax, fibre and standalone mobile broadband services); and
- b. the retail market for the supply of business broadband services in Bahrain (including DSL, WiMax, and fibre broadband services).

336. Consistent with the Modified Greenfield approach¹²³, the existing RTN Regulation has been excluded from the Authority's assessment of competition in the retail market. As a result, the Authority's assessment focuses on the competitive constraints that operate independently of any SMP finding in this market. The Authority then assesses the impact of the existing regulation at the wholesale level on the competitive outcomes in the retail market.

337. As outlined in the Authority's Competition Guidelines¹²⁴, a large number of factors can be considered in assessing SMP and dominance. Given the characteristics of the markets under consideration and their evolution since 2008/2009, the most determinant factors are listed below with a brief description¹²⁵:

- a. Market shares and existing competition: A current snapshot of market shares gives an indication of market power held by each operator. Analysing market shares over time reveals how competition is evolving and allows for a forward looking assessment. This is because the trend in market shares can be indicative of whether competition is intensifying or weakening, and therefore if the market power of current operators is likely to decrease or increase.
- b. Barriers to potential entry and expansion: The extent to which existing operators will be constrained by the threat of potential entry or by expansion by other operators will depend on whether barriers to entry or expansion are significant. Entry barriers occur when an existing operator in a market has an advantage over potential entrants into that market. Barriers to expansion are similar but relate to the ability of an existing operator to expand; for example, where an existing competitor faces capacity constraints that limit its ability to increase its scale of production.
- c. Countervailing buying power: Countervailing buyer power refers to the ability of buyers to limit the ability of sellers to exercise market power. It refers to the relative bargaining power of buyers and sellers, and is most evident where buyers and sellers have to negotiate. Countervailing buyer power will be enhanced where the following conditions apply:
 - i. the buyer has alternative choices;

¹²³ See paragraph 71 above.

¹²⁴ The Authority, "Competition Guidelines", 18 February 2010.

¹²⁵ The Authority also considered other factors such as evidence on prices and profits which have been discussed in other sections of this document, and the evidence found supports the conclusions of this section.

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- ii. the buyer is well-informed about alternative sources of supply;
- iii. the buyer could switch to alternative sources of supply without incurring significant costs;
- iv. the buyer could produce the input itself or “sponsor” new entry by another supplier; and
- v. the buyer is an important outlet for the seller and therefore the seller would be prepared to negotiate i.e. limited alternative buyers.

338. These factors are discussed in more detail in the sections that follow below.

5.1 Retail market for mass-market broadband

Draft Determination

5.1.1 Market shares and existing competition

339. Batelco's market share has been declining steadily in terms of both subscriber and revenue terms since the 2008 SMP Determination. This can be seen from Figure 15, which shows that Batelco's share of mass-market broadband subscribers has declined from 70%-80% in 2008 to 20%-30% in 2012.¹²⁶

Figure 15: Batelco's share of mass-market broadband subscriptions (2008 and 2012)

[X]

Source: The Authority's analysis of operator data

340. The mass-market broadband market shares of infrastructure-based competitors such as Menatelecom, Zain, and VIVA have increased significantly since 2008. As shown earlier in Figure 2, in 2008 WiMax accounted for 19% of fixed broadband subscriptions in Bahrain, with DSL accounting for 81%. By 2012, the WiMax share of mass-market fixed broadband subscriptions had increased to 72%. According to the information provided in response to the Authority's request for information, the total number of subscribers using WiMax services stood at over 102,000 in 2012, representing around 33% of the relevant market.

341. Operators providing mobile broadband services have also gained substantial market share since 2008. In 2012, 53% of mass-market broadband subscribers in the Kingdom of Bahrain used standalone mobile broadband, up from 15% in 2008.¹²⁷

342. Over the same time period, competitors relying on wholesale DSL access (through purchase of Bitstream or WDSL services from Batelco) have not gained substantial market share in respect of mass-market retail broadband services. For instance, [X] subscriber market share has remained at less than 1% since 2008.

¹²⁶ In line with the approach taken in the 2008 SMP Determination, the Authority refers to market shares within bands in this Determination in order to preserve the confidentiality of specific market shares while also providing interested parties with sufficient information.

¹²⁷ Note that a business/mass-market split is not available for subscribers of dedicated mobile so a 10-90 split is assumed based on the split between the two segments in the fixed broadband market.

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343. Figure 16 summarises the trend in the market shares of mass-market broadband subscribers over the period from 2008 to 2012.

Figure 16. Evolution of market shares for mass-market broadband products

[X]

Source: The Authority's analysis of operator data

344. Thus, Batelco's declining subscriber and revenue share has been driven by increased competition from infrastructure-based competitors such as Menatelecom (WiMax), Zain (WiMax and mobile broadband) and VIVA (mobile broadband). The competition from access-based providers such as [X] has been limited.

345. The Authority also notes that while Zain's and VIVA's share is greater than the 25% threshold for SMP assessment, as outlined in Section 2, given that there are four established operators with similar market shares, this existing competition is likely to constrain each operator.

346. According to the responses to the Authority's Article 53 information request issued as part of this market review, most respondents consider LTE to be the main competitive threat over the next three years, and that WiMax will continue to have a significant competitive presence in the broadband market. This indicates that infrastructure-based competition will continue to be the main source of competitive pressure in the retail market for mass-market broadband services over the next 1-2 years. This source of competition is independent of the existing regulation of retail and wholesale broadband services in Bahrain.

347. Based on this assessment and in keeping with the Modified Greenfield Approach, the Authority is of the preliminary view that absent regulated access at the wholesale level, there would still be vigorous existing competition in the retail market for mass-market broadband products in Bahrain.

5.1.2 Potential entry and expansion

348. The Authority believes that there are significant barriers to new infrastructure-based entry in the retail market for the provision of mass-market broadband products. Such entry would require a significant investment in deploying networks that would allow for a competitive range of mass-market retail products to be offered. A share of these costs, in particular those related to the rollout of an access network, is sunk and therefore non-recoverable by a potential entrant in the event that it had to exit the market subsequently. This is likely to deter such entry in the first place. Moreover, such entry would likely require a significant amount of time.

349. The Authority also considers the extent to which new entry via Batelco's network (i.e. Bitstream/WDSL or LLU) is feasible. The Authority recognises that the vigorous competition at the retail level might give Batelco an increased incentive to offer access to its wholesale access services. Nevertheless, it is not clear that these incentives, in the absence of regulation at the retail and wholesale level, would sufficiently motivate Batelco to maintain wholesale access products and whether they would lead to actual entry.

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350. On the other hand, the Authority believes there is scope for the existing operators to further expand their supply of mass-market broadband services. This has been evidenced through the rapid increase in the number of WiMax and mobile broadband subscriptions of competitors in recent years. In terms of further expansion, the Authority believes that the rollout of LTE networks will allow for more efficient utilisation of spectrum by mobile operators. This, together with the additional spectrum allocated in September 2013, is likely to allow existing operators of mobile broadband networks to expand and improve their broadband services. The competitive threat from LTE-based operators over the next few years has been recognised by most of the operators responding to the Authority's request for information issued as part of this market review.

351. The Authority therefore believes that there is the potential for expansion by existing wireless operators, and in particular mobile broadband providers, in the market for retail mass-market products.

5.1.3 Countervailing buyer power

352. The Authority recognises that there are a number of alternative choices for users of retail mass-market products. While this might enhance the countervailing buyer power in the mass-market segment, the Authority believes that this is unlikely to be sufficient by itself to limit the ability of sellers to exercise potential market power.

353. The Authority considers that demand for broadband services at the retail level is highly fragmented, which leaves subscribers with only limited negotiating power.

354. The Authority's preliminary view is that customers of retail broadband services for mass-market products in the Kingdom of Bahrain possess little or no countervailing buyer power.

Preliminary conclusion on SMP

355. Batelco faces vigorous competition from infrastructure-based operators in the retail market for mass-market products. Its market share is declining over time and all four main operators currently hold a market share of between 20-30%. The extent of competitive pressure in the mass-market segment is not expected to diminish in the next 1-2 years, and there seems to be sufficient scope for expansion of the existing operators. The Authority's preliminary view is that there is no SMP operator in the retail market for mass-market broadband products.

356. At the time of this assessment of competition in the market, there do not appear to be concerns with regards to potential joint dominance findings in the retail market. Nevertheless, the Authority might re-evaluate its position in relation to potential joint dominance at a later point of time, once the broadband market reaches a more stable and mature state.

Responses to the Draft Determination

357. In their submissions on the Draft Determination, Batelco and Zain broadly agreed with the Authority's finding that no operator has SMP in the retail market for mass-market broadband services.

358. VIVA disagreed with the Authority's preliminary conclusion because, as it pointed out in relation to the relevant market definitions, it believed there should be separate

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markets for fixed and wireless products. Under this definition, VIVA argued that Batelco would have SMP in the market for fixed broadband products.

359. VIVA also argued that Batelco is in a favourable position to deploy fibre as other operators face competitive difficulties in deploying fibre. These primarily include duct access prices being prohibitive and not cost-oriented.¹²⁸
360. VIVA considered that the Authority's intention not to impose remedies on Batelco's fibre access for the mass-market will have a detrimental impact on the deployment of fibre.
361. According to VIVA, access to Batelco's fibre network should be mandated at the wholesale level for the mass-market, in line with the EC's 2010 recommendation¹²⁹, and its access prices should be reviewed.
362. Batelco's cross-response asserted that VIVA has been using Batelco's ducts since 2012 and that duct access charges have fallen by 70% in the last 6 years. According to Batelco, its duct access prices have been determined in accordance with Article 57 Section (e) of the Bahrain Telecommunications Law.
363. Batelco also submitted that the absence of remedies for Batelco's fibre access for the mass market would not have a detrimental impact on the provision of high bandwidth ICT services. Batelco stated that it would continue to offer to OLOs the Wholesale Bitstream and DSL services based on fibre-access in areas where fibre has been deployed for speeds up to and including 16Mbps.
364. 2Connect reiterated that there should be separate markets for fixed and wireless broadband products. According to 2Connect, Batelco would then have SMP in the market for fixed products, and the Authority should consider whether VIVA or Mena have SMP in the wireless market.

The Authority's final analysis

365. The Authority considers below the main issues identified in the operator's responses and addresses each in turn.

Fibre access

366. As explained above, the Authority is of the view that fibre belongs to the same relevant product market as DSL, WiMax and standalone mobile broadband in relation to mass-market segment.
367. The Authority came to conclusion that retail market from mass-market broadband services is competitive, primarily on the basis that alternative infrastructure-based operators impose significant competitive constraints on each other (and Batelco), and that none of the operators should be found to be SMP at the retail level.

¹²⁸ VIVA also pointed out that Batelco enjoys SMP and a dominant position in the fixed broadband market and that there is uncertainty around NBN deployment. The Authority believes that these issues have been sufficiently covered elsewhere in this document and are not repeated here.

¹²⁹ EC Recommendation on regulated access to Next Generation Access Networks, 20 September 2010. Available at <http://eur-lex.europa.eu/LexUriServ.do?uri=OJ:L:2010:251:0035:0048:EN:PDF>

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368. The Authority recognizes that under its proposed market definition, none of the operators have presented any strong objections or evidence contradicting the Authority's conclusion that there is no SMP operator in mass-market segment.
369. As explained later in this Annex, the Authority has concluded there is no dominant operator in the mass-market segment at the wholesale level.
370. As a result of this, Batelco will no longer be subject to ex ante regulatory obligations under Article 57 and Article 58 of the Telecommunications Law in relation to the mass-market segment. This includes wholesale access to Batelco's mass-market fibre.
371. At the same time, the Authority understands the potential concerns raised by VIVA regarding the future importance of fibre in the mass-market segment.¹³⁰ As noted in the Draft Determination, the Authority will revisit the issue of whether market power concerns may re-emerge as a result of a more widespread deployment of fibre in the future. This is consistent with the comments made by the European Commission in relation to the Austrian regulator's decision to deregulate mass-market broadband services in 2009.¹³¹
372. In the meantime, the Authority expects that Batelco has strong incentives to offer competitive wholesale access to its mass-market products. The Authority notes Batelco's undertaking, as expressed in its submission on the Draft Determination, to continue offering wholesale access to its fibre-based mass-market broadband products at lower speeds.^{132 133} The Authority also expects that Batelco will extend this undertaking to higher speed products, as and when they become more widely available.
373. The Authority will therefore monitor the deployment and development of fibre-based services.

Duct Access

374. The Authority does not consider duct access to be part of the relevant LLU markets and will therefore not address it explicitly in this review.
375. At the same time, the Authority understands operators' concerns over duct access, in particular when it comes to providing backhaul services necessary to deliver broadband services considered in this review. The Authority is considering duct access separately as a remedy in the review of the market for Domestic Data Connectivity Services.

Separate markets for fixed and wireless products

376. The Authority has addressed this issue in relation to the relevant market definitions.¹³⁴

¹³⁰ See page 6 of VIVA's response to the Draft Determination.

¹³¹ See paragraph 152 above.

¹³² See paragraph 363 above.

¹³³ See paragraph 20 on page 7 of Batelco's cross-response to the Draft Determination

¹³⁴ See the Authority's analysis of operator's responses to Sections 3.2 , 4.1 and 4.4.

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Conclusion

377. Having reviewed submissions received on the Draft Determination, the Authority remains of the view that no operator has SMP in the retail market for mass-market broadband products.

5.2 Retail market for business broadband

Draft Determination

5.2.1 Market shares and existing competition

378. While Batelco's business broadband subscriber market share has decreased over time, it remained at over 40% (around [X]%) as of the end of Q4 2012. At the same time, Batelco managed to increase its revenue share in the business segment, from [X]% in 2009 to almost 60%-70% by the end of 2012. This is illustrated by Figure 17 and Figure 18 below.

Figure 17. Evolution of retail market shares in business products

[X]

Source: The Authority's analysis of operator data

Figure 18. Evolution of market shares for business products by revenue

[X]

Source: The Authority's analysis of operator data

379. The prices of Batelco's DSL business products are significantly higher than the prices of its mass-market DSL products. This difference is also reflected in the ARPUs which were almost [X] times higher for business products than mass-market products in 2012. While higher prices themselves are not necessarily an indicator of market power, there is evidence that Batelco earns significantly higher margins on business DSL products compared to mass-market DSL products. For instance, based on analysis undertaken by the Authority on Batelco's retail prices and costs of supplying broadband services, the margins earned by Batelco on a Business 1 Mbps/unlimited data cap product were [X] higher than those on a Mass-market 1 Mbps speed/2 GB data cap product. Similarly, the margins earned by Batelco on a Business 10 Mbps/unlimited data cap product were [X] higher than those on a Mass-market 10 Mbps speed/10 GB data cap product.

380. Access-based competitors perform better in the business segment than in the mass-market segment. This is further supported by the fact that a number of wholesale access-based competitors focus on the provision of business products at the retail level. The business broadband subscriber market share of DSL providers at the retail level in 2012 (excluding Batelco's share) was 20%-30%, which represented around 40%-50% of the non-Batelco share of the market. In other words, access-based competitors represent an important source of competition for Batelco in the retail market for business broadband services in Bahrain.

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381. Providers of WiMax and mobile broadband services have lower market shares in the business segment. For instance, while Menatelecom's share of business broadband subscriptions has increased from [X]% in 2008 to [X] in 2012, its share in the business segment remains considerably lower than its share of the mass-market segment, where its share of fixed broadband subscriptions (i.e. DSL, WiMax and fibre only) was [X]% in 2012.
382. In light of these factors, Batelco's pricing of business products seem to be less constrained by other technologies when compared with the constraints on mass-market products. Moreover, constraints from other access-based DSL providers are more important in the business segment than the mass-market segment in light of the limited competition from alternative technologies. These constraints are dependent to a significant extent on the existing regulatory obligations on Batelco to provide wholesale access to its broadband network.
383. Taking into consideration these developments and in keeping with the Modified Greenfield Approach, the Authority's preliminary view is that absent regulated access at the wholesale level, there would be limited competition in the retail market for business broadband products.

5.2.2 *Potential entry and expansion*

384. In line with the reasoning in the market for mass-market broadband, the Authority believes that there are significant barriers to new infrastructure-based entry in the retail market for the provision of business products. With regards to the new entry of wholesale access seekers relying on Batelco's network to deliver retail business products, the Authority is of the view that Batelco's incentives to promote such entry are, in the absence of regulation, likely to be limited given the significant market share it currently holds in the business segment.
385. While the Authority recognises that there is potentially some scope for the expansion of the existing operators, this is likely to be limited in comparison to the mass-market products. In particular, as explained above, Batelco benefits from economies of scale and scope in the business segment, which makes it more challenging for its competitors to expand in this segment, despite the increasing capacity of their networks.
386. In addition, the Authority understands from operators' responses that there are high administrative (non-price) barriers preventing the expansion of alternative DSL providers targeting retail customers with business products.
387. The Authority therefore believes that there is only limited potential for entry or expansion in the market for retail business products.

5.2.3 *Countervailing buyer power*

388. The Authority recognizes that users of business products do not have as many alternatives as users of mass-market products. The Authority believes this is unlikely to be sufficient by itself to limit the ability of sellers to exercise potential market power.
389. Like the market for mass-market broadband, the Authority considers that demand for broadband services at the retail level is highly fragmented, which leaves subscribers with only limited negotiating power.

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390. The Authority's preliminary view is that customers of retail business broadband services in the Kingdom of Bahrain possess little or no countervailing buyer power.

Preliminary conclusion on SMP

391. Batelco has managed to sustain a market share in the business segment of over 40%, throughout the same period in which its market share in the mass-market segment declined substantially. Furthermore, its revenue share in the business market has remained above 60% since 2008. The potential for entry and expansion in this market is very limited. It is also important to note that regulated access to Batelco's broadband network provides a significant source of competition at the retail level.

392. The Authority's preliminary view is that the constraints from existing and potential competition are not sufficient to prevent Batelco from behaving independently of its competitors and subscribers in the market for business broadband products.

393. The Authority therefore concludes that Batelco has SMP in the retail market for business broadband services¹³⁵.

Responses to the Draft Determination

394. Zain agreed with the Authority's preliminary conclusion that Batelco has SMP in the retail market for business broadband services.

395. Notwithstanding its comments on the retail market definition, VIVA also agreed with the Authority's SMP findings.

396. Batelco disagreed with the Authority's preliminary findings on SMP. According to Batelco, if the market were defined based on the number of active CRs in Bahrain, a more prospective view was adopted that alternate technologies will form effective supply-side substitutes in the period of the market review, and more than just market shares were taken into account when assessing competitive constraints, Batelco would not have SMP.

397. In response to Batelco's submission, VIVA's cross-response referred to its arguments in relation to customer segmentation at the retail level, where it outlined that Batelco's user-based customer segmentation was not justified.

The Authority's final analysis

398. The Authority has responded to Batelco's proposal for a user-based customer segmentation in the earlier discussion of the relevant retail markets.¹³⁶

¹³⁵ Note that these findings fall in line with the EC study's findings- "For all the reasons mentioned above, the incumbent operator may be expected to have a competitive advantage in the bespoke non-residential segment" See Page 132 of the EC Study, "Future electronic communications markets subject to ex-ante regulation", September 18, 2013. Available at: http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

¹³⁶ See Section 3.1, paragraphs 110-111.

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399. Batelco's assertion that alternate technologies (presumably such as mobile broadband) should be included in the market definition has also been addressed in the Authority's analysis of the submissions on the relevant product market.¹³⁷
400. As such, the Authority has not changed its market definition. It therefore considers here only the points made by Batelco concerning the breadth of its analysis.¹³⁸
401. In response to this point, the Authority reiterates that it has taken into account more than just market shares when carrying out the competitive assessment in each market. The analysis of potential for entry and expansion, countervailing buyer power and comparison of prices and profits were all considered when coming to a conclusion on SMP and dominance. In this particular case, Batelco was found to have SMP in the retail market for business broadband service because of the evidence on all these factors, as outlined in the Draft Determination.
402. Given that the Authority is of the view that the retail market for business broadband products defined in the Draft Determination remains appropriate, the outcome of the competitive assessment remains unchanged, specifically that Batelco has SMP in the retail market for business broadband services. The Authority reiterates that this is in line with the EC study¹³⁹ as well as the most recent decision by the Austrian regulator, RTR.¹⁴⁰
403. The Authority also notes that all operators, other than Batelco, have agreed with the outcome Authority's SMP assessment in their responses, notwithstanding their views on market definition.

Conclusion

404. Having reviewed submissions received on the Draft Determination, the Authority remains of the view that Batelco has SMP in the retail market for business broadband services.

¹³⁷ See Page 12 of Batelco's response to the Draft Determination.

¹³⁸ See Page 12 of Batelco's response to the Draft Determination.

¹³⁹ The EC study's findings are as follows- "*For all the reasons mentioned above, the incumbent operator may be expected to have a competitive advantage in the bespoke non-residential segment*". See page 132 of the EC study, "Future electronic communications markets subject to ex-ante regulation", September 18, 2013. Available at: http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

¹⁴⁰ RTR "Definition for the market for broadband wholesale access" from December 2009 available at https://www.rtr.at/en/komp/KonsultationTKMVO2003/Marktabgrenzung%20Breitband_nat%20Konsultation.pdf

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6 Assessment of whether there is dominance in the relevant wholesale markets

405. In the current market review, the Authority is interested in whether Batelco has a dominant position in the relevant wholesale market(s) in which domestic wholesale broadband services are supplied. A finding of dominance at the wholesale level triggers a regulatory obligation to submit a Reference Offer to the Authority for approval under article 57 of the Telecommunications Law.

406. For the purposes of this market review, the Authority has defined the following wholesale markets, separately for business and mass-market products:

- a. a wholesale physical network infrastructure access market; and
- b. a wholesale broadband access market.

407. The competitive constraints that operate in respect of the services supplied in each of these wholesale markets are considered below. Given that the product market definition is different for mass-market and business wholesale products, and that the competition assessment at the retail level has led to different conclusions for mass-market and business products, it is appropriate to undertake a competition assessment of each wholesale market separately.

6.1 Assessment of dominance in the wholesale physical network infrastructure access market for mass-market products

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6.1.1 Market shares and existing competition

408. As discussed in Section 5, the Authority has come to the preliminary view that there is effective competition at the retail level for the provision of mass-market broadband products.

409. At the wholesale level, retail customers of providers that use Batelco's LLU product are effectively Batelco's customers. However, there has been little take-up of the LLU product in the Kingdom of Bahrain.

410. The competitive constraints which come from other infrastructure-based operators such as Menatelecom, Zain and VIVA are not based on existing regulated wholesale access to Batelco's network and are therefore largely independent of this regulation at either the wholesale or retail level.

Figure 19: Mass-market wholesale market shares, 2012

[X]

Source: The Authority's analysis of operator data

411. This competition is likely to be constraining Batelco's pricing in the notional market for mass-market LLU products. As there has been relatively low take up of wholesale

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access products (Bitstream and WDSL) and there are no indications there will be a significant take-up of Batelco's LLU, the Authority does not expect the potential impact of LLU in the mass-market segment to be significant in the next 1-2 years¹⁴¹.

6.1.2 *Potential entry and expansion*

412. Batelco is currently the only operator that controls a local loop network with dedicated links between end-users and MDFs. As investments related to the deployment of a copper local loop network are sunk costs (i.e. not recoverable in the case of exit), entry barriers are particularly high. Sunk costs tend to give established firms significant first mover advantages and limit the incentives to invest of potential entrants. The similar conclusion holds also for the ability of existing infrastructure-based operators to enter the LLU market and start offering local loop services.

413. At the same time, there is likely to be the potential for an indirect expansion through self-supply of OLOs in the mass-market segment. In other words, the additional capacity in mobile broadband networks could allow Batelco's existing competitors to increase the number of mass-market retail accesses, which would implicitly lead to an increase of local loops self-supplied over alternative infrastructures.

414. The Authority therefore concludes that the potential for new entry at the LLU level is limited. The Authority recognises that there is some potential for expansion through self-supply of local loops, in particular in relation to the provision of mass-market products.

6.1.3 *Countervailing buyer power*

415. As explained above, there are currently no buyers of Batelco's LLU product. In addition, the Authority considers that potential buyers of LLU product would not be in a position to exert countervailing buyer power, and hence constrain Batelco's ability to behave independently, mainly because of:

- a. the absence of alternative sources of supply expected over the relevant timeframe, which limits the direct countervailing buyer power (see above analysis of barriers to entry); and
- b. the fragmented demand at the retail level, which limits the extent of indirect buyer power.

416. This also has to be considered in the context of the vertical integration of Batelco. Batelco's wholesale customers are its downstream competitors. Given its position in the retail market, Batelco has limited incentives to provide wholesale access to its downstream competitors.

417. The Authority therefore concludes there is currently no significant countervailing buyer power.

¹⁴¹ While an operator has expressed the intention to use LLU if VDSL2 is introduced, there is insufficient certainty around its introduction at the moment. Thus, the Authority maintains the view that the uptake of LLU is not likely to change significantly in the next 1-2 years.

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Preliminary conclusion on dominance (mass-market physical infrastructure access)

418. Based on the above, the Authority's preliminary view is that there is no dominant operator in the wholesale physical network infrastructure access market for mass-market products.

6.2 Assessment of dominance in the wholesale broadband access market for mass-market products

6.2.1 Market shares and existing competition

419. As explained in Section 5, the Authority has come to the preliminary view that there are effective competitive constraints arising from other infrastructure-based operators, which are largely independent of the current regulation at either the wholesale or retail level.

420. When assessing market shares at the wholesale level, subscribers of operators providing DSL products at the retail level effectively become Batelco's subscribers. This is because DSL providers at the retail level are customers of Batelco's wholesale DSL products. Thus, to assess competition at the wholesale level, the competitive constraints from alternative infrastructures become important.

421. As discussed in Section 5, access-based operators only have a small share of around 1% of the relevant market at the retail level, with competitive constraints coming primarily from operators using other technologies which are largely independent of Batelco's network. Thus, market shares do not change substantially at the wholesale level. In line with the competitive analysis at the retail level, there are four operators with broadly comparable market shares at the wholesale level, namely Batelco, Menatelecom, Zain and VIVA. Batelco's wholesale market share declined from 70%-80% in 2008 to 20%-30% in 2012, while shares for the other operators have increased over time as evidenced by Figure 20 below. There seems to be no indication that this trend is likely to reverse significantly in the next 1-2 years.

Figure 20. Evolution of mass-market wholesale market shares

[X]

Source: The Authority's analysis of operator data

422. Thus, it is the Authority's preliminary view that existing infrastructure-based competition between the four independent operators is likely to constrain each of the operators. This implies that the pricing of Batelco's mass-market wholesale products is likely to be indirectly constrained by strong competition at the retail level.

6.2.2 Potential entry and expansion

423. In line with the arguments presented above, the Authority considers that a green-field entry of a new operator in the market for the provision of Bitstream services is highly unlikely given the relatively high entry barriers.

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424. While it is possible that one of the existing infrastructure based operators might decide to offer wholesale Bitstream access to its network and compete directly with Batelco, this would likely be costly and require time. Therefore, the Authority does not expect that this would have a significant impact on wholesale competition in the next 1-2 years.

425. The Authority therefore concludes that the potential for new entry at the Bitstream level is limited. However, the Authority recognises that there is some potential for expansion through self-supply Bitstream services in relation to the provision of mass-market products.

6.2.3 Countervailing buyer power

426. The Authority considers that buyers of mass-market Bitstream will not be in a position to exert countervailing buyer power and hence to constrain Batelco's ability to behave independently, mainly because of the absence of alternative sources of supply expected over the relevant timeframe (see above analysis of barriers to entry in Section 6.2.2).

427. This also has to be considered in the context of the vertical integration of Batelco as a result of which Batelco has limited incentives to sell to its downstream competitors.

Preliminary conclusion on dominance (mass-market wholesale broadband access)

428. Based on the above, the Authority's preliminary view is that there is no dominant operator in the wholesale broadband access market for mass-market products.

Preliminary conclusions on dominance in the wholesale markets for mass-market products

429. Batelco faces vigorous competition from infrastructure based operators in the retail market for mass-market broadband products. The strong competition at the retail level has an impact on the related wholesale markets and Batelco's ability to act independently in these markets, as the main competitors have effectively bypassed Batelco's wholesale access services and therefore are able to act as an independent competitive constraint.

430. The competitive situation in the segment of mass-market products is unlikely to change dramatically in the next 1-2 years, and there seems to be sufficient scope for expansion of self-supply among the existing operators. The Authority's preliminary view is that there is no dominant operator in the wholesale markets for mass-market broadband products. In particular, the Authority's preliminary view is that:

- a. there is no dominance in the wholesale physical network infrastructure access market for mass-market products; and
- b. there is no dominance in the wholesale broadband access market for mass-market products.

Responses to the Draft Determination

431. Batelco and Zain largely agreed with the Authority's findings on the wholesale broadband access market for mass-market products.

432. VIVA and 2Connect disagreed with the Authority's findings on the basis that they believe that wired and wireless products are supplied in separate markets, and as a

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result, Batelco would continue to be dominant in the market for fixed broadband products.

433. 2Connect further raised a concern that a finding that Batelco is no longer dominant in the mass market segment would result in the removal of regulated access to Batelco's network and allow them to raise access charges. This could, in turn, affect the existence of some operators. 2Connect asserted that this would contradict the Authority's mission of creating a competitive market.

The Authority's final analysis and conclusion

434. The Authority has already responded to operator's assertions that fixed and wireless products should form separate markets. In summary, having reviewed submissions on the Draft Determination, the Authority remains of the view that fixed and wireless mass-market broadband services are supplied in the same market.
435. The Authority has not found SMP in the retail market for mass-market products. In the Authority's view, the infrastructure-based competition at the retail level imposes indirect constraints on Batelco's pricing at the wholesale level. This was outlined in the Draft Determination.
436. The Authority understands 2Connect's concerns around the removal of regulated wholesale access in the mass-market segment.¹⁴² However, whilst the Authority has a duty to protect competition, it does not have a duty to protect individual operators. Further, the Authority has a duty to apply regulation where there is a risk of market failure. As such, it considers it appropriate to withdraw regulation from the markets it finds competitive, although it might imply some competitors might be adversely affected. Moreover, the Authority believes that the limited use of wholesale access products in the mass-market segment means that removing regulated access will not negatively affect competition in this market. Batelco will continue to face strong competition from infrastructure-based competitors in the mass-market broadband segment, even in the absence of regulated access at the wholesale level.

Conclusion

437. In light of the fact that the operators' responses centred around market definition (which have been addressed in the earlier market definition sections) and in the absence of any evidence to contradict the Authority's competitive assessment in the Draft Determination, the finding that no operator has a dominant position in the wholesale broadband access market for mass-market products remains as set out in the Draft Determination.

¹⁴² See page 4 of 2Connect's response to the draft Determination

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6.3 Assessment of dominance in the wholesale physical network infrastructure access market for business products

Draft Determination

6.3.1 Market shares and existing competition

438. In line with the competitive analysis at the retail level, it appears that Batelco has been able to preserve a strong position in this market segment, holding close to 100% market share (as the market is defined to include only DSL and fibre and no other significant provider of business DSL or fibre is present in the market).

439. While the Authority appreciates that market shares do not by themselves demonstrate dominance, the Authority notes that Batelco's market share is particularly high in this instance and it does not expect Batelco's market share to decrease significantly within the timeframe of the analysis, given the substantial barriers to entry in this market.

440. As discussed in Section 5, competition from other infrastructure-based providers at the retail level does not seem to significantly constrain Batelco's pricing, as evidenced by the relatively high margins on Batelco's business DSL products.

441. Thus, it is the Authority's preliminary view that the pricing of Batelco's business LLU is likely to be less constrained by competition at the retail level.

6.3.2 Potential entry and expansion

442. The arguments in this section are identical to those in the mass-market segment (Section 6.1) and are therefore not repeated.

443. The Authority therefore concludes that the potential for new entry at the LLU level is limited. The Authority recognizes that there is some potential for expansion through self-supply of local loops, although this is likely to be more limited in respect of business broadband services than for the mass-market broadband segment.

6.3.3 Countervailing buyer power

444. The same arguments as those for the mass-market segment (Section 6.1) apply and are not repeated.

445. Batelco's vertical integration is especially relevant for the business segment because of its strength in this market. Batelco has limited incentives to provide wholesale access to its downstream competitors.

446. The Authority therefore concludes there is currently no significant countervailing buyer power.

Preliminary conclusion on dominance (business physical infrastructure access)

447. Based on the above, the Authority's preliminary view is that Batelco is dominant in the in the wholesale physical network infrastructure access market for business products.

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6.4 Assessment of dominance in the wholesale broadband access market for business products

6.4.1 Market shares and existing competition

448. In line with the competitive analysis at the retail level in Section 5, it appears that Batelco has been able to preserve a strong position in this market segment.

449. As was discussed in Section 6.1, subscribers of access-based providers at the retail are effectively Batelco's subscribers at the wholesale level. In the wholesale market for business Bitstream, Batelco's market share is close to 100% as only DSL and fibre technologies are included in the relevant product market.¹⁴³

450. In addition to this, the limited competitive constraints that exist in this market come primarily from access-based providers such as Lightspeed. The existing regulation at the wholesale level is therefore likely to have a significant effect on the observable market outcomes in the segment of business broadband products.

451. Thus, it is the Authority's preliminary view that the pricing of Batelco's business wholesale products is likely to be less constrained by competition at the retail level.

6.4.2 Potential entry and expansion

452. The analysis in the mass-market segment of high entry barriers and sunk costs (Section 6.2) applies to the market for business products as well and is not repeated.

453. The Authority therefore concludes that the potential for new entry at the Bitstream level is limited.

6.4.3 Countervailing buyer power

454. Like the findings in the mass-market segment, the Authority considers that buyers of Bitstream will not be in a position to exert countervailing buyer power and hence to constrain Batelco's ability to behave independently, mainly because of the absence of alternative sources of supply expected over the relevant timeframe.

455. This also has to be considered in the context of the vertical integration of Batelco, as a result of which Batelco has lower incentives to sell to its downstream competitors in the market for business products.

Preliminary conclusion on dominance (business wholesale broadband access)

456. Based on the above, the Authority's preliminary view is that Batelco is dominant in the wholesale broadband access market for business products.

Preliminary conclusions on dominance in the wholesale markets for business products

457. Batelco has managed to sustain a significant market share in the retail business segment of over 40% of subscribers (and 60%-70% of revenues) throughout the same period in which its position in the mass-market segment declined substantially.

¹⁴³ The Authority notes that even if WiMax technology would be considered part of this market, Batelco's share (both subscriber and revenue) would be 60%-70%.

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At the wholesale level, Batelco's market share in the business segment remains close to 100% since the last Determinations.

458. The potential for entry and expansion in this segment is limited, whilst a large share of competitive pressure at the retail level on Batelco comes through the regulated wholesale access products.
459. The Authority's preliminary view is that in the absence of wholesale access regulation, the constraints from existing competition would not be sufficient to prevent Batelco from behaving independently of its competitors and subscribers in the wholesale markets for business products.
460. Thus, the Authority considers wholesale access to LLU services necessary as it is an essential safeguard to ensure the development of competition in the business segment.
461. The Authority therefore concludes that Batelco is dominant in the relevant wholesale markets for business products¹⁴⁴, in particular:
- a. Batelco is dominant in the wholesale physical network infrastructure access market for business products; and
 - b. Batelco is dominant in the wholesale broadband access market for business products.

Responses to the Draft Determination

462. VIVA and Zain agreed with the Authority's dominance findings in the wholesale physical network infrastructure access market and the wholesale broadband access market for business products.
463. Batelco submitted that the retail markets, if defined correctly, are competitive. If the same approach to customer segmentation were applied to the wholesale market, Batelco does not believe it would be dominant.
464. According to Batelco, wholesale ex-ante regulation should be removed because adjacent markets such as wholesale high bandwidth access to customer premises and the wholesale market for access to transmission capacity are still subject to ex-ante regulation for at least another 6 months.
465. Further, Batelco argued that there are significant costs associated with ex-ante regulation, pointing specifically towards the combined costs of maintaining its regulatory team, regulatory finance team and its wholesale team..

¹⁴⁴ This is in line with the findings in the EC study which concluded that the market for LLU is not expected to tend to effective competition within the relevant timeframe and the application of competition law alone would not be sufficient to resolve the market failures concerned. See page 115 of the EC study, "Future electronic communications markets subject to ex-ante regulation", September 18, 2013. Available at http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

Also, the study finds that for the retail market for broadband access for non-residential customers, the scale of demand may not be large enough to make roll out to LLU level viable for a business operator. Consequently, competitive issues that may exist for this particular market segment may not be remedied adequately at the LLU level. See page 116 of the EC Study, "Future electronic communications markets subject to ex-ante regulation", September 18, 2013. Study available at http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

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466. Batelco also submitted that it faces delays in being able to respond to competition as a result of the NCT assessment process.

467. VIVA's cross-response argued that these regulation-related costs are recovered through wholesale charges and compensated for by high margins in the business market.

The Authority's final analysis and conclusion

468. Batelco's assertions regarding market definition have been addressed earlier in the Authority's analysis.¹⁴⁵

469. Wholesale high bandwidth access to customer premises and the wholesale market for access to transmission capacity are regulated. However, the Authority does not consider this to be relevant to this market review because these services are not substitutes for broadband services from a fixed location. The Authority is reviewing the market for domestic data connectivity services (i.e. leased lines) separately.

470. Moreover, the withdrawal of ex ante regulatory obligations in respect of mass-market broadband services as a consequence of this review will result in the de-regulation of approximately 90% of broadband internet accesses provided from a fixed location. The Authority expects that this will substantially lessen any regulatory burden facing Batelco.

471. The Authority also notes that while Batelco referred to delays in being able to respond to competitive offers,¹⁴⁶ those delays are the direct result of Batelco failing to submit adequate information and analysis in support of its NCT applications. The Authority has frequently had to request further information from Batelco in order to be able to properly assess compliance with the tariff controls set out in the RTN Regulation. The delays referred to in Batelco's submission on the Draft Determination are largely due to the delays taken by Batelco in responding to such requests.

Conclusion

472. In light of these factors and in the absence of convincing evidence to make the Authority amend its preliminary views, the Authority maintains its conclusion from the Draft Determination-

- a. Batelco holds a Dominant Position in the wholesale physical network infrastructure access market for business products; and
- b. Batelco holds a Dominant Position in the wholesale broadband access market for business products.

473. As stated in the Draft Determination, this is in line with findings in the EC study.¹⁴⁷

¹⁴⁵ See the Authority's analysis and final conclusions regarding operator's responses after Sections 3.1 and 3.2.

¹⁴⁶ See page 13 of Batelco's response to the draft Determination.

¹⁴⁷ This is in line with the findings in the EC study which concluded that the market for LLU is not expected to tend to effective competition within the relevant timeframe and the application of competition law alone would not be sufficient to resolve the market failures concerned. See page 115 of the EC study, "Future electronic communications markets subject to ex-ante regulation", September 18, 2013.

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7 Overall conclusions on SMP and Dominance and implications

474. In this concluding section, the Authority summarises its conclusions on whether any operator has SMP or holds a Dominant Position in a relevant market, having reviewed the submissions received on the Draft Determination. The Authority also sets out the implications of such conclusions in terms of the regulatory obligations that will be imposed on operators at both the retail and the wholesale level to remedy such positions of SMP / dominance.

475. For the purposes of this Final Determination, the Authority distinguishes between two main groups of broadband products: mass-market products and business products. The Authority considers a retail business product could be any broadband service that fulfils at least one of the following criteria:

- a. a service that is offered under the label 'business', 'business customer' or similar;
- b. a service that is only offered to customers who are able to present a valid CR number;
- c. a service that is offered with dedicated customer support, such as with a dedicated account manager, as a standard part of the product (rather than as an optional extra upon the payment of an additional fee);
- d. a service that is offered with more stringent key performance indicators or service level agreements than what is typically offered with mass-market broadband products;
- e. a service which has a lower contention ratio than what is typically offered by mass-market broadband products; or
- f. a service that includes additional functionality not available to end users of mass-market broadband products, such as domain names, email servers etc.

476. The Authority generally considers wholesale business products to be any services used as an input to deliver retail business products. This includes wholesale services offered by Batelco to other OLOs, as well as services self-supplied by Batelco to provide retail business products.

Also, the study finds that for the retail market for broadband access for non-residential customers, the scale of demand may not be large enough to make roll out to LLU level viable for a business operator. Consequently, competitive issues that may exist for this particular market segment may not be remedied adequately at the LLU level. See page 116 of the EC Study, "Future electronic communications markets subject to ex-ante regulation", September 18, 2013. Study available at

http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3148

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7.1 Final conclusions

7.1.1 Retail Broadband markets

477. For the reasons set out in the preceding sections, the Authority's view it that it is appropriate to define the following relevant retail markets for broadband internet access services provided from a fixed location:

- a. the retail market for the supply of mass-market broadband services; and
- b. the retail market for the supply of business broadband services.

478. In the Authority's view:

- a. no licensee has a position of SMP in the retail market for the supply of mass-market broadband services from a fixed location; and
- b. Batelco has a position of SMP in the retail market for the supply of business broadband services from a fixed location.

7.1.2 Wholesale Broadband markets

479. For the reasons set out above, the Authority's view it that it is appropriate to define the following relevant wholesale markets for broadband internet access services provided from a fixed location:

- a. wholesale physical network infrastructure access market for the supply of mass-market broadband services;
- b. wholesale physical network infrastructure access market for the supply of business broadband services;
- c. wholesale broadband access market (Bitstream and Wholesale DSL) for the supply of mass-market broadband services; and
- d. wholesale broadband access market (Bitstream and Wholesale DSL) for the supply of business broadband services.

480. In the Authority's view:

- a. no licensee holds a Dominant Position in the wholesale physical network infrastructure access market and wholesale broadband access market for the supply of mass-market broadband services from a fixed location; and
- b. Batelco holds a Dominant Position in the wholesale physical network infrastructure access market and wholesale broadband access market for the supply of business broadband services from a fixed location.

7.2 Implications

7.2.1 Mass-market Broadband services

481. Following the Authority's final Determination that no licensee has SMP in the retail market for mass-market broadband products, Batelco will no longer be subject to tariff controls under Article 58 of the Telecommunications Law and the RTN Regulation in

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respect of such services. As a result, Batelco will no longer be required to notify the Authority of any changes to Batelco's retail tariffs for these services.

482. Following the Authority's final Determination that no licensee has a dominant position in the wholesale physical infrastructure access market for providing mass-market broadband services and the wholesale broadband access market for providing mass-market services, Batelco will no longer be required to offer the Unbundled Metallic Path (LLU), the Bitstream, or the Wholesale DSL services to OLOs for the purposes of supplying mass-market broadband services over its copper infrastructure. Also, Batelco will no longer be required to offer equivalent wholesale services over its fibre infrastructure. Batelco will be able to offer any or all of these services on a commercial basis if it wishes.
483. The Authority expects Batelco to fulfil its existing contractual obligations as they relate to the termination of regulated supply of these services.
484. In particular, and without limitation, according to Section 14.2 of Batelco's Supply Terms (set out in Schedule 9 of Batelco's Reference Offer), Batelco may terminate any Access or Interconnection Service if the Authority no longer imposes an obligation on Batelco to provide that service. In such cases, Batelco must provide written notice to the Licensed Operator of 90 calendar days. During this notice period, the Licensed Operator may require the parties to engage in good faith negotiations to establish whether a replacement service can apply.¹⁴⁸
485. There may be additional clauses which are applicable to the transition from a regulated service to a commercial service.
486. The Authority further expects Batelco to stand by its undertaking to continue to offer Wholesale Bitstream and DSL services based on fibre-access in areas where fibre has been deployed for speeds up to and including 16Mbps/s.¹⁴⁹ The Authority also expects that Batelco will extend this undertaking to higher speed products, as and when they become more widely available. The Authority also reserves the right to review the mass-market segment should any competition concerns arise in the future.

7.2.2 Business Broadband services

487. Following the Authority's final Determination that Batelco has SMP in the retail market for business broadband services, Batelco continues to be subject to tariff controls under Article 58 of the Telecommunications Law and the RTN Regulation in respect of retail services supplied in that market. As a result, Batelco must notify the Authority of any changes to Batelco's retail tariffs for these services. "Re-labelling" of products that are obviously targeted at the business segment by changing the marketing positioning of the product will be regarded as evasion by the Authority.
488. Following the Authority's final Determination that Batelco has a Dominant Position in the wholesale markets for physical network infrastructure access and wholesale broadband access products for providing business broadband services, Batelco is required to continue to offer the Unbundled Metallic Path (LLU), the Bitstream, and the Wholesale DSL services in respect of business broadband services. These

¹⁴⁸ See <http://portal.batelco.com/pdf/ref/Sch91106ROTerms.pdf> accessed on 17 March 2014

¹⁴⁹ See paragraph 20 on page 7 of Batelco's cross-response to the Draft Determination

Final Determination

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wholesale services continue to be part of Batelco's Reference Offer which is subject to review and approval by the Authority. At the same time, if Batelco starts to offer retail business products over alternative infrastructures, such as fibre, it would need to provide equivalent wholesale products that would allow OLOs to fully replicate Batelco's business offering. These products will also become part of Batelco's Reference Offer.

489. Given the importance of wholesale access services in supporting competition in the downstream retail market for the supply of business broadband services, the Authority expects that these wholesale access services, independent of the underlying infrastructure, are made available to OLOs on terms that enable competitors to compete with Batelco in the relevant retail markets.
490. These terms must include comprehensive Service Level Agreements (SLAs) which include all relevant processes and targets relating to the delivery of business broadband services, including (but not necessarily limited to) ordering, provisioning, quality of service, and fault restoration processes, as well as penalties to be imposed upon Batelco for failing to adhere to these processes or targets. The Authority emphasises that under Article 57(e) of the Telecommunications Law, the terms and conditions and tariffs offered by Batelco for access to its networks shall be fair, reasonable, and non-discriminatory.
491. In this regard, the Authority intends to issue a Draft Order for consultation with interested parties. The Draft Order will cover the non-price terms and conditions on which Batelco must offer its Bitstream service in respect of business broadband services. This will include the Authority's preliminary views on appropriate performance thresholds and penalties for key processes such as those mentioned in the preceding paragraph.
492. Finally, the Authority will review the market for business broadband services and consider the removal of ex-ante regulations if the competitive environment evolves in a manner that would change the outcomes of this market review, for instance if there was significant take-up of LTE in the business segment. The Authority may also specifically review the retail market for business broadband services in the event that fit-for-purpose wholesale products (LLU, bitstream, and WDSL) support sufficient downstream competition such that Batelco is no longer likely to hold a position of SMP in the retail market for business broadband services.