هيئة تنظيم الاتصالات
Telecommunications Regulatory Authority

Dominance Determination in Wholesale Broadband Markets

Dominance Determination 1 of 2009

14 September 2009

Reference: MCD/09/09/064

in this document [•] indicates information removed due to confidentiality

Purpose: To define and determine whether a licensed operator or operators is/are dominant in wholesale broadband markets.

DETERMINATION

HAVING REGARD TO,

THE LEGISLATIVE DECREE NO. 48 OF 2002 PROMULGATING THE TELECOMMUNICATIONS LAW,

THE METHODOLOGY FOR THE DEFINITION OF THE TELECOMMUNICATIONS MARKETS, APPROVED BY THE DETERMINATION OF THE TELECOMMUNICATIONS REGULATORY AUTHORITY OF THE KINGDOM OF BAHRAIN ISSUED ON 19 APRIL 2003,

THE METHODOLOGY FOR DETERMINING MARKET POWER, APPROVED BY THE DETERMINATION OF THE TELECOMMUNICATIONS REGULATORY AUTHORITY OF THE KINGDOM OF BAHRAIN ISSUED ON 19 APRIL 2003,

ALL RELEVANT 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 ("TRA") has identified and defined the following relevant markets:

   - the wholesale physical network infrastructure access market; and
   - the wholesale broadband access market.

2. The geographic scope of the defined relevant markets is the Kingdom of Bahrain.

3. For the reasons set out in the Annex to this Determination, TRA has identified and determined that:

   - Batelco is dominant in the wholesale physical network infrastructure access market in the Kingdom of Bahrain;
   - Batelco is dominant in the wholesale broadband access mark in the Kingdom of Bahrain.

4. This Determination will be reviewed when conditions, as determined by TRA, warrant it.

5. This Determination is without prejudice to TRA's powers under the:

   - Telecommunications Law, promulgated by the Legislative Decree No. 48 of 2002;
   - Methodology for the Definition of Telecommunications Markets, approved by the Determination of TRA issued on 19 April 2003;
   - Methodology for Determining Market Power, approved by the Determination of TRA issued on 19 April 2003;
   - Access Regulation, approved by TRA Regulation No. 1 of 2005.

6. This Determination is without prejudice to the outcome of any ongoing or future investigation, consultation or other regulatory process or measure carried out pursuant to such powers.

7. This Determination shall come into effect from the date of its issuance.

8. Being declared a dominant operator, Batelco shall comply with the obligations set out in Section 57(e) of the Telecommunications Law and provisions of the Access Regulation issued by TRA on 30 April 2005, and in particular any Access Obligations imposed thereunder by TRA.

9. This Determination supersedes the Determination of Dominance in Wholesale Markets issued by TRA on 22 January 2008 to the extent that it relates to wholesale broadband services. All other findings in that Determination remain and continue.

Signed on **14 September 2009**

Alan Horne
General Director
Telecommunications Regulatory Authority, Manama, Kingdom of Bahrain

Annex: Reasoning for the Determination of Dominance in Wholesale Broadband Markets

Table of contents

List of acronyms

ACCC	Australian Competition and Consumer Commission
ADSL	Asymmetric Digital Subscriber Line
ARCEP	Autorité de Régulation des Communications Electroniques et des Postes (French telecommunications regulator).
BT	British Telecom
ComReg	Commission for Communications Regulation (Irish telecommunications regulator)
DSL	Digital Subscriber Line
EC	European Commission
ERG	European Regulators Group
EU	European Union
FTTx	Fibre to the x
FWA	Fixed Wireless Access
GSM	Global System for Mobile communications
IP	Internet Protocol
LLU	Local Loop Unbundling
LTE	Long-Term Evolution
MDF	Main Distribution Frame
NFWS	National Fixed Wireless Services
NGN	Next Generation Network
NGA	Next Generation Access networks
NRA	National Regulatory Authority
OLO	Other Licensed Operators
Ofcom	Office of Communications (UK telecommunications regulator)
OPTA	Independent Regulator of Post and Electronic Communications (Netherlands telecommunications regulator)
PSTN	Public Switched Telephone Network
MCMC	Malaysian Communications and Multimedia Commission
SMP	Significant Market Power
SRMRS	Strategic and Retail Market Review Statement
SSNIP	Small but Significant Non-transitory Increase in Price
TRA	Telecommunications Regulatory Authority of the Kingdom of Bahrain
TRC	Telecommunication Regulatory Commission in Jordan
UK	United Kingdom
UMTS	Universal Mobile Telecommunications System
WSIS	World Summit on the Information Society
WSDSL	Wholesale DSL

1 Introduction

1. This Annex to the determination sets out the underlying reasoning and supporting evidence for the market definitions adopted by TRA and consequent dominance findings.

Purpose of this determination

2. The purpose of this determination is to define the wholesale markets related to the retail market for broadband internet access services from a fixed location in the Kingdom of Bahrain[1] in which TRA determined Batelco to have Significant Market Power and to assess whether any existing operators are dominant in this market.

3. A dominance designation provides 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") may be defined and implemented.

Background to this determination

4. In its Strategic and Retail Market Review Statement of 3 June 2008,[2] TRA defined a set of nine measures to further promote competition and the interests of consumers in the telecommunications sector in the Kingdom of Bahrain.

5. Amongst these nine measures was the aim to introduce Local Loop Unbundling (LLU). In this Statement, TRA stated that "LLU can be an essential enabler of further competition at the retail level, especially for the provision of broadband and connectivity services to business users" and that "LLU can be expected to put pressure on prices and to increase product differentiation for the benefit of users".[3]

6. However, before making a final formal decision with regards to the introduction of Local Loop Unbundling ("LLU"), TRA considered it appropriate to conduct a review of the wholesale market(s) which includes LLU as an input and is related to the retail market for broadband internet access services. This review takes account of the market developments which have occurred since the last Dominance Determination on Wholesale Markets of 2006 ("2006 Dominance Determination").[4] This analysis then leads to a final decision on appropriate obligations, which may or may not include LLU. Since the 2006 Dominance Determination, there have been significant developments in broadband markets the most notably of which was the December 2006 award of National Fixed Wireless Services ("NFWS") licences to Menatelecom and Zain (then known as MTC- Vodafone (Bahrain)) and their subsequent launches of retail broadband services. In the context of significant market developments, TRA considers it appropriate to conduct a review of the wholesale markets related to the relevant retail market for broadband internet access services from a fixed location in the Kingdom of

---

1 See TRA Market definition (Market 5a) in "Statement on the Strategic and Retail Market Review", 3 June 2008.

2 See TRA, "Statement on the Strategic and Retail Market Review", 3 June 2008, and TRA, "Strategic and Retail Market Review Report", 28 February 2008.

3 TRA, "Statement on the Strategic and Retail Market Review", 3 June 2008, page 5.

4 TRA, Dominance in Wholesale Markets by Batelco, Determination No 1/06, 22 January 2006.

Bahrain (for which LLU is an input) in order to assess whether the previous market definition remains suitable, to analyse competition in the relevant market and to identify dominant operators, if any.

7. Having identified dominance through wholesale market review TRA conducted a Study to define the appropriate set of regulated wholesale products for the markets in which dominance was identified.[5]

8. TRA issued for consultation a Draft Determination on Wholesale Broadband Markets (the "Draft Determination") on 26 March 2009 (Ref. MCD/03/09/017).

9. TRA received responses from Bahrain Telecommunications Company B.S.C. ("Batelco"), MTC-Vodafone Bahrain B.S.C. ("Zain") and Lightspeed Communications W.L.L. ("Lightspeed"). The response from 2Connect was received after the closing time and was therefore not considered.

10. For clarity purposes, this Annex largely reproduces the text included in the Draft Determination, with minor amendments, before summarising and addressing the comments received on the Draft Determination. The Determination follows the same structure as the Draft Determination and the order of questions therein.

2 Analytical framework for the definition of relevant markets and the assessment of dominance

11. To determine whether a licensed operator or operators is/are dominant in a relevant market, TRA has adopted a three-step process:

- definition of a relevant market;
- analysis of competition in the relevant market; and
- identification of dominant operator or operators in the markets defined, if any.

12. At each step, TRA relies on well-established economic principles and tests to define markets, such as the hypothetical monopoly test,[6] to assess demand- and supply-side substitution. It looks at relevant factors to determine the level of competition, such as barriers to entry and expansion, and market shares.

13. Throughout this three-step process, TRA applies an analytical framework consistent with the Telecommunications Law, the relevant determinations by TRA and international best practices.[7] The tools and principles employed by TRA are similar to those employed by other regulators and competition authorities, including the European Commission ("EC") and regulators of the European Union ("EU").[8]

---

5 TRA, "Study on the Regulation of Wholesale Broadband Markets", 14 September 2009 (Annex B to Access Order 1 of 2009 - Reference MCD/09/09/065).

6 The hypothetical monopoly test is also commonly referred to as the SSNIP (Small but Significant and Non-transitory Increase in Price) test.

7 The relevant Determinations are: TRA, "Methodology for Determining Market Power, A Determination issued on 19 April 2003", and TRA, "Methodology for the Definition of Telecommunications Markets, A Determination issued on 19 April 2003". See also the Draft Competition Guidelines published for consultation on 4 November 2008..

8 Cf., for example, European Commission, "Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services", OJ 2002/C 165/03.

14. To arrive at its conclusions, TRA has considered relevant facts and information.

3 Identification and determination of the relevant wholesale broadband markets

3.1 General approach to market definition

15. An economic market for a product or service includes all products or services that are considered to be close substitutes. These products or services therefore compete directly with each other, and the potential demand- or supply-side substitution between them constrains their prices to the competitive level.

16. The definition of markets necessitates identifying substitutable products and competitive constraints on the price setting behaviour of firms. Typically this is done by applying the hypothetical monopoly test, i.e. the Small but Significant Non-transitory Increase in Price ("SSNIP") test. The application of the test starts with the smallest set of services under consideration and seeks to analyse the effect of a SSNIP on consumers of the services to assess whether additional services can be considered substitutable and must therefore be included in the same market. The SSNIP test is a particularly useful analytical tool to analyse substitution.

17. There are three main dimensions of market definition to be considered:

- the product dimension of the products or services supplied, which refers to the characteristics of the product from a supply-side and demand-side perspective;
- the functional dimension, which refers to the level in the production, distribution or value chain at which the products or services are supplied; and
- the geographic dimension, which refers to the geographic scope in which the products or services are supplied.

18. In this Determination, TRA performs a forward-looking analysis in its definition of the wholesale broadband markets relevant to ex-ante regulation.

3.2 Retail market analysis

19. Before analysing these three main dimensions of market definition it is useful to refer to the retail market related to wholesale broadband markets since the demand at the wholesale level is derived from demand at the retail level. Consideration of the relevant retail market is a common regulatory and competition law practice; it helps inform the range of substitutes at the wholesale level.

20. In the Determination of Significant Market Power ("SMP") in certain retail markets of 3 June 2008 (the "2008 SMP Determination")[9], TRA has defined the retail market for broadband internet access services from a fixed location in the Kingdom of Bahrain (Market 5b) as a relevant retail market. In the 2008 SMP Determination TRA has also identified and determined that Bahrain Telecommunications Company B.S.C ("Batelco") is an operator with SMP in this retail market.

[9] Cf., for example, European Commission, "Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services", OJ 2002/C 165/03.

21. In its 2008 SMP Determination TRA undertook a forward-looking analysis and for the purpose of this Determination, TRA considers that it is not necessary to revisit this market definition only 15 months after having defined the relevant market in the 2008 SMP Determination. Despite the commercial entry of the second NFWS operator in December 2008 there have been no major changes in the retail market which could impact its boundaries between the date of the SMP Determination and today,.

22. However, in order to put the analysis of the wholesale broadband markets into context, TRA briefly describes the salient features of the retail broadband internet services market.

23. In the Kingdom of Bahrain, broadband internet access services from a fixed location can currently be delivered on the basis of different technologies: xDSL (a family of technologies based on "Digital Subscriber Line"), NFWS, FTTx (a family of technologies based on fibre access networks, "Fibre-to-the-x, i.e. Home or Business"), Wi-Fi and satellite.

24. Today, xDSL technology is the main technology used to provide broadband internet access services to retail users. Batelco is the main provider of retail DSL retail services and holds a market share in excess of 60% of total broadband lines. Some operators are also providing xDSL broadband internet access services based on Batelco's wholesale offers. They are purchasing from Batelco either Bitstream services or Wholesale DSL services and/or both. Such operators hold in total a market share lower than 10%.

25. The second main technology used to provide broadband internet access services in Bahrain is Wimax. TRA auctioned two NFWS licences in December 2006. The NFWS and associated frequency licences were issued in January 2007 to Zain and Mena Telecom. Commercial services were launched in late 2007 and late 2008 respectively. Their market share in the retail market for broadband internet access services from a fixed location has been increasing and is currently estimated at between 30% and 40%.

26. Nuetel Communications has launched its services in Amwaj Islands based on FTTH/FTTB technology in February 2007.

27. Other technologies like Wi-Fi and satellite are not widely used, their market share is lower than 1%.

28. Whilst mobile broadband services (using either mobile handset or data cards or modem) are also available in the Kingdom of Bahrain these services do not form part of the retail market for broadband internet access services from a fixed location.

Table 1 - List of technologies used to provide broadband services from a fixed location in the Kingdom of Bahrain (April 2009 data and TRA estimates)

TECHNOLOGY	**MARKET SHARE (in % of total broadband lines)**
DSL – Incumbent	[•]
DSL – Bitstream	[•]
DSL – Wholesale DSL	[•]
NFWS	[•]
FTTx	[•]
Satellite	<1%
Others	<1%

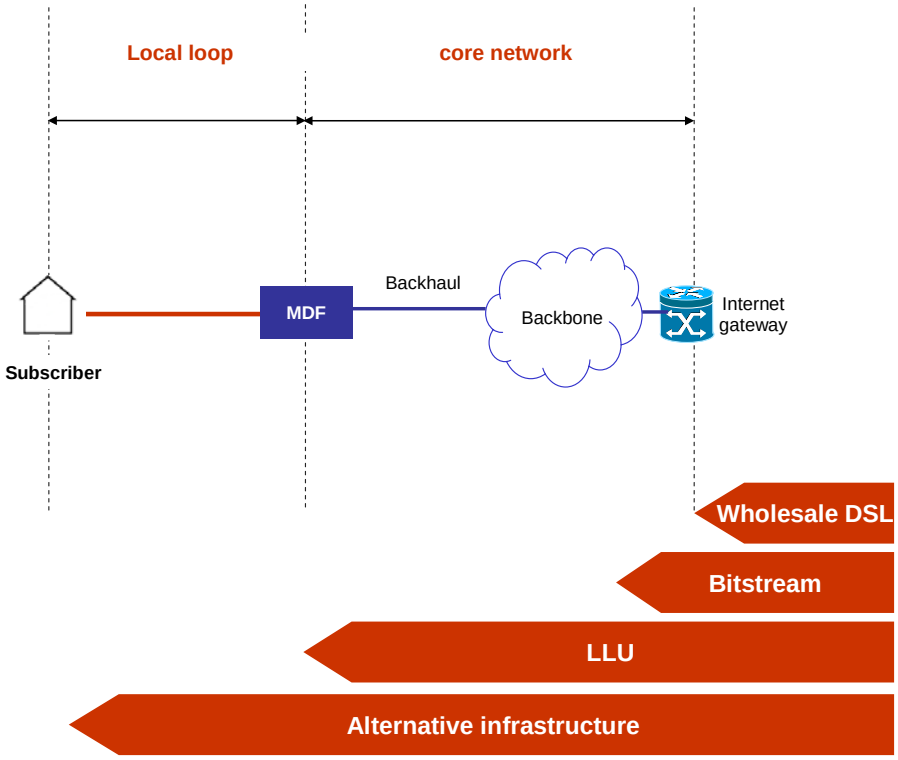
3.3 Starting point for the definition of relevant wholesale markets

29. In the 2006 Dominance Determination,[10] TRA defined the "wholesale market for fixed access to customer premises (including high-bandwidth, broadband and narrowband access)" as a relevant market. Unbundled local loops, Wholesale DSLs and main distribution frames or concentrators for Bitstream or DSL collocation were considered as "relevant access inputs".

30. In the telecommunications sector, there are typically two main types of relevant markets to consider: retail markets, i.e. the markets for services or products provided to end-users; and wholesale markets, i.e. the markets for the input which are necessary for operators to provide services and products to end-users.[11]

31. Having regards to the broadband value chain and the different functional levels and wholesale inputs (See Figure 1 below) that can be used to offer services at the retail level, the general approach for the definition of relevant wholesale markets for broadband is to take as a starting point two separate markets: the wholesale physical network infrastructure access market and the wholesale broadband access market.

Figure 1 - Positioning of the different "broadband inputs" in the xDSL value chain



10 TRA, "Determination of dominance in wholesale markets", Determination 1 of 2006, 22 January 2006.

11 European Commission, "Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services".

32. This approach is consistent with the EU approach. In its initial Recommendation on relevant markets of February 2003, the EC proposed to consider two relevant wholesale broadband markets. This market delineation has been confirmed in 2007 by the EC in its new Recommendation on relevant markets, after five years of regulatory practice by European regulators.[12]

33. TRA agrees with the EC that the separation of these two wholesale markets is justified by the very different features of access to the local loop and Bitstream, as illustrated in the following quote from the EC:

> *"During the application of the initial Recommendation it has also been relatively straightforward to separate these two wholesale markets, on the basis of their product characteristics and by virtue of demand and supply substitution. For example, the two services, access to unbundled loops and wholesale broadband access, can frequently be distinguished on the basis of the flexibility they give in supplying the retail service, or by means of the location at which access is obtained. Hence, unbundled loops typically give greater flexibility and control over the retail broadband service offered to the end-user and have typically been supplied at the main distribution frame (MDF). In contrast, wholesale broadband access in the form of a bit-stream service typically gives less flexibility over the retail service, and may be supplied at higher points in the network (such as regional interconnection points), as well as at the MDF."*[13]

34. However, TRA underlines that the delineation of these two wholesale product markets is only a starting point from which demand and supply-side substitutability between local loop unbundling and Bitstream can be assessed. Depending on the outcome of the substitutability analyses, these two markets could be merged.

35. The next step is therefore to determine the scope of these two wholesale markets in the specific context of the Kingdom of Bahrain.

3.4 Wholesale physical network infrastructure access market

Product dimension

The Draft Determination

36. 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. The primary platform for broadband access competition in Bahrain is Batelco's copper local loop. Hence TRA is first assuming that the market includes just access to Batelco's copper local loop. Then, TRA is considering other potential substitutes and testing their substitutability with access to wholesale copper local loop.

---

12 See EC "Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services".

13 "Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services", page 32.

Definition of the LLU product

37. In many countries, full access to the incumbent's copper local loop is provided by the LLU product. The LLU product is a set of basic and ancillary services provided by the incumbent to Other Licensed Operators (OLOs) so that they can connect their active exchange equipment and core network to the incumbent's copper local loop. These basic and ancillary services are: provision of a twisted metallic path facility (the copper local loop) or access to the high frequencies of the copper loop in the case of shared access, provision and installation of jumpers, provision and installation of tie cables, provision of collocation space (in the form of a dedicated collocation room, co-mingling, etc.) and associated services (power, air conditioning, access to the site, etc.), and provision of a backhaul.

38. This product description is consistent with international practice, and in particular European practice. Furthermore, as per the European Regulation No 2887/2000, the European approach to LLU has always considered that the Reference Offer for unbundled access to local loops of incumbents shall not be limited to the provision of a twisted metallic path facility but shall also encompass "related facilities".[14] Related facilities means:

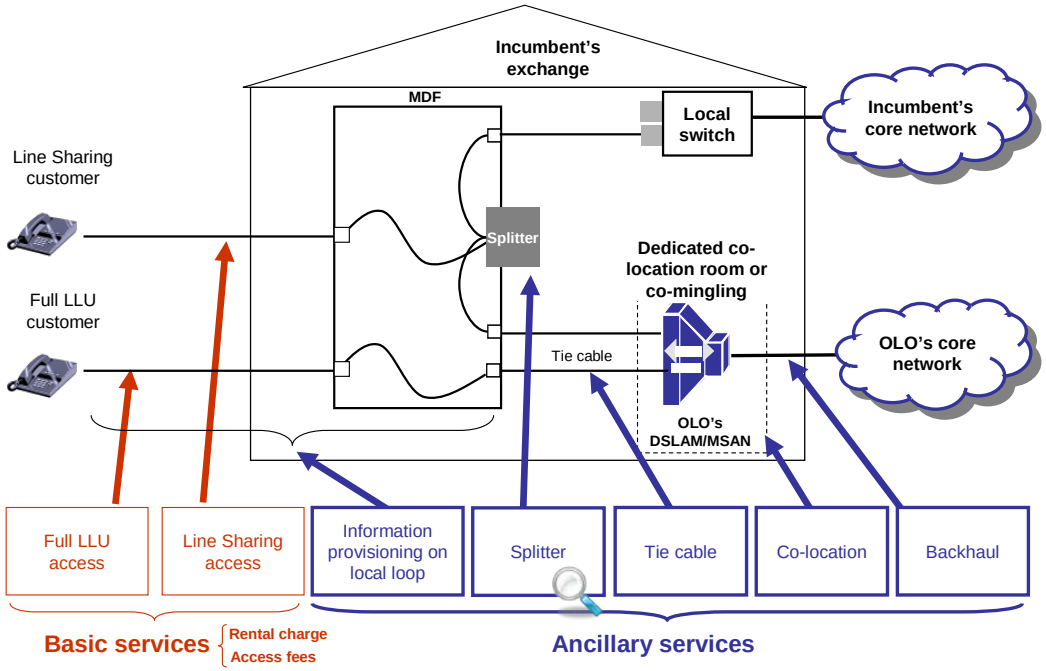
> *"the facilities associated with the provision of unbundled access to the local loop, notably collocation, cable connections and relevant information technology systems, access to which is necessary for a beneficiary to provide services on a competitive and fair basis."*

39. When implementing Regulation (EC) No 2887/2000, regulators have paid special attention to these related facilities, the provision of which is typically considered necessary for the effective use of the twisted metallic path facility, and have catered for their inclusion in the Reference Offer of incumbents.

40. TRA is therefore of the view that the obligation to provide access to the copper local loop shall include the obligation to provide at least the following basic and ancillary services: provision of a twisted metallic path facility (the copper local loop) or access to the high frequencies of the copper loop in the case of shared access, provision and installation of jumpers, provision and installation of tie cables, provision of collocation space (in the form of a dedicated collocation room, co-mingling etc.) and associated services (power, air conditioning, access to the site etc.), provision of a backhaul service as well as relevant information on local loop.

[14] See Regulation (EC) No 2887/2000 of the European Parliament and of the Council of 18 December 2000 on unbundled access to the local loop.

Figure 2 - List of basic and ancillary services to be provided by the incumbent to OLOs



41. TRA observes that the EC has considered that "[w]here there is no merchant market and where there is consumer harm, it is justifiable to construct a notional market when potential demand exists."[15]

42. Further, while there is at present no merchant market for LLU, TRA considers a notional market for the LLU product/input on the basis that:

- The Telecommunications Law explicitly refers to LLU in Article 40 of the Telecommunications Law.[16]
- The Access Regulation explicitly provides for the possibility to require a dominant operator to give access to unbundled local loops.[17]
- In its Statement on the Strategic and retail market review issued on the 3 June 2008, TRA has proposed a set of nine measures, among which is the introduction of LLU.

15 See European Commission, 2007, Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services.

16 "Public Telecommunications Operators with significant market power and every other Licensee whose License provides for the following obligations to Subscribers and Users or other Licensees provided for in his/its License shall specified the following: […] Unbundled Local Loop: from 1 /7/2004".

17 TRA, Access Regulation, Regulation 1 of 2005, 30 April 2005.

- Batelco has been found to have SMP in the retail market for broadband internet access services from a fixed location, and Batelco uses its local loop as an input for the provision of broadband services.
- The local loop had also been considered as a relevant input of the wholesale broadband market in the previous Determination on Dominance in Wholesale Markets.[18]

43. TRA also notes that there is demand for LLU. Interviews conducted by TRA with alternative operators in November 2008 have indicated that there is potential demand from alternative operators for having access to the local loop: five operators have expressed their interest in LLU, and four of them expressed their wish to see an LLU product available as soon as possible.

44. TRA observes also that such a definition of notional markets has been used in other countries, including Malta and Ireland for example:

- The Malta Communications Authority (MCA) in Malta has defined a "wholesale unbundled access to the local loop" market despite the absence of Internet Service Providers (ISPs) purchasing wholesale unbundled access in Malta.[19]
- In its 2004 analysis of the wholesale broadband access market in Ireland, ComReg has considered notional markets.[20]

45. For all the above reasons, TRA defines as a starting point a notional LLU market. Based on the set of technologies available in the Kingdom of Bahrain for the provision of broadband internet access services from a fixed location, TRA considers that, for wholesale customers, potential substitutes to the LLU product are:

- upstream: building a new alternative local loop or access to ducts;
- downstream: Bitstream and Wholesale DSL;
- at the same functional level: access to existing alternative local loops (NFWS or others).

46. Therefore, in its analysis of demand- and supply-side substitutability to define the boundaries of the relevant market, TRA needs to consider the following questions:

- Would wholesale customers substitute the LLU product by building their own local loop?
- Is access to ducts a substitute to the LLU product?
- Is wholesale access to the existing NFWS local loops a substitute to the LLU product?
- Is wholesale access to the existing fibre local loops a substitute to the LLU product?
- Is Bitstream a substitute for LLU?
- Should self-provision of access to the copper local loop be part of the relevant market?

---

18 TRA, "Dominance in Wholesale Markets by Batelco A Determination issued by the Telecommunications Regulatory Authority", 22 January 2006.

19 MCA, Wholesale Unbundled Access to the Local Loop, Identification and Analysis of Markets, Determination of Market Power and Setting of Remedies, 27th November 2006.

20 ComReg, "Market analysis: wholesale broadband access. Consultation paper", Document No: 04/25, 2004.

47. TRA has analysed each of these questions below through:

1. reviewing TRA's position taken in the Draft Dominance Determination;
2. reviewing the responses received to the Draft Determination; and
3. providing TRA's analysis and conclusions.

Responses to the Draft Dominance Determination

48. In its response to the Draft Determination, Batelco submits that TRA has not considered whether there was "consumer harm" before considering a notional market for LLU when TRA quoted in the Draft Determination the European Commission stating that "[w]here there is no merchant market and where there is consumer harm, it is justifiable to construct a notional market when potential demand exists".[21] Batelco considers that "TRA should focus on any possible identified market failure at the retail level that causes substantial consumer harm absent regulation and should only then commence a sequence of market analyses".[22] It also argued that "if EC principles were followed, regulatory intervention could not be justified as the three-criteria-test would not be fulfilled, given that barriers to entry had already been remedied on the basis of availability of duct access, Bitstream, WSDSL and alternative competition".[23]

TRA analysis and conclusion

49. TRA is of the view that the reasons set out in the Draft Determination (and in particular at Paras 42-43 above) fully justify taking a notional market for LLU as a starting point.

50. There is no explicit legal requirement in Bahrain to identify consumer harm and/or to apply the three-criteria-test used in the EU. However, TRA considers that consumer harm in the retail broadband market has been articulated in its 2008 SMP Determination in which Batelco was determined to have SMP and in which TRA determined that there is insufficient competition. The nature of the consumer harm in the retail broadband market highlighted by TRA included for example:

- "the persistence of high retail broadband tariffs by international standards and prices well in excess of cost";
- The low broadband penetration and service offerings.

51. As explained in the Draft Determination, TRA is of the view that the conclusions of the 2008 SMP Determination remain relevant today.[24]

52. The legal framework applicable in Bahrain for telecommunications services does not include the three-criteria-test of the EU regulatory framework. Regarding the three-criteria-test as applied to the wholesale markets, TRA notes that the EC included in its 2007 Recommendation on Relevant Markets the wholesale (physical) network

---

21 See European Commission, 2007, "Commission Recommendation on Relevant Product and Service Markets Within the Electronic Communications Sector Susceptible to *ex ante* Regulation in Accordance with Directive 2002/21/EC of the European Parliament and of the Council on a Common Regulatory Framework for Electronic Communications Networks and Services".

22 Batelco, Submission to TRA Consultation on the Determination of Dominance in Wholesale Broadband Markets, 7 May 2009, Para 4.

23 Batelco, Submission to TRA Consultation on the Determination of Dominance in Wholesale Broadband Markets, 7 May 2009, Para 7.

24 See Para 18 of the Draft Determination.

infrastructure access (including shared or fully unbundled access) at a fixed location and wholesale broadband access markets precisely on the basis of the three cumulative criteria test. At the retail level, TRA explained in the 2008 SMP Determination (Para 222-225) that neither the availability of Wholesale DSL and Bitstream products nor market entry by the two NFWS operators would address consumer harm fully and effectively constrain Batelco's market power. For example, NFWS operators have difficulties in offering download speeds superior to 8 Mbps without threshold[25]. Bitstream, Wholesale DSL and NFWS technologies do not offer the ability to provide services such as triple play, video on demand, etc. Further Bitstream and Wholesale DSL do not enable significant product differentiation in the retail market from the products of the incumbent. This contrasts with LLU which enables OLOs to sell products with different and higher download/upload speeds, contention ratios which it can determine and with new services such as triple play, video on demand, voice over IP, etc. Hence, LLU can be seen as a key enabler for competition in the medium term for such services.

53. TRA therefore remains of the view that it is appropriate to define, as a starting point, a notional market for LLU.

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

The Draft Dominance Determination

54. TRA is of the view that in response to a SSNIP on the LLU price, wholesale customers would not be in a position to build their own alternative local loop and thereby defeat the SSNIP in the relevant timeframe of the analysis.

55. The local loop is the "last mile" of an operator's telecommunications network that connects the customer premises to the operator's core network (in which switching, routing and intelligent equipment are connected to each other).

56. The local loop is "a highly capital-intensive business".[26] They are two main types of local loop: wired local loops and wireless local loops.

57. Building a wired local loop, be it copper or fibre based, involves very substantial civil works and cable costs in order to reach all targeted customer premises. The capital requirement, coupled with the sunk nature of the costs involved in deploying a wired local loop, and demand conditions make the duplication of wired local loops on a significant scale particularly challenging and highly unlikely on a commercial basis. [27]

58. In addition to sunk cost, economies of scale and scope constitute another considerable barrier to entry. Batelco benefits from significant economies of scale (or density) and economies of scope, as Batelco provides voice and internet access services through its copper local loop. An operator building an alternative local loop would be unlikely to benefit from the same level of economies of scale and would have to offer the same suite of services to reach a similar level of economies of scope.

---

25 Maximum amount of data which can be downloaded per month and per user, in GBytes for example.

26 Cf. TRA, "Dominance in wholesale markets: a consultation issued by the Telecommunications Regulatory Authority on dominance in wholesale markets", 27 October 2005, page 34."

27 Copper local loops are considered as essential facilities in some countries, such as France. See Conseil de la Concurrence, Avis No 04-A-01 du 8 janvier 2004.

59. TRA also considers that the deployment of an alternative wired local loop would be particularly time-consuming.

60. While the investment required for building a wireless local loop is lower than for a fixed local loop, wireless local loops are also capital-intensive: they require the roll-out of a capillary mast and transmitter network to address end-users. Further, sunk cost represents a large proportion of the cost of the deployment of wireless loops and this constitutes a significant barrier to entry.

61. Building a wireless local loop with significant coverage is time-intensive. For Mena Telecom, which operates such a wireless local loop, almost two years has elapsed between the granting of its NFWS licence in January 2007 and the commercial launch of its broadband services. Zain, the holder of the other NFWS licence, was able to deploy its network more quickly by leveraging its existing mobile network (i.e. Zain already had in place a certain number of masts and a backhaul network from which it could build its NFWS network).

62. Notwithstanding this, TRA considers that wireless loops are not substitutable for fixed wired loops. In fact the range of services that can be provided based on LLU is much wider than the effective range currently achievable by wireless networks.

63. In addition to the above mentioned wired local loops and wireless local loops, satellite can also be used to provide broadband services in Bahrain. However, satellite currently accounts for less than 1% of the broadband market. The marginal market share of satellite reflect the significant cost and quality disadvantages of this access technology which make it an ill-suited technology to compete in the mass retail broadband market.[28] TRA is of the view that satellite should be excluded from the market analysis on the basis that it is not a substitutable product for LLU.

64. For the reasons set out above, TRA is of the view that it would not be possible for a wholesale customer to substitute the LLU product by building its own local loop with significant coverage in the Kingdom of Bahrain within the timeframe of the analysis because of the high sunk costs involved and high entry barriers. In response to a SSNIP, supply-side substitution would be inoperative.

Responses to the Draft Determination

65. Lightspeed agrees with TRA's view.

66. Batelco disagrees with TRA's analysis and argues that the fact that Mena Telecom and Zain have built wireless local loops quickly (especially Zain) and have gained market shares of [•] in one year or less shows that the barriers to entry are not insurmountable, even in the medium term. Batelco adds that the argument from TRA that Zain had an advantage given its existing mobile infrastructure is not a valid argument and does not prove that wireless local loops are not a substitute for Batelco's fixed local loops.

[28] See also TRA, SMP Determination in certain Retail Markets, 3 June 2008, page 49.

TRA analysis and conclusion

67. TRA observes that Batelco does not disagree with the fact that building a wired local loop is not a substitute for LLU but disagrees with the fact that building a wireless local loop is not a substitute for LLU.

68. TRA notes that Batelco's arguments about wireless local loops are based on the observation that building a wireless local loop and achieving a [•] market share in the broadband market has been achieved by Zain and Mena Telecom. However, TRA is still of the view that building a wireless local loop takes significant time, as it took almost two years for Mena Telecom to deploy its network. TRA remains of the view that, if Zain achieved a deployment of its network more rapidly, this is due to the fact that it previously owned a mobile network (with available masts, antennas, etc.). Batelco disagrees with this latter opinion but does not justify why it disagrees.

69. Even if TRA were to agree that Mena Telecom and Zain's NFWS deployments show that the barriers to build a wireless local loop are not insurmountable in the medium term, TRA remains of the view, as explained in the Draft Determination and the 2008 SMP Determination, that the range of services than can be provided based on copper cables is much wider than the effective range currently achievable by wireless networks. The offers provided by NFWS operators in Bahrain currently include download speeds of up to 8 Mbps with a limited download of data per month and the provision of voice services, while copper networks enable the provision of download speeds up to 20 Mbps with unlimited download plans, voice services, video on demand services, TV services, interactive TV services, etc. TRA observes that Batelco does not dispute this point. As a consequence, for a wholesale operator, building its own wireless local loop does not offer the same range of possibilities as purchasing LLU. It is therefore not possible for a wholesale customer to substitute the LLU product by building its own wireless local loop. This is in part due to the fact that wireless networks share capacities between many end-users while the copper network offers one dedicated link for each user.

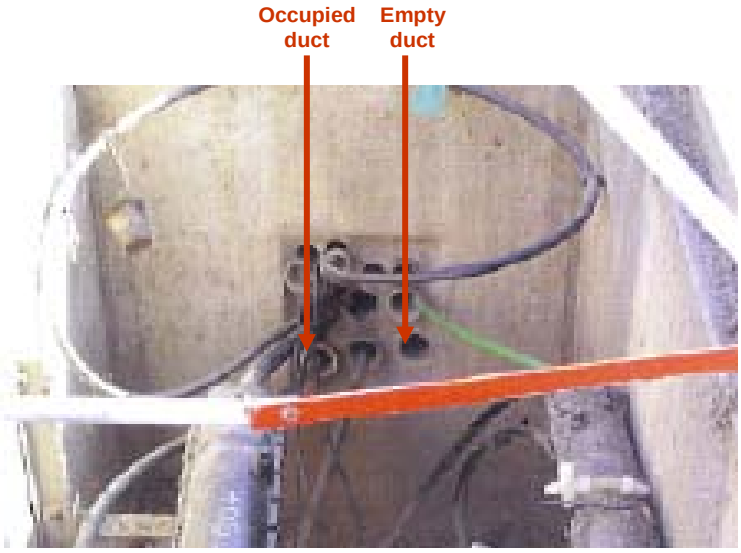
70. Having considered the views of respondents, TRA remains of the view that it would not be possible for a wholesale customer to substitute the LLU product by building its own wired or wireless local loop with significant coverage in the Kingdom of Bahrain within the timeframe of the analysis because of the high sunk costs involved and high entry barriers and, in the case of wireless local loops, mainly because of the difference in the range of services that can be offered by LLU compared to wireless local loops.

Is access to ducts a substitute for LLU?

The Draft Dominance Determination

71. Access to ducts enables OLOs to deploy cables without having to dig trenches or to deploy poles. In general, when an incumbent deploys its local loop for the first time, it digs trenches, lays ducts and pulls cables into the ducts. To avoid having to reopen trenches in the future, it lays spare ducts. After that, as a general rule, the incumbent does not have to reopen trenches to lay additional cables; it simply lays cables into spare ducts (this is done by opening chambers at each side of the ducts). Thus, compared to a situation where the deployment of a wired local loop is completed without access to ducts (which has been dealt with above), the deployment of a wired local loop with access to ducts is less capital- and time-intensive. Nevertheless, the incumbent would still have to undertake a thorough assessment of the effective availability of ducts and then to select those to be made available to OLOs.

Figure 3 - Picture showing empty and occupied ducts



Source: TRA (from ARCEP pictures)

72. While effective access to ducts would improve somewhat the economic equation for the deployment of fixed local loop compared to the case without access to ducts analysed above, TRA considers that supply-side substitution based on the availability of access to ducts will be insufficient in the relevant timeframe to warrant a broadening of the market definition, i.e. access will not be sufficient to make a SSNIP on the LLU price unprofitable.

73. Despite access to ducts, the deployment of a wired local loop involves substantial capital requirements, in terms of civil works costs (notably for laying cables into these ducts), material and equipments (e.g. fibre or copper cables). Further the processes for obtaining access to ducts are in practice very long, even though TRA is currently involved in easing these. Barriers to entry remain considerable. Even if some OLOs may have the intention to deploy wired local loops, it would be limited to very small areas.

74. Nevertheless, TRA notes that access to ducts is an important remedy to address problems associated with physical network access.

75. For the reasons set out above, TRA concludes that access to ducts will not be a close substitute to LLU within the timeframe of the current analysis and is therefore excluded from the market definition.

Responses to the Draft Dominance Determination

76. Lightspeed agrees with TRA's view.

77. Batelco disagrees with TRA's analysis and considers that duct access appears to be "a very near substitute to LLU". It argues that since duct access has been part of the

Reference Access Offer in 2003, "duct access should be part of the same product market and should be regarded as a substitute to LLU".[29]

78. Batelco considers that LLU will not enable increased competition in residential PSTN or broadband markets because margins are low and there is little incentive for OLOs to enter those markets, and they will thus be focused on the business broadband market. Batelco adds that duct access is also focused on the broadband business market. As a consequence, both duct access and LLU focus on very similar targets.

79. Batelco comments also that the number of subscribers reached by LLU or duct access is similar, since they target either high-density areas or high-value customers. Batelco explains that, in high-density areas, the amount of digging from the duct to the end-user is low, which allows a high number of customers to be reached in a cost-effective way.

80. Batelco believes that LLU will leave Batelco with non-profitable or low-margin customers and will leave some villages with low-speed broadband.

81. Batelco concludes that LLU and access to ducts should be in the same market and that LLU is therefore unnecessary.

TRA analysis and conclusion

82. The arguments presented by Batelco are not directly relevant for the purposes of defining relevant markets.

83. Notwithstanding this, TRA disagrees with Batelco's view that both LLU and access to ducts will focus on the broadband business market. LLU is not intended to focus only on the broadband business market, on the contrary, and because of economies of scale, LLU is inherently intended to address the mass market. Addressing the mass market indeed allows OLOs to benefit from greater economies of scale. In many other countries where sufficient history of LLU roll-out is available, such as France, Germany and the United Kingdom, and also smaller countries such as Cyprus, LLU does not only address the business market. If the ten biggest exchanges were unbundled in Bahrain, around 50% of copper lines would be available to LLU, which indicates that LLU can easily address the mass market.

84. While TRA concurs with Batelco that access to ducts is likely to be more focused on business customers (provided that they are located close to each other), TRA is of the view that LLU and access to ducts do not necessarily address the same type of customers and markets. This is due to the fact that access to ducts requires laying fibre cables in ducts and is therefore more capital-intensive and time-consuming. Thus the needs of the mass market are unlikely to be addressed by OLOs using access to ducts, at least in the medium term.

85. TRA disagrees with Batelco's statement that the number of subscribers reached by LLU and access to ducts is the same. Even if this might be correct in the long term in a market where available download speeds would be much higher than they are currently, this is not possible in the medium term due to the fact that access to ducts is much more capital-intensive than LLU. TRA would also like to remind that ducts are subject to duct availability.

[29] Batelco, Submission to TRA Consultation on the Determination of Dominance in Wholesale Broadband Markets, 7 May 2009, para15.

86. TRA agrees with Batelco about the fact that access to ducts is less costly in high-density areas because the distance between end-users and ducts is shorter and, consequently, the costs of digging are lower. However, this indicates only that access to ducts is an option that is more cost-effective in high-density areas. It does not indicate that access to ducts is as cost-effective as LLU.

87. Further even if access to duct and LLU were addressing the same markets as suggested by Batelco, but with which TRA disagrees, this would not be sufficient to conclude that access to ducts and LLU are in the same market. Indeed, as explained in the Draft Determination, access to ducts and LLU have different characteristics:

> *"Despite access to ducts, the deployment of a wired local loop involves substantial capital requirements, in terms of civil works costs (notably for laying cables into these ducts), material and equipment (e.g. fibre or copper cables). Further the processes for obtaining access to ducts are in practice very long, even though TRA is currently involved in easing these. Barriers to entry remain considerable."* [30]

88. Finally, regarding Batelco's statement that LLU is unnecessary because LLU and access to ducts should be in the same market, TRA underlines that it is not necessarily the case that because two wholesale products fall within the same market only one of them is necessary. These wholesale products can be complementary in a specific context. For example, ARCEP, in its decision no. 2008-0835,[31] considered that access to ducts and LLU were in the same relevant market and were both necessary. These two remedies were imposed on France Telecom.

89. Having considered the views of respondents, TRA remains of the view that access to ducts and LLU are not substitutes.

90. With regards to Batelco's statement that LLU will leave Batelco with non-profitable or low-margin customers and will leave some villages with low-speed broadband, TRA observes that this statement is outside the scope of the this Determination. However, based on the observation in other jurisdictions, it is TRA's expectation that OLOs will tend to compete with Batelco wherever Batelco has an ADSL service available, using either LLU or Bitstream for the reasons stated in the Study on the Regulation of Wholesale Broadband Markets.[32] The issue of some villages remaining with low-speed broadband, meaning that neither the ADSL services of Batelco nor NFWS services are available, is a policy question that TRA intends to address under a Universal Service Strategy, with special emphasis on broadband services. Furthermore, as the price of LLU will enable the recovery of the efficient costs of Batelco's access network in areas where Batelco will compete with LLU-based offerings, this will induce competition on merits to the benefits of consumers. TRA finds it difficult to understand why such competition on merits would imply that Batelco would lose all of its broadband customers in such areas.

---

30 Cf. para. 57 of the Draft Determination.

31 Décision no. 2008-0835 de l'Autorité de Régulation des Communications Électroniques et des Postes en date du 24 juillet 2008 portant sur la définition du marché pertinent de gros des offres d'accès aux infrastructures physiques constitutives de la boucle locale filaire, sur la désignation d'un opérateur exerçant une influence significative sur ce marché et sur les obligations imposées à cet opérateur sur ce marché.

32 TRA, "Study on the Regulation of Wholesale Broadband Markets", 14 September 2009 (Annex B to Access Order 1 of 2009 Reference MCD/09/09/065).

Is wholesale access to the existing NFWS local loops a substitute for the LLU product?

The Draft Dominance Determination

91. TRA seeks here to determine whether a purchaser of the LLU product would consider switching to an unbundled access based on one of the two fixed wireless local loops in response to SSNIP on the LLU price.

92. Currently, NFWS operators do not offer any unbundled access to their wireless local loops.

93. TRA considers that it is not technically feasible to provide unbundled access to NFWS local loops at present. Whereas the copper local loop offers a dedicated pair per end-user, the NFWS local loop is shared between multiple end-users and the active equipment (as opposed to passive) that allocates the capacity between end-users is managed by the NFWS operator. As a consequence, unbundling of the NFWS local loop does not appear to be feasible.

94. While access to the copper local loop has been successfully implemented in many countries and is therefore proven to be technically feasible,[33] TRA is not aware of any wireless local loop having been unbundled for the reasons mentioned above. This is consistent with the recent review of ComReg which stated that it is: [34]

> *"not aware of any wholesale physical service (as opposed to virtual) which is made available on other access networks such as fixed wireless or mobile. Based on ComReg's investigations and information provided by operators, it is not clear that a form of physical access is technically or commercially viable over alternative network infrastructure."*

95. TRA also notes that the range of services that can be provided based on LLU is much wider than the effective range currently achievable by wireless networks. TRA observes in particular that while LLU-based operators can, without particular challenges, develop triple-play offerings and offer television over IP services, it may in practice be very difficult to offer similar television over IP services on wireless networks.

96. Finally, leaving aside the question of the technical feasibility by NFWS operators (which have began their operations only recently) to offer wholesale access to their local loop, the demand from wholesale purchasers would be unlikely until NFWS operators have established a successful track record in the medium term.

97. TRA also considers that access to NFWS cannot be included in this market on the basis of the analysis of indirect pricing constraints (see paragraphs 192-196 below for an explanation of the concept and mechanism in the context of the wholesale broadband access market). In other words, TRA does not consider that a 10% increase in the price of LLU could result in a price increase of LLU-based retail offers of a sufficient magnitude to lead to a sufficient number of retail customers to switch to retail offers based on NFWS licenses and hence to render the SSNIP in the wholesale LLU price unprofitable.

---

33 See TRA, Study on the Regulation of Wholesale Broadband Markets, Consultation Document, March 2009.

34 ComReg, "Market review: wholesale physical network infrastructure access (Market 4). Response to ComReg Document 08/41 and Draft Decision Document No: 08/104", 2008.

98. For the reasons set out above, TRA is of the view that access to the NFWS local loop is not a substitute to access to the copper local loop because of constraints on supply-side substitution which would render a SSNIP profitable.

Responses to the Draft Dominance Determination

99. Lightspeed agrees with TRA's view.

100. Zain agrees with TRA's point of view and explains that:
   a) The technology for offering access to the NFWS local loop is not mature.
   b) The available bandwidth is limited, especially when taking into account future demands.
   c) It would be difficult to add new equipment to towers in order to serve OLOs' requirements for a hypothetical NFWS local loop access product because towers are already used to support GSM equipment, UMTS equipment, microwaves and Wimax equipment.
   d) For technical reasons, the provision of services to high buildings is difficult.

101. Batelco disagrees with TRA's point of view and quotes Cave, Stumpf and Valletti, who have stated that "where a new access technology replicates or replaces, but does not extend the scope of existing loops, it should be included in the definition".[35] On the basis of this statement, Batelco considers that NFWS local loops should be included in the same market as LLU.

102. Batelco further explains that evidence of direct supply-side substitutability between access to the NFWS local loop and LLU do not exist because, with access to the NFWS local loop not being regulated, there are few applicants for this service.

103. Batelco also considers that self-supply for NFWS operators should be considered because:
   a) Wholesale supply substitution is possible. Batelco considers that Mena and Zain have ubiquitous networks with sufficient capacity to absorb additional traffic and to provide wholesale services to third parties.
   b) Retail demand substitution is important. Batelco explains that there is significant indirect pricing constraint from NFWS operators. Based on Cave, Stumpf and Valletti who said that "[i]f the indirect pricing constraint from the retail demand substitution is found to be strong enough, self-supply of competitors and the incumbent should be included in the relevant wholesale market"[36], Batelco concludes that self-supply from NFWS operators should be included. Batelco justifies the significant indirect pricing constraint by referring to recent figures which, according to Batelco, are due to the launch of NFWS services in 2008:
      (i) The monthly churn rate for broadband customers sits between [•] and [•] with an increasing trend.
      (ii) The decrease by more than [•] between February 2008 and March 2009 of the level of new residential customer acquisitions by Batelco.
      (iii) The fact that the number of ceased orders of Bitstream and Wholesale DSL has increased since the beginning of 2008.

---

35 Cave, Stumpf and Valletti, "A Review of Certain Markets Included in the Commission's Recommendation on Relevant Markets Subject to *ex ante* Regulation" (July 2006).

36 Cave, Stumpf and Valletti, "A Review of Certain Markets Included in the Commission's Recommendation on Relevant Markets subject to *ex ante* Regulation" (July 2006).

104. Batelco concludes that excluding wireless local loop on the one hand and regulating LLU on the other hand is not appropriate. Batelco believes that TRA should consider several technologies in its market definition because of the importance of inter-platform competition and that TRA should have a forward-looking view and consider:

- The development of Long-Term Evolution (LTE).[37]
- Ofcom's recent statements[38] that next-generation wireless technologies have continued to develop and grow in importance.
- ComReg's statements[39] considering that the provision of wireless broadband services is essential for the future of Ireland as a modern, competitive society, as it will increase the level of competition between platforms, improve rural broadband coverage and deliver next-generation broadband services across Ireland.

TRA analysis and conclusion

105. TRA agrees with Zain's statement that, because of technical constraints (capacity, maturity of the technology, etc.), access to the NFWS local loop is not feasible.

106. TRA points out that Batelco's quotation to Cave, Stumpf and Valletti's statement is taken out of context and it therefore not relevant. The statement that "where a new access technology replicates or replaces, but does not extend the scope of existing loops, it should be included in the definition" is related to technologies such as cable networks but not to NFWS technology. Four paragraphs before Batelco's quotation, Cave, Stumpf and Valletti indeed state that their discussion does not apply to fixed wireless broadband (i.e. NFWS) but only to cable technologies[40]:

> *"The discussion below will focus on ADSL and cable technologies, on the footing that 3G and other mobile services (as noted above) fall in a separate retail market (although they use similar network elements at higher levels in the hierarchy) while fixed wireless broadband is regarded as a technology in the same market, for which (however) market share and other projections are highly doubtful."*

107. The reason why Cave, Stumpf and Valletti explicitly excluded fixed wireless broadband is because "market share and other projections are highly doubtful".[41] TRA agrees with Cave, Stumpf and Valletti that it is difficult to make projections about NFWS. While TRA acknowledges that NFWS have increased their market share significantly during recent months (between 30% and 40% of in April 2009) the evolution of NFWS market share should be considered not only in the short term but also in the medium to long term. NFWS may have difficulties competing with DSL, since the technology of NFWS does not allow the provision of higher speeds services similar to those xDSL is capable of. In Ireland, for example, NFWS (called Fixed Wireless Access) has also had a quick start but is currently losing market share compared to DSL due to its limited capacity: NFWS held a 22% market share 18 months after the launch of NFWS services (at the end of 2005) but had fallen to a 10% market share at the end of 2008 (see Figure 4).

---

37 LTE is a wireless broadband technology that is the next step in the evolution of UMTS (3G), now known as 4G. Compared to currently used wireless mobile radio technologies, LTE is expected to achieve better spectral efficiency, lower costs, higher transfer speeds, improved services, etc.

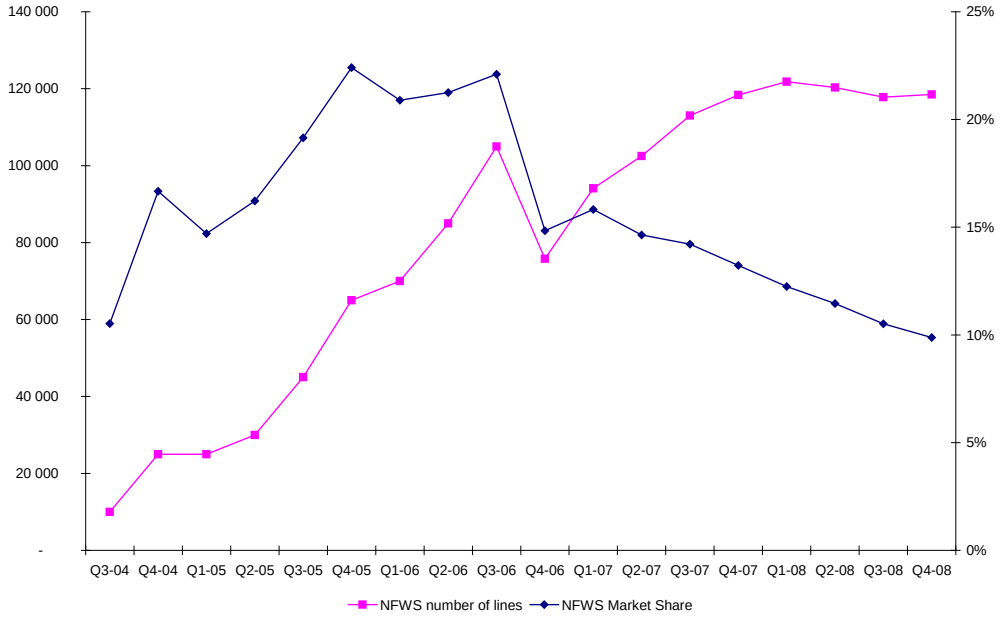
38 Ofcom, "Application of Spectrum Liberalisation and Trading to the Mobile Sector: a Further Consultation" (13 February 2009).

39 ComReg, "Regulatory Principles Applied in Ireland to Successfully Promote", November 2005.

40 Cave, Stumpf and Valletti, "A Review of Certain Markets Included in the Commission's Recommendation on Relevant Markets Subject to *ex ante* Regulation", July 2006, page 76.

41 Cave, Stumpf and Valletti, "A Review of Certain Markets Included in the Commission's Recommendation on Relevant Markets Subject to *ex ante* Regulation", July 2006, page 76.

Figure 4 - Evolution of the NFWS market share and the NFWS number of broadband lines in Ireland (source: ComReg)



108. With regards to Batelco's comment that there is no evidence of direct supply-side substitutability between access to the NFWS local loop and LLU, TRA considers this comment to be irrelevant in so far as unbundling of NFWS local loop is not technically feasible.

109. In relation to Batelco's comment that wholesale substitution is possible, the above paragraph demonstrates that it is not technically feasible to unbundle a wireless local loop, which means that wholesale substitution is not possible. Furthermore, TRA notes that Batelco merely states, without justification, that Mena Telecom and Zain's NFWS networks have sufficient capacity to absorb wholesale customers' traffic.

110. TRA is of the view that the figures put forward by Batelco do not provide evidence that NFWS operators provide a significant indirect pricing constraint that would justify including them in the relevant market because:

    a) The recent figures from NFWS operators must be considered with caution. These are figures corresponding to NFWS operators' commercial launch period. During commercial launch, new entrants can benefit from a very positive impression on customers. The Irish case shows that it is important to be cautious with figures from the early stages of activity of NFWS (see above).
    b) Regarding paragraph 103 b) (i) above, while Batelco's churn rate has increased, it remains low (see Table 3 below). The level of churn reported by Batelco appears in line with benchmark based on publicly available information.

Table 2 - Comparison of some broadband churn rates

	Broadband churn rate per month
Batelco	From [•] to [•]
Assumption used by the ARCEP in its models (France)[42]	2.7%
Neuf Cegetel (France)[43]	1.1%
Sky Broadband (UK)[44]	0.9%
Virgin (UK)[45]	1.1%

c) Regarding paragraph 103 b) (ii) above, between February 2008 and March 2009 Batelco acquired [•] new broadband customers while, Mena Telecom and Zain acquired around [•] to [•] customers each during the same period of time. This means that, according to Batelco's data, Batelco acquired more customers than Zain and Mena Telecom, even if the latter were benefiting from a new-entrant image.

d) Regarding paragraph 103 b) (iii)above, the increase in the absolute number of ceased order from Bitstream and Wholesale DSL referred to by Batelco is not indicative by itself of a significant indirect pricing constraint. It is not surprising to observe an increase in the absolute number of ceased orders when the overall absolute number of orders increases. TRA notes that the absolute increase of ceased orders from Bitstream and Wholesale DSL customers appears to be very low compared with the absolute increase in the number of Bitstream and Wholesale DSL lines during the same period.

111. Overall, TRA is of the view that Batelco's statements do not support the view that NFWS operators should be included in the relevant wholesale physical network infrastructure access market on the basis of the indirect pricing constraint provided by NFWS operators.

112. In addition to the point made in paragraph 97 of this Determination, TRA considers that the indirect pricing constraint from NFWS is not sufficiently strong to justify including NFWS operators in this market because LLU allows OLOs to provide a much wider range of products compared to NFWS.

113. While Batelco suggested that TRA should consider "wireless technologies in a forward-looking sense" in defining relevant markets because of the importance of inter-platform competition, it does not articulate how the market definition should reflect those considerations. However, TRA believes that it has considered the different platforms providing broadband in its market analysis and has adopted a forward-looking view. Further TRA also considers that Batelco's quotations are not relevant because:

---

42 The French Regulatory Authority has published two models in which it assumes that customers stay in average 36 months with a same ISP (see: http://www.arcep.fr/fileadmin/reprise/dossiers/degroup/model-cout-accedeg-2807.xls and http://www.arcep.fr/fileadmin/reprise/dossiers/internet/model-coutfai-avril06.xls)

43 http://www.groupeneufcegetel.fr/html/Presse/cps/Neuf_Cegetel__croissance_organique_a_deux_chiffres_au_quatrieme_trimestre.html

44 http://corporate.sky.com/documents/pdf/latest_results/Q3_09_Press_Release

45 http://pressoffice.virginmedia.com/phoenix.zhtml?c=205406&p=irol-newsArticle&ID=1284077&highlight=

a) The Ofcom document refers only to mobile services, which are not relevant in the present case.
b) It is important to note that in Ireland, despite ComReg's statement in 2005 to which Batelco referred to and which states that the provision of wireless broadband services is essential for the future of Ireland as a modern and competitive society, ComReg later on considered, in 2008, that access to the NFWS local loop is not part of the same wholesale physical network infrastructure access market.[46]

114. Having considered the views of respondents, TRA remains of the view that wholesale access to the NFWS local loop and LLU are not substitutable. TRA indeed believes that wholesale substitution is technically difficult to achieve and that any indirect pricing constraint from NFWS will not be significant enough in the medium term (taking into account the fact that the range of services that can be offered by the copper local loop is much wider than NFWS).

Is wholesale access to the existing fibre loops a substitute for the LLU product?

The Draft Dominance Determination

115. TRA seeks here to determine whether a purchaser of the LLU product would consider switching to an unbundled access based on an existing fibre local loop in response to SSNIP on the LLU price.

116. Currently, the footprint of existing fibre local loops in Bahrain is very limited, and TRA believes that it will not increase significantly unless significant investment is made and that any extension required would take considerable time.

117. Leaving aside the questions of the technical feasibility and willingness of fibre operators (which have began their operations only recently) to offer wholesale access to their local loop, the demand from wholesale purchasers would be unlikely until fibre operators have established a significant footprint in Bahrain.

118. For the reasons set out above, TRA is of the view that access to the fibre local loop is not a substitute to access to the copper local loop because of constraints on supply-side substitution which would render a SSNIP profitable.

Responses to the Draft Dominance Determination

119. Lightspeed agrees with TRA.

120. Batelco is unable to agree with TRA because:
- Batelco is of the view that TRA should consult on Next-Generation Access (NGA) first and that it "has had to hold back investing in access fibre due to the TRA's extremely vague and uncertain regulatory stance" on NGA;[47]
- Even if existing fibre local loops are limited in Bahrain at the present time, their footprint will not remain limited for long. Batelco bases its argument on:

[46] ComReg, "Market Review: Wholesale Physical Network Infrastructure Access (Market 4). Response to ComReg Document 08/41 and Draft Decision Document No: 08/104", 23 December 2008.

[47] Batelco, Submission to TRA Consultation on the Determination of Dominance in Wholesale Broadband Markets, 7 May 2009, para 37.

- The Malaysian Regulator's recent statement that: "the deployment of fibre technologies in the access network is inevitable in order to enable increased broadband penetration",[48]
- The World Summit on the Information Society (WSIS) declaration of principles[49].

- The take-up of NGA has led regulators to change their approach to regulation. Batelco refers in particular to Ofcom and its latest NGN consultation paper: according to Batelco, Ofcom have recently stated in its NGN consultation paper that it is not acceptable simply to roll forward regulatory solutions from the current to the future environment.

TRA analysis and conclusion

121. TRA disagrees with Batelco's suggestion that a public consultation on the treatment of NGA is a prerequisite for the definition of relevant markets. In its submission, Batelco has not articulated, even at the high level, how its points are relevant for the purpose of defining the relevant wholesale physical network infrastructure access market. TRA also notes that Batelco has never discussed with nor informed TRA of investment plans in NGA.

122. Notwithstanding the above TRA is of the view that, whatever the regulation that is applied to NGA, wholesale access to the existing fibre local loop should be excluded from the wholesale physical network infrastructure access market for the reasons set in the Draft Determination.

123. TRA would like to indicate that it has taken into account NGN and NGA when considering the substitutability between LLU and access to ducts and building an alternative local loop and elsewhere where appropriate.

124. TRA notes that Batelco has provided an incomplete and potentially misleading reference to the Ofcom NGN consultation paper it is referring to in which Ofcom stated (quoting from Batelco) "that it is not acceptable simply to roll forward regulatory solutions from the current to the future environment". Having regards to Ofcom's recent consultation document issued 23 September 2008 on "Delivering Super-Fast Broadband in the UK — Setting the Right Policy Framework", TRA notes that Ofcom concludes that "On promoting competition, we do not think that the move to new, next generation access networks means we need to fundamentally change our current regulatory approach. We continue to believe that competition at the deepest level that is effective and sustainable, supported by equivalence of access, is the right approach. What might change is what this means in practice. How to deliver on this objective in the future is one of the key areas for decision in setting the regulatory regime."[50]

125. Having considered the views of respondents, TRA remains of the view that access to the existing fibre local loops is excluded from the relevant wholesale market.

---

48 MCMC, "Public Inquiry Paper: Review of Access List and Mandatory Standards on Access", 25 September 2008, at page 184.

49 World Summit on the Information Society, Declaration of Principles Building the Information Society: a global challenge in the new Millennium, 12 December 2003,

50 http://www.ofcom.org.uk/consult/condocs/nga_future_broadband/main.pdf; see Para. 1.14.

Is Bitstream a substitute to LLU?

The Draft Dominance Determination

126. TRA has proposed above to consider as a starting point two wholesale markets related to the retail broadband market: the wholesale physical network infrastructure access market and the wholesale broadband access market. One of the questions which need to be analysed is whether these two markets should be merged in the specific context of the Kingdom of Bahrain on the basis of substitution between Bitstream and LLU.

127. On the demand side, TRA believes that, following a 10% increase in the LLU price, OLOs using LLU would not switch to Bitstream for several reasons. First, OLOs purchasing LLU will have a greater ability to differentiate their services from Batelco's retail products than with Bitstream. With LLU, OLOs manage their own active exchange equipments (including but not limited to DSLAMs/MSANs) as well as the bandwidth of their backhaul and consequently the contention ratio for their customers (which is the ratio of the potential maximum demand to the actual bandwidth). The higher the contention ratio, the greater the number of users that may be trying to use the actual bandwidth at any one time and, therefore, the lower the effective bandwidth offered, especially at peak times. This enables OLOs to provide new innovative services with greater independence from the incumbent. For example, Bitstream does not enable the provision of television over IP services while LLU does (to the extent that the copper local loop quality allows it).

128. Second, even if LLU and Bitstream allowed OLOs to offer similar services at the retail level, it is unlikely that OLOs that would have invested in LLU (by notably purchasing and installing their own equipment) would, in response to a SSNIP, switch to Bitstream precisely because they have undertaken LLU-specific investments.

129. For these reasons, TRA considers that OLOs purchasing LLU would not switch to Bitstream following a 10% increase in the LLU price. Conversely, TRA is also of the view that OLOs purchasing Bitstream would not switch to LLU following a 10% increase in the Bitstream price. While TRA acknowledges that there may be some one-way substitution from Bitstream to LLU for operators wishing to further differentiate their services, TRA considers that this one-way substitution would be limited in the relevant timeframe given the additional investment required and the economics of LLU-based entry.

130. On the wholesale supply side, the question of substitutability between LLU and Bitstream is purely theoretical: would a Bitstream provider decide to provide LLU in the case of a hypothetical monopolist providing LLU increase its LLU prices by 10%? The Bitstream provider would have to build its own copper local loop for that, which is not likely within the timeframe of the analysis because of the time and investment required (see above).

131. As a consequence, the analysis of both wholesale demand-side and supply-side substitution indicates that LLU and Bitstream are not substitutable. This is because LLU and Bitstream are very different products: LLU provides more flexibility and technical capabilities but requires more investment, while Bitstream provides less flexibility and technical capabilities and requires less investment.[51] As a consequence, TRA concludes that Bitstream is not part of the wholesale physical network infrastructure access market.

[51] See also TRA, "Study on the Regulation of Wholesale Broadband Markets", 14 September 2009 (Annex to Access Order 1 or 2009 - Reference MCD/09/09/065).

132. Considering that the Wholesale DSL product is lower than the Bitstream product in the investment ladder and that Bitstream and LLU are not substitutable, TRA also concludes that the Wholesale DSL product is not a part of this relevant market.

Responses to the Draft Dominance Determination

133. Lightspeed agrees with TRA's view.

134. Batelco disagrees with TRA's view that LLU and Bitstream are in separate markets. Batelco states that both the LLU market and the wholesale broadband access market are not genuine markets and that, according to the best practices such as in the EU, a market is included in the set of *ex ante* regulated markets only when it satisfies the three-criteria test of:
    - High non-transitory barriers to entry,
    - Not tending over time towards effective competition,
    - Insufficiency of competition by itself to deal with the market failure without ex ante regulation.

135. Batelco therefore submits that TRA has not applied this three-criteria test. Batelco believes that TRA ignores the fact that Bitstream already constitutes a remedy to an identified market failure — retail broadband competition — and that this market failure does not exist anymore:
    a) Batelco states that, if Bitstream is available and allows competitors to enter the market, the market failure is remedied.
    b) Batelco considers that Bitstream is an alternative to LLU.
    c) Batelco reminds that TRA accepted in 2004 that Bitstream was an alternative to LLU.
    d) Batelco explains that it has improved the Bitstream product since it was launched in 2007.
    e) Batelco states that it has lost between [•] and [•] of its residential broadband customer base each month to NFWS operators, with an increasing trend.
    f) Batelco's Wholesale DSL and Bitstream products have been successfully increasing their market share during the last 15 months.

136. Batelco suggests that TRA should analyse countries that have recently considered the regulation of LLU and Bitstream (and not European Union countries, where regulation was considered two decades ago) because it will ensure that the chosen regulation is relevant to today's telecommunications environment and because these countries have learnt from the experience of other countries. Batelco refers to Malaysia, New Zealand and Jordan.

TRA analysis and conclusion

137. With respect to Batelco's view that TRA should apply the three-criteria test as per the EU regulatory framework, TRA would like to remind that there is not such test and/or requirement in the Telecommunications Law of the Kingdom of Bahrain. The relevant tests in considering whether an Access Obligation should be imposed are found in the Access Regulation and in particular article 3.7 of that Regulation. TRA has applied these. TRA also notes that the market definitions adopted by TRA coincide with those of the EC for which the EC has found that the three criteria test is met. Notwithstanding this TRA's view is that the two wholesale markets fulfil these three criteria.

138. Batelco's comment on the retail market failure is not relevant for the purpose of defining relevant markets. Similarly Batelco's suggestion to look at the regulatory approach in other non-EU countries, and in particular Jordan, New Zealand Malaysia which have recently considered the regulation of LLU and Bitstream is not relevant for the purposes of defining the relevant markets. In defining relevant markets, TRA relies on established principles and analyses demand- and supply-side substitution having regards to data available on the domestic telecommunications sector as well as international evidence where appropriate. TRA also looks at regulatory precedents. In its submission Batelco incorrectly states that the New Zealand Commerce Commission has defined separate markets for LLU and Bitstream in its 2003 Investigation[52]. These markets do not appear to have been redefined since then but TRA notes that LLU and Bitstream are separate Designated Services in Telecommunications Act of New Zealand. As mentioned above the market definitions adopted by TRA are similar to those of the EC. The question of the appropriate remedies and in particular whether it is appropriate to mandate LLU in addition to Bitstream is addressed in the Study on the Regulation of Wholesale Broadband Markets.

139. Having considered the views of respondents, TRA remains of the view that LLU and Bitstream are not part of the same market.

Should Batelco's self-provision of access to the copper local loop be part of the relevant market?

The Draft Dominance Determination

140. Batelco controls the copper local loops in Bahrain and is the only firm that is in a position to provide a copper local loop access product. TRA also observes that no LLU product is available in Bahrain. Moreover, there is no technical difference between the LLU product and the service based on the copper local loop that Batelco provides to its retail arm. Thus, if the price for LLU increases, it should affect both Batelco's retail arm and wholesale LLU customers. TRA therefore considers that self-provision should be included in the relevant market. TRA points out that, if self-provision were not included, it would not be possible to assess market shares in this notional market.

141. TRA notes that this approach is also recommended by the EC as illustrated in the following quote:

> *"In many cases the incumbent is the only firm that is in a position to provide a potential wholesale service. It is likely that there is no merchant market as this is often not in the interest of the incumbent operator. Where there is no merchant market and where there is consumer harm, it is justifiable to construct a notional market when potential demand exists. Here the implicit self-supply of this input by the incumbent to itself should be taken into account."*[53]

---

52 See Commerce Commission, "Investigation into Unbundling the Local Loop Network and the Fixed Public Data Network: Final Report", December 2003, Table 5.3

53 See "Commission recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services".

Responses to the Draft Dominance Determination

142. Lightspeed agrees with TRA's view.

143. Batelco agrees with TRA's view but considers that self-supply from alternative operators should also be included on the basis that self-supply from alternative operators has a significant impact on the pricing power of existing operators at the retail level and constitutes a strong source of countervailing buying power.

144. Batelco believes that it is not correct to consider self-supply by alternative operators only when these operators offer inputs on the merchant market.

145. Batelco submits that TRA does not refer to the full argument of the EC's recommendation[54] because the EC suggests also analysing whether competitors have enough capacity and how likely they are to provide the services quickly to third parties. Batelco adds that TRA has not provided any evidence on this point.

146. Batelco also refers to a study carried out for the Commission by Hogan & Hartson and Analysys[55] that raises reservations about the EC's treatment of self-supply in particular for the wholesale broadband access market (i.e. bitstream). According to Batelco, this study states that alternative operators' self-supply should be included in the market definition, subject to the assessment in each individual case, to take account all competitive constraints on the largest operator. Batelco refers to the case of the Netherlands (cited in the report), where, because of the presence of widespread infrastructure-based competition, the identification of a wholesale broadband market susceptible to *ex ante* regulation was not justified since the three criteria were not fulfilled. Batelco adds that if these three criteria are not applied, pricing constraints by alternative operators at the retail level must be analysed.

147. Batelco supports the report's findings that identify a "regulatory circularity" in the definition of the wholesale broadband access market because, where one type of access is regulated (e.g. Bitstream) and another one is not (e.g. NFWS), the search for any evidence of direct supply-side substitutability between these different technology platforms may be futile. This is due to the fact that there are likely to be few applicants for this service if it is not regulated and mandated.

TRA analysis and conclusion

148. TRA observes, firstly, that all respondents agree that self-supply from Batelco should be included.

---

54 See "Commission Recommendation on Relevant Product and Service Markets Within the Electronic Communications Sector Susceptible to *ex ante* Regulation in Accordance with Directive 2002/21/EC of the European Parliament and of the Council on a Common Regulatory Framework for Electronic Communications Networks and Services". TRA quoted in the Draft Determination the following EC statement: "In many cases the incumbent is the only firm that is in a position to provide a potential wholesale service. It is likely that there is no merchant market as this is often not in the interest of the incumbent operator. Where there is no merchant market and where there is consumer harm, it is justifiable to construct a notional market when potential demand exists. Here the implicit self-supply of this input by the incumbent to itself should be taken into account."

55 Hogan & Hartson and Analysys, "Preparing the Next Steps in Regulation of Electronic Communications – A Contribution to the Review of the Electronic Communications Regulatory Framework, Final Report for the European Commission", page 112.

149. Regarding Batelco's comments on alternative operators' self-supply, it has already been addressed in detail through the analysis of the substitutability between LLU and other technologies (fibre network, NFWS) and of demand-side substitutability at the retail level. In deciding to exclude from the wholesale physical network infrastructure access market, TRA has notably considered and analysed:

- Demand-side substitutability at the retail level, i.e. the extent to which self-supply may exert a sufficiently strong price constraint at the retail level to justify including self-supply by alternative operators in the wholesale physical network infrastructure access market.
- Self-supply by alternative operators (i.e. NFWS operators) which do not offer inputs on the merchant market.
- The extent to which NFWS operators have enough capacity and how likely competitors are to provide the services quickly to third parties (paragraph 62 of the Draft Determination).

150. With regards to Batelco's reference to the Hogan & Hartson and Analysys report, TRA highlights that this report discusses the inclusion of self-supply from alternative operators in the wholesale broadband access market and not in the wholesale physical network infrastructure access market (or wholesale unbundled market).[56] The inclusion of self-supply by NFWS operators in the wholesale broadband access market by TRA is consistent with the logic advocated in this report.

151. TRA notes that the case of the Netherlands raised by Batelco concerns more the analysis of dominance than the definition of market. Like in Bahrain, OPTA has defined one wholesale market for Bitstream and one wholesale market for LLU.[57] In terms of competition analysis, no SMP/Dominant operator has been initially identified OPTA in the wholesale market for Bitstream. However, market conditions differed significantly between these two countries as Batelco's market share is much higher than that of KPN (the Netherlands incumbent) (respectively between 60 and 70% vs. 44%)[58] and because Batelco's main competitors are currently NFWS operators, while KPN's main competitors are cable operators, whose infrastructure has different specifications to that of a wireless network, and are able to provide a more comparable broadband services to copper-based broadband services.

152. Finally, because TRA has included in the wholesale broadband market self-supply from NFWS operators on the basis of indirect pricing constraint at the retail level (i.e. demand-side substitution), the potential issue of "regulatory circularity" in the definition of the wholesale broadband access market raised by Batelco does not apply.[59]

153. Having considered the views of respondents, TRA remains of the view that only self-provision by Batelco should be included in the relevant market.

---

56 See Hogan & Hartson and Analysys, "Preparing the Next Steps in Regulation of Electronic Communications – A Contribution to the Review of the Electronic Communications Regulatory Framework, Final Report for the European Commission", Section 4.2.2.

57 A third market has also been identified by the OPTA, the higher-quality bitstream market.

58 Case nl/2005/0281: Wholesale broadband access in the Netherlands, Comments pursuant to Article 7(3) of Directive 2002/21/EC1.

59 The risk associated with "regulatory circularity" is that it could lead to a too narrow market definition by excluding self-supply by alternative operators.

Functional dimension

Draft Dominance Determination

154. The relevant functional dimension of the market definition is the wholesale level, because access to physical network infrastructure is an input provided by operators to other operators for the provision of services.

Responses to the Draft Dominance Determination

155. No comments were received on this point.

TRA analysis and conclusion

156. The relevant functional dimension of the market definition is the wholesale level.

Geographic dimension

Draft Dominance Determination

157. The definition of geographic markets involves an assessment of the extent to which competitive conditions and constraints are appreciably different across geographic areas. In considering the geographic scope of a relevant market, it is important to consider the relatively small overall size of the telecommunications sector in the Kingdom of Bahrain and the relative costs and benefits of defining separate markets since the benefits of defining granular markets are likely to be outweighed by the associated costs.

158. TRA explained in its Draft Competition Guidelines that it "will have regard to the likely size of the proposed market, in order to determine the likely materiality of the issues at stake". With regards to the specific case of new property developments (such as the Amwaj area), it indicated that "[it] will normally only consider defining a new development as a separate geographic market once the development has been launched and the competitive landscape stabilised". [60]

159. In an *ex ante* context, the definition of relevant markets is a preliminary step prior to the analysis of competition and the definition of appropriate remedies (such as access to infrastructure), should market failures be identified. For the purposes of ex ante regulation of Batelco as a dominant operator, TRA considers that the definition of the relevant market on a national basis is appropriate. Thus it is not necessary to define separate geographic markets to address the case of the Amwaj area or for that matter in any new property developments, where Batelco does not have infrastructure.

160. Besides the case of Amwaj addressed above, TRA considers that there are no other potential factors that could justify sub-national markets, having regards notably to the size of Bahrain, potential costs and benefits as well as supply and demand conditions for LLU. The supply conditions of LLU are reasonably homogenous throughout the country. Broadband competition is also homogeneous all over the country, as both NFWS operators' offers and Batelco's DSL offers are in principle available throughout the country. TRA notes also that broadband prices are uniform across the country.

[60] See TRA, "Draft competition guidelines: a consultation document", 4 November 2008, page 13.

161. The obligations arising from this Dominance Determination only apply to areas in which Batelco has infrastructure. Hence the exact geographic scope of the market does not impact the practical implementation of the relevant obligations arising from this Determination.

162. For the reasons set out above, TRA is of the view that the geographic dimension of the market is national.

Responses to the Draft Dominance Determination

163. Lightspeed agrees with TRA.

164. Batelco disagrees with TRA's view because different geographical market conditions have to be reflected in regulatory practice although it does not propose any specific geographic market definition.

165. It argues that defining national markets where sub-national markets may be more appropriate could lead to distortion of competition. Batelco indicates that TRA's approach is contrary to the approaches adopted in other jurisdictions and refers to:

- Australia, where the ACCC has undertaken local market analyses in more recent regulatory decisions because LLU has developed unevenly across the territory.
- Germany, where the Bundesnetzagentur is currently proposing geographic "regionalisation" of Bitstream markets.

166. Batelco also makes reference to antitrust cases where geographic markets have been defined as well as the practice of regulators, including the European Regulators Group guidance.[61] It quotes Cave, Stumpf and Valletti who said that: "where differential network build-out creates clear and persistent divisions in a Member State, so that one area is likely to exhibit SMP in a market, while another does not, there is a good case for reflecting this difference by defining separate geographic markets".[62]

167. Batelco expresses the concerns that a national geographic market definition in an ex-ante context could allow an OLO with a network in one or more new developments to engage in anti-competitive behaviour without falling foul of Section 65 as it operates only in some areas and not nationally.

168. Batelco notes that the Amwaj Island was seen as constituting a separate geographic area and was not subject to regulation in TRA's 2006 Dominance Determination.

169. Batelco explains that the geographic delineation of markets is done in a similar manner to the product market definition, i.e. by starting with a focal area, applying the SSNIP test to other areas and considering supply-side. Batelco adds that, if there may be difficulties in applying the SSNIP test for geographic telecommunications markets, it is possible to define markets by looking at the location of suppliers rather than buyers, the location of the service, etc.

---

61 ERG, ERG Common Position on Geographic Aspects of Market Analysis (Definition and Remedies), September 2008.

62 Cave, Stumpf and Valletti, "A Review of Certain Markets Included in the Commission's Recommendation on Relevant Markets Subject to *ex ante* Regulation" (July 2006).

TRA analysis and conclusion

170. TRA considers that the comments made by Batelco do not warrant a modification of TRA's position as justified in the Draft Determination that the geographic dimension of the market is national.

171. TRA observes that Batelco does not propose any different geographic delineation of the market. While Batelco discusses at some length the importance of geographic market definition and the approach taken by regulators and other competition authorities, it does not put forward an alternative market definition. Nor does it explain why such an alternative may be justified.

172. Notwithstanding the above, TRA is of the view that the examples cited by Batelco of Australia and Germany are not relevant in the present case, since the Amwaj Islands are a new development area, where the market has not stabilised yet . Broadband telecommunications networks in these areas would have been deployed a long time ago. Further, it is not clear from Batelco's submission how these examples would translate in the Bahraini context.

173. The issues here are different from the issues discussed by Batelco. TRA agrees with the importance of the geographic delineation of markets but considers that, for development areas such as the Amwaj Islands area, it is not appropriate to consider defining a specific geographic market before the competitive landscape has stabilised. Incidentally, TRA is not aware of any jurisdiction where developments areas have been defined as separate geographic markets.

174. TRA is also of the view that, if an OLO with a network in one or more developments were to engage in anti-competitive behaviour, *ex post* competition law will apply and potential anti-competitive actions could be tackled on a case-by-case basis.

175. Finally, TRA considers that, contrary to the assertion made by Batelco, the approach adopted in this Determination is consistent with past decisions, including:

- The 2006 Dominance Determination: in this Determination TRA concluded that "The geographic scope of all the markets identified above is the Kingdom of Bahrain".[63]
- The 2008 Determination on SMP in retail markets.[64] In this Determination TRA concluded that "The geographic scope of the retail markets defined is the Kingdom of Bahrain".

176. Having considered the views of respondents, TRA remains of the view that the geographic dimension of the market is national.

Conclusion on the relevant market for wholesale physical network infrastructure access

The Draft Dominance Determination

177. For the reasons set out above, TRA considers that the relevant market is the wholesale physical network infrastructure access market, which:

63 TRA, "Dominance in Wholesale Markets by Batelco", 22 January 2006.

64 TRA, "Determination about Significant Market Power Designation in Certain Relevant Retail Markets", 3 June 2008.

- includes LLU (access to the copper local loop and all the ancillary services listed above);
- includes self-supply by Batelco;
- excludes wholesale access to existing NFWS local loops and fibre local loops;
- excludes wholesale access to other local loop infrastructure (satellite);
- excludes Bitstream (as well as the Wholesale DSL product);
- excludes access to ducts.

178. The geographic dimension of the market is the Kingdom of Bahrain.

Responses to the Draft Determination

179. Lightspeed agrees with TRA.

180. Batelco disagrees with TRA for the reasons set above, i.e. because Batelco is of the view that LLU and Bitstream are substitutable and that NFWS local loops should be included in the market.

TRA analysis and conclusion

181. Having considered the view of the respondents and in particular having analysed above Batelco's comments regarding the substitutability between LLU and Bitstream and the inclusion of NFWS in the wholesale physical network infrastructure market, TRA remains of the view that the relevant market is the wholesale physical network infrastructure access market, which:

- includes LLU (access to the copper local loop and all the ancillary services listed above);
- includes self-supply by Batelco;
- excludes wholesale access to existing NFWS local loops and fibre local loops;
- excludes wholesale access to other local loop infrastructure (satellite);
- excludes Bitstream (as well as the Wholesale DSL product);
- excludes access to ducts.

182. The geographic dimension of the market is the Kingdom of Bahrain.

3.5 Wholesale broadband access market

Product dimension

The Draft Dominance Determination

183. In Section 3.3 above, two wholesale markets related to the retail market for broadband internet access services from a fixed location in the Kingdom of Bahrain have been taken as a starting point. They are the wholesale physical network infrastructure access market and the wholesale broadband access market. There is de facto a wholesale broadband access market in Bahrain, because one OLO has concluded an agreement with Batelco for purchasing Bitstream. This OLO provides retail broadband services to end-users on the basis of this wholesale product. Other OLOs can purchase the Bitstream services of Batelco should they wish to.

184. Batelco's Bitstream product is an access service that enables OLOs to provide high-speed services to end-users via a digital pathway – made of an ADSL link and an aggregation link (backhaul) – across Batelco's network. A total of eight different Bitstream products with different download speeds and contention ratios are available (see Figure below). One way for OLOs to differentiate their retail services from those of the incumbent is to propose different thresholds for data volumes (maximum amount of data in Gbps that can be downloaded per month). With Bitstream, OLOs are responsible for the provision of internet connectivity.

Figure 4 - Batelco's Bitstream products

Bitstream Access Speed	Residential Packet Access Contention Ratio	Business Packet Access Contention Ratio
256kbps	15:1	8:1
512bkps	10:1	8:1
1Mbps	10:1	8:1
2Mbps	10:1	8:1

Source: Batelco's reference offer

185. Contrary to Bitstream products available in larger countries, the broadband traffic is delivered at a single point in Bahrain.

186. Only Batelco offers a wholesale broadband access product. NFWS operators or fibre-based operators do not provide Bitstream products.

187. 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. Then, TRA considers potential substitutes in order to set the boundaries of the market. TRA is of the view that the following questions need to be analysed:

- Should NFWS access be included in the relevant market?
- Should self-provision of Bitstream by Batelco be part of the relevant market?
- Is LLU a substitute for Bitstream?
- Is Wholesale DSL a substitute for Bitstream?

Should NFWS access be included in the relevant wholesale broadband access market?

188. This question needs to be analysed from two angles:

- whether NFWS access provides a direct pricing constraint on Bitstream; and
- whether NFWS access provides an indirect pricing constraint on Bitstream.

189. With regards to the first angle, TRA observes that NFWS operators are not currently providing any wholesale access in the form of a Bitstream product to third parties. Therefore NFWS access does not constitute a direct pricing constraint and cannot be

included in the relevant market on this basis. For the purposes of this Determination and having regards to TRA's conclusion on the indirect pricing constraints provided by NFWS access on Bitstream (see below), it is not necessary for TRA to carry out a forward-looking analysis of the direct pricing constraint.[65]

190. Before analysing indirect pricing constraints, TRA notes that there is no wide consensus regarding whether indirect constraints should be taken into account at the market definition stage or at the competition analysis stage even though the particular route chosen should not lead to conclusions materially different.

191. For example, while the EC generally advocates taking into account indirect pricing constraints at the competition analysis stage in the field of telecommunications, it commonly factors indirect pricing constraints at the market definition stage in its antitrust work. Similarly, regulators such as Ofcom, Comreg and the New Zealand Commerce Commission use the latter approach.

192. In this instance, TRA has decided to factor the indirect pricing constraints at the market definition stage.

193. The operation of indirect pricing constraints can lead to products which do not directly compete to fall in the same market. At the retail level, Batelco's services compete mainly with OLO's services either based on Batelco's wholesale products or based on NFWS. To define the wholesale broadband access market, it is appropriate to analyse whether substitution at the retail level provides an indirect constraint on the pricing of wholesale products. This is done by asking whether Batelco (absent regulation) could profitably sustain a SSNIP at the wholesale level. Batelco's Bitstream is used by certain OLOs and notionally by Batelco's retail arm as an input to construct retail offers.

194. Hence, a 10% increase in the price of Bitstream could be expected to result in a price increase of retail prices, as operators, seeking to avoid a margin squeeze for example, will need to pass through the increase in input price. While the hypothetical price increase of 10% can be expected to be diluted, a reasonable approximation of the likely resulting price increase at the retail level can be derived from the proportion of the input price in the end-to-end price of retail offers. Based on Batelco's current retail and Bitstream tariffs, a 10% increase in Bitstream could be expected to lead to an increase of 5% to 8% in retail prices, assuming that the rise of the input price is entirely passed on to end-users.[66]

195. TRA is of the view that an increase in the retail prices of offers based on Bitstream of this magnitude could lead to a sufficient number of retail customers to switch to retail offers based on NFWS licenses to render the SSNIP in the wholesale Bitstream price unprofitable.

196. On the basis of the indirect pricing constraints provided by NFWS licenses via the retail level, TRA therefore concludes that NFWS access should be included in the wholesale

---

65 Such an analysis would need to consider elements such as: whether it is technically feasible to offer Bitstream on NFWS, the systems (e.g. wholesale billing and accounting management) required, whether the two NFWS licencess would be interested in and have the incentives to offer Bitstream access, whether existing wholesale customers would be interested in switching and the switching cost they would face as well as whether all the above would be feasible in the relevant timeframe.

66 In other words, Bitstream prices represent 50% to 80% of the retail prices of Batelco.

broadband access market. No other OLOs are included in the market definition on the basis of indirect pricing constraints.[67]

Responses to the Draft Determination

197. Lightspeed agrees with TRA.

198. Batelco agrees with TRA's view.

TRA analysis and conclusion

199. Having considered the views of respondents, TRA concludes that NFWS access should be included in the wholesale broadband access market.

Should self-supply of Bitstream by Batelco be part of the relevant market?

The Draft Determination

200. TRA seeks here to determine whether Batelco's self-supply of Bitstream should be included in the relevant market. Having included self-supply of NFWS licensees (which do not provide wholesale broadband access to third parties), TRA is of the view that it is appropriate to include self-supply by Batelco. The exclusion of Batelco's self-supply would be inconsistent with the treatment of self-supply for NFWS. And this would produce a distorted view of competitive constraints and market shares.

Responses to the Draft Determination

201. Lightspeed and Batelco agree with TRA's view. Batelco refers to its answer to Question 5 and adds that both the self-supply of the incumbent and the self-supply of alternative operators should be included.

TRA analysis and conclusion

202. Having considered the views of respondents, TRA remains of the view that self-provision by Batelco (but also by NFWS operators, as detailed in the question above) should be included in the wholesale broadband access market.

Is LLU a substitute to Bitstream?

The Draft Determination

203. This question has already been addressed above in the analysis of the wholesale physical network infrastructure access market. As per the arguments set out above, TRA is of the view that LLU is not substitutable to Bitstream.

---

[67] Other potential candidates were satellite and fibre-based operators. However they account for less than 1% of the retail market. Further TRA considers that indirect pricing constraints via the retail level will be inoperative owing for example to capacity expansion constraints over the timeframe of the analysis.

Responses to the Draft Determination

204. Lightspeed agrees with TRA's view.

205. Batelco disagrees with TRA's view and refers to its comments on Question 5.

TRA analysis and conclusion

206. Having considered the views of respondents and in particular having considered Batelco's comments on Question 5 of the Draft Determination (see Para 135 and 136), TRA remains of the view that LLU and Bitstream should not be included in the same relevant market.

Is Wholesale DSL a substitute for the Bitstream product?

The Draft Determination

207. Wholesale DSL is typically no longer regulated in many countries. Generally it is not considered to be in the same wholesale market as Bitstream and no specific market for Wholesale DSL is identified.

208. For example, the European Regulatory Group ("ERG") states that Bitstream and Resale products are not substitutable, the main reasons being that Bitstream allows OLOs to differentiate their services from those of the incumbent and that Bitstream requires OLOs to build their own networks.[68]

209. TRA observes that the difference between the Bitstream product and the Wholesale DSL product is narrower in Bahrain. First of all, the level of additional differentiation offered by the Bitstream product is currently limited compared to the Wholesale DSL product (See Figure below):

- download speeds offered are the same: 256 kbps, 512 kbps, 1 Mbps and 2 Mbps;
- any threshold value can be proposed with the two products.

210. As a consequence, it would appear to be difficult for an OLO which relies on the Bitstream product to differentiate significantly its services compared to an OLO which uses the Wholesale DSL product.

[68] ERG, "Bitstream access: ERG common position", 2 April 2004.

Figure 5 - Batelco's wholesale DSL products

Access Speed for Residential Customers	Included Usage (Upload and download)	Increment for usage above threshold
265kbps downstream / 64kbps upstream	5 GB	1 MB
512kbps downstream / 128kbps upstream	8 GB	1 MB
1 Mbps downstream / 256kbps upstream	15 GB	1 MB
2Mbps downstream / 512kbps upstream	20 GB	1 MB

- Does not include an ADSL modem.
- Includes one email account with 10Mb storage limit.
- Recommended modems and suppliers are:
  1. **INMA:** GreatSpeed USB
  2. **A. Rashid Est:** Aztech USB
  3. **Intercol:** SpeedTouch USB

Access Speed for Business Customers	Included Usage (Upload and download)	Increment for usage above threshold
265kbps downstream / 64kbps upstream	2.5 GB	1 MB
265kbps downstream / 64kbps upstream	5 GB	1 MB
512kbps downstream / 128kbps upstream	10 GB	1 MB
1 Mbps downstream / 256kbps upstream	15 GB	1 MB
2Mbps downstream / 512kbps upstream	20 GB	1 MB
265kbps downstream / 64kbps upstream	N/A	N/A
512kbps downstream / 128kbps upstream	N/A	N/A
1 Mbps downstream / 256kbps upstream	N/A	N/A
2Mbps downstream / 512kbps upstream	N/A	N/A

Source: Batelco's reference offer

211. Also, in the particular case of Bahrain, the Bitstream traffic is delivered at a single point, which means that OLOs do not need to deploy a national backbone which OLOs would have to do if the Bitstream traffic was delivered at a regional level as in larger countries. As a consequence, the level of investment required by the Bitstream product is not significantly higher than the level of investment required for the Wholesale DSL product. Compared to Wholesale DSL, an OLO that wishes to provide services based on Bitstream needs to source international connectivity.

212. On the wholesale demand side, TRA is of the view that a 10% increase in the Wholesale DSL product price would make OLOs based on the Wholesale DSL product switch towards the Bitstream product and vice versa, because of the low differentiation offered by the two products and because of the low level of investment required. Interviews conducted by TRA with alternative operators in November 2008 have indeed indicated that OLOs consider that the main advantage of the Bitstream product compared to the Wholesale DSL product in the particular case of Bahrain is essentially the higher flexibility offered thanks to the absence of threshold values in the Bitstream product.

213. On the wholesale supply side, the question of substitutability between the Bitstream and Wholesale DSL products is purely theoretical: would a Wholesale DSL product provider decide to provide Bitstream in the case of hypothetical monopolist providing Wholesale DSL product increases its Wholesale DSL product prices by 10%? The Wholesale DSL product provider would provide Bitstream, because the level of

investment required to allow provision of Bitstream is not significant for a Wholesale DSL provider.

214. TRA concludes here that the Bitstream product and the Wholesale DSL product are in the same wholesale market.

Responses to the Draft Determination

215. Lightspeed and Batelco agree with TRA's view.

TRA analysis and conclusion

216. Having considered the views of respondents, TRA remains of the view that the Wholesale DSL product is a substitute for the Bitstream product.

Functional dimension

The Draft Determination

217. The relevant functional dimension of the market definition is the wholesale level, as Bitstream is an input provided by operators to other operators.

Responses to the Draft Determination

218. No comments were received on this point

TRA analysis and conclusion

219. The relevant functional dimension of the market definition is the wholesale level.

Geographic dimension

The Draft Determination

220. The reasoning and arguments put forward above regarding the geographic dimension of the wholesale physical network infrastructure access market, apply equally for the wholesale broadband access market. They are therefore not repeated here.

Responses to the Draft Determination

221. Lightspeed agrees with TRA's view.

222. Batelco disagrees with TRA's view and refers to its response to Question 7.

TRA analysis and conclusion

223. Having considered the views of respondents and in particular having considered Batelco's answer to Question 7 above, TRA remains of the view that the geographic dimension of the market is national.

Conclusion on the relevant wholesale broadband access market

The Draft Determination

224. For the reasons set out above, TRA considers that the relevant market is the wholesale broadband access market, which:

- includes Batelco's Bitstream product;
- includes NFWS access ;
- excludes access to other local loop infrastructure access (fibre, satellite);
- includes self-supply by Batelco;
- includes Batelco's Wholesale DSL product;
- excludes LLU.

225. The geographic dimension of the market is the Kingdom of Bahrain.

Responses to the Draft Determination

226. Lightspeed agrees with TRA's view.

227. Batelco is not able to agree with TRA's market definition because it disagrees with many elements.

228. Batelco also made other comments not related to the definition of the relevant market. For example it mentioned that alternative infrastructures do not have similar obligations to incumbent; that Mena and Zain have gained a substantial joint market share in excess of 30% in a short period of time; that the market definition was created to regulate access on the incumbent fixed network. Batelco also refers to the example of Malta, where the incumbent is regulated and the alternative cable network operator holds a 50% market share. Batelco believes that TRA's approach will perpetuate a vicious cycle where a fixed-line operator can be found to have SMP because it provides a service that it is obliged by regulation to supply, whereas an alternative network operator, even if a strong player in the broadband market, is incentivised not to provide wholesale access to third parties so as not to be susceptible to regulation.

TRA analysis and conclusion

229. TRA observes some confusion in Batelco's comments between the definition of the relevant markets and the identification of dominant operators. The question asked here relates to the definition of the relevant market, not to the identification of dominant operators. TRA reminds Batelco that it has included wholesale NFWS broadband access in the wholesale broadband access market. This means that obligations could apply to NFWS operators if they were found to be dominant (which is not the case currently, as justified by TRA below). As a consequence, Batelco's comments are not relevant.

230. Having considered the views of the respondents, TRA remains of the view that the relevant market is the wholesale broadband access market, which:

- includes Batelco's Bitstream product;
- includes NFWS access;
- excludes access to other local loop infrastructure (fibre, satellite);
- includes self-supply by Batelco;

- includes Batelco's Wholesale DSL product;
- excludes LLU.

231. The geographic dimension of the market is the Kingdom of Bahrain.

3.6 List of relevant wholesale markets

232. For the reasons set out above, TRA concludes that there are two relevant wholesale markets:

- the wholesale physical network infrastructure access market; and
- the wholesale broadband access market.

233. The geographic scope of both markets is national.

4 Identification and determination of dominance in the relevant markets

234. Having defined the relevant markets, the next step consists of analysing the extent of competition. The Telecommunications Law provides the following definition of "dominant position":

> *"the Licensee's position of economic power that enables it to prevent the existence and continuation of effective competition in the relevant market though the ability of the Licensee to act independently – to a material extent – of competitors, subscribers and users".*

235. As outlined in TRA's Determination on the Methodology for Determining Market Power,[69] as well as in the Draft Competition Guidelines,[70] a large number of factors can be considered in assessing dominance, including:

- market share;
- overall size of undertaking;
- control of infrastructure not easily duplicated;
- network effects;
- the conduct of the participants;
- technological advantages or superiority;
- absence of or low countervailing buying power;
- easy or privileged access to capital markets/financial resources;
- product/services diversification (e.g. bundled products or services);
- economies of scale;
- economies of scope;
- vertical integration;
- highly developed distribution and sales network;
- absence of potential competition;
- barriers to expansion;
- ease of market entry.

---

69 TRA, Methodology for Determining Market Power A Determination issued by the Telecommunications Regulatory Authority, 2003.

70 TRA, Draft Competition Guidelines, 4 November 2008.

236. Given the characteristics of the markets under consideration, the most determinant factors are: market share, barriers to entry including the control of infrastructure not easily duplicable, economies of scale and economies of scope, countervailing buying power and vertical integration.

4.1 Assessment of dominance in the wholesale physical network infrastructure access market

The Draft Determination

Competition analysis and market share

237. As defined above, the relevant wholesale physical network infrastructure access market includes LLU and self-supply by Batelco. Knowing that no line has been unbundled in the Kingdom of Bahrain as of today, Batelco's market share in the relevant market is 100%. This market share is strongly indicative of dominance.

238. While TRA appreciates that market shares are not by themselves determinative of dominance, TRA notes that they are particularly high in this instance (European case law has, in the AKZO vs. Commission case[71], established a presumption of dominance where market shares are in excess of 50%). Further, TRA 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.

Barriers to entry – including the control of infrastructure not easily duplicable

239. In line with the 2006 Dominance Determination and as explained in detail above in the sub-section which consider whether wholesale customers would substitute the LLU product by building their own local loop, the local loop controlled by Batelco is an infrastructure that is not easily duplicable because of the scale and nature of the investment required.

240. It would also take a considerable amount of time and money to deploy an alternative access network, even with effective access to ducts. Batelco is currently the only operator that controls a local loop with dedicated links between end-users and MDFs. As investments related to the deployment of a copper local loops 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.

Economies of scale/density and of scope

241. Economies of scale arise when increasing production causes average costs to fall. Batelco, as the incumbent fixed operator, enjoys significant economies of scale/density because it is the main provider of fixed voice services and of fixed broadband services

---

[71] AKZO Chemie BV v Commission (C-62/86). In this case (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:61986J0062:EN:HTML). The European court states that "Save in exceptional circumstances, very large market shares are in themselves evidence of the existence of a dominant position. That is the case where there is a market share of 50%.".

in Bahrain. The deployment of a copper local loop in a given area is a fixed cost. TRA considers that a new entrant would not be able to reach a similar level of economies of scale/density and hence would suffer a cost disadvantage compared to Batelco.

242. Economies of scope exist where the average costs of one product are lower as a result of it being produced jointly with another product. Cost savings may be made where common processes are used in production. Batelco's copper local loop also benefits from economies of scope because it supports voice and broadband services and is also able to support television over IP services (TRA indeed observes that in many countries the copper local loop supports television over IP services). As a consequence, Batelco's competitors would have to supply at least the same type of services to benefit from a similar level of economies of scope.

243. TRA is of the view that potential competitors would face significant difficulties in achieving the same level of economies of scale and economies of scope as Batelco. This, therefore, negatively impacts the incentives to invest by potential entrants and expected profits. The significance of economies of scale, scope and density is compounded by the presence of large sunk costs in this market.

Countervailing buying power

244. The Draft Competition Guidelines identified certain conditions likely to enhance countervailing buyer power. They are:

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

245. TRA considers that potential buyers of LLU will not be in a position to exert countervailing buyer power and hence to constrain Batelco's ability to behave independently because of the absence of alternative sources of supply. In fact Batelco has been identified as the sole provider of wholesale unbundled lines and there are significant barriers to entry. This implies that any large company making use of wholesale unbundled lines cannot exert any sufficient countervailing buyer power to pose a serious constraint on the price of wholesale products in the absence of regulation.

246. Further, the question of countervailing buying power also has to be apprehended in the context of the vertical integration of Batelco as a result of which Batelco actually has limited incentives to sell to its downstream competitors.

Vertical integration

247. Batelco is a vertically integrated firm and operates at all the different stages of the value chain: local loop, Bitstream, Wholesale DSL and retail broadband products.

248. Batelco currently operates and enjoys significant market power in a large number of retail fixed markets where its copper local loop is an input including: the retail market for broadband internet access services for a fixed location, the retail markets for fixed narrowband access services for residential and non-residential customers, and the retail market for dial-up internet access services.

249. As a consequence, by virtue of its vertical integration, Batelco may be able to leverage its market power at the wholesale level into downstream markets, thereby reinforcing its market power at these two levels and making new market entry harder within the timeframe of the analysis. While vertical integration is not necessarily indicative of dominance when taken in isolation, it has to be comprehended in the context of other factors (e.g. market shares, economies of scale/density and scope, barriers to entry).

Conclusion

250. Considering: that Batelco holds a 100% market share in the wholesale physical network infrastructure access market; the fact that the copper local loop is an infrastructure not easily replicable characterised by significant entry barriers; the high economies of scope and of scale enjoyed by Batelco; the absence of countervailing buying power; and Batelco's vertical integration, TRA concludes that Batelco is dominant in the wholesale physical infrastructure network access market in the Kingdom of Bahrain.

Responses to the Draft Determination

251. Batelco is the only respondent and disagrees with TRA because it disagrees with the definition of the market (at the product and geographic level) proposed by TRA.

TRA analysis and conclusion

252. Having considered the views of respondents TRA remains of the view that that Batelco is dominant in the wholesale physical infrastructure network access market in the Kingdom of Bahrain.

253. TRA comments that even, if wholesale access to the NFWS local loop were to be included in the wholesale physical infrastructure network access market, which TRA disagrees with for the reasons set out above, TRA would still be of the view that Batelco is dominant in that market. This is due to the facts that:

- Batelco would hold a significant market share in the medium term (currently estimated at between 60 and 70%, which would likely remain above 50% in the medium term);
- the copper local loop is an infrastructure not easily replicable and characterised by significant entry barriers;
- there are high economies of scope and of scale enjoyed by Batelco;
- there is no countervailing buying power;
- Batelco is vertically integrated.

4.2 Assessment of dominance in the wholesale broadband access market

The Draft Determination

Market share and competition

254. As defined above, the wholesale broadband access market includes: Batelco's Bitstream product, Batelco's Wholesale DSL product, self-supply by Batelco and self-supply by NFWS operators.

255. Based on data collected from operators, TRA estimates that Batelco's market share is above 80%. While TRA appreciates that market shares are not by themselves determinative of dominance, TRA notes that they are particularly high in this instance (European case law has established a presumption of dominance where market shares are in excess of 50%). TRA considers that it is very unlikely that, without regulation, Batelco's market share will be lower than 60% or 50% within the timeframe of the analysis given barriers to entry and competitive pressures.

256. While TRA expects competition from NWFS operators to increase within the timeframe of the analysis, TRA considers that the indirect pricing constraint exercised by those operators via the retail market will be insufficient to effectively constrain Batelco's market power. NWFS operators may also suffer limitations in the provisions of certain advanced services (e.g. television over IP) which would further limit the ability of NWFS operators to constrain Batelco. Barriers to (new) entry in this market are also considerable (see below).

257. Further, forthcoming competitive pressures from self-supply by OLOs based on LLU is not expected to be sufficiently strong to curb Batelco's dominance within the timeframe of this analysis notably because the constraint exercised would be limited by the geographic footprint of LLU, which is likely to be limited initially.

Barriers to entry – including the control of infrastructure not easily duplicable

258. Batelco controls an infrastructure not easily duplicable. This market is characterized by significant barriers to entry. Entry in the wholesale broadband access market could be achieved by:

- deploying an alternative local loop network and a backbone network;
- using Batelco's LLU product (if available) and deploying a backhaul network connecting Batelco's Service Nodes;[72] and
- introducing a Bitstream product by NFWS operators.

259. TRA has indicated above that the deployment of a new local loop is capital- and time-intensive and therefore highly unlikely within the timeframe of the current analysis.

260. If LLU is successful, it is possible that OLOs that use LLU could envisage developing a Bitstream product. While this would be less capital-intensive and time-intensive than building a new local loop it would take time for LLU to be implemented and to take-off. As overseas experience shows, a significant footprint in LLU is a key prerequisite for an OLO to be in position to provide a competitive Bitstream offer to other OLOs. This makes this scenario highly unlikely within the timeframe of this analysis. Also, the

[72] This case is dealt with above.

constraint exercised by a potential competing Bitstream offer would be limited by the geographic coverage and penetration of unbundling, which is likely to be limited initially. Further, given the economics of LLU, it may not be feasible to unbundle all the Service Nodes.

261. The provision of Bitstream by NFWS operators to third party is another potential entry scenario. It would be technically feasible, although difficult, for NFWS operators to develop and offer Bitstream to third parties.[73] TRA considers that this scenario is also highly unlikely within the timeframe of this analysis given notably the investment in time and money required and the incentives of potential sellers and buyers.

262. Further, the deployment of a backhaul with sufficient capacity for supporting a Bitstream product would constitute another potential entry barrier for the provision of Bitstream services by NFWS operators or by OLOs purchasing LLU. The provision of Bitstream may indeed require significant capacity in the backhaul and the backbone network. While Batelco has deployed fibre in the vast majority of its core network, TRA observes that NFWS networks rely mainly on microwave links to provide backhaul transmission. This may results in capacity constraints which would require significant investment in time and money to be addressed.

263. The deployment of fibre backhaul would also be a capital-intensive and time-consuming undertaking.

264. TRA concludes that there are barriers to entry in the provision of Bitstream services that may constrain the ability of OLOs to compete effectively with Batelco in the wholesale broadband access market. Batelco effectively controls an infrastructure not easily duplicable.

Economies of scale/density and of scope

265. TRA has considered above the importance of economies of scale / density and scope enjoyed by Batelco in the local loop. Batelco benefits from significant economies of scale and scope in the provision of wholesale broadband access services that are larger than the potential economies of scale and scope of its competitors. This confers Batelco a cost advantage.

266. Batelco's backbone and backhaul network are shared by fixed services (leased lines, voice services, broadband services etc.) and by mobile services. Batelco also has the majority of broadband users, fixed access and voice users, leased lines users and a substantial market share in the mobile market. While Zain holds a NFWS licence and a mobile licence and therefore enjoys economies of scale and scope, TRA considers that they are lower than those of Batelco, notably because the size of its Bahraini operations and its smaller product mix.

267. TRA is of the view that potential competitors would face significant difficulties in achieving the same level of economies of scale and economies of scope as Batelco. This gives Batelco a large cost advantage.

---

[73] This possibility was considered recently the Maltase regulator, MCA, which concluded that Bitstream could be provided using different technologies: "Based on the analysis provided above, the MCA is of the view that wholesale broadband access services can be provided using different technologies. Although the technology is different, the underlying network elements and functionality are very similar for all network types." See MCA, "Wholesale broadband access market: identification and analysis of markets, determination of market power and setting of remedies. Final Decision", 2008.

Countervailing buying power

268. TRA 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 (see above analysis of barriers to entry). This also has to be apprehended in the context of the vertical integration of Batelco as a result of which Batelco actually has limited incentives to sell to its downstream competitors.

Vertical integration

269. As explained above, TRA is of the view that by virtue of its vertical integration, Batelco is in a position to leverage its upstream market power in downstream markets. Such leveraging would enable Batelco to reinforce its market power across the broadband value chain. It would also make new entry more difficult. While NFWS operators are also vertically integrated, they operate in a more limited number of markets and do not benefit from similar size effects.

270. TRA acknowledges that vertical integration is not necessarily indicative of dominance in itself, it has to be comprehended in the context of other factors (e.g. market shares, economies of scale/density and scope, barriers to entry).

Conclusion

271. Considering that Batelco holds a market share superior to 80% in the wholesale broadband access market, the high economies of scope and of scale that benefit Batelco, the existence of barriers to entry and Batelco's vertical integration, TRA concludes that Batelco is dominant in the wholesale broadband access market in the Kingdom of Bahrain.

272. TRA considers that in the absence of regulation the potential entry of competitors (NFWS operators) is not sufficient to prevent Batelco from behaving independently of its competitors, subscribers and ultimately of users such that prices are constrained in the relevant market.

Responses to the Draft Determination

273. Lightspeed agrees with TRA's view. Lightspeed submits that Batelco is dominant and controls essential wholesale inputs as well as the retail Internet market. According to Lightspeed, Internet Service Providers are not in a position to provide value-added services because of limitations on bandwidth, infrastructure and quality of service provided by Batelco.

274. Zain agrees with TRA's view. It notes that although NFWS operators have managed to increase their number of customers since the launch of their commercial services, Batelco has been acquiring more broadband customers.

275. Batelco disagrees with TRA's view and argues that there are increasingly strong competition NFWS operators which now jointly hold, according to Batelco, a market share in excess of 30%.

276. Batelco also takes the view that TRA should undertake a consumer survey before considering mandating LLU in the market. It argues that such study is vital to fully understand what products end-users can receive and what products end-users actually want and how they switch between alternatives. Batelco explains that such a study has been conducted in the UK by Ofcom. According to Batelco, in the absence of such a study, TRA is unable to determine satisfactorily that Batelco is dominant in the wholesale broadband access market.

TRA analysis and conclusion

277. TRA agrees with Zain's observations that Batelco has acquired more customers than Mena and than Zain since the launch of their commercial offers. As explained in the review of Question 3, between February 2008 and March 2009 Batelco acquired [•] new broadband customers while Mena Telecom and Zain acquired around [•] to [•] customers, respectively, in the same period.

278. Regarding Batelco's view that it is not dominant because it holds a market share estimated at between 60 and 70% and face increasingly strong competition from NFWS operators, TRA is of the view that, even if Batelco's market share may continue to decrease during the next months, it will still hold a market share superior to 50% and that NFWS operators will have difficulties in competing with the DSL infrastructure in the medium or long term. The DSL infrastructure indeed enables the provision of higher download speeds than the NFWS infrastructure and a larger scope of services. The example of Ireland shows that NFWS infrastructure can have more difficulties in competing in the medium/long term and that alternative operators provide higher download speeds when they are based on the DSL infrastructure through LLU than on their own NFWS infrastructure.[74]

279. While TRA is of the view that consumer research can be a useful tool, TRA disagrees with Batelco that the conduct of a consumer study is a prerequisite to conclude whether Batelco is dominant in this relevant market. As demonstrated by the international practice of regulators and competition authorities the systematic conduct of consumer research is by no means a prerequisite to either the definition of relevant markets or the analysis of competition. It may assist but is clearly not "vital".

280. Further TRA notes that Ofcom used the consumer research referred to by Batelco in the context of its review of the wholesale broadband access market to assist in the definition of the relevant retail market and not to analyse dominance. More specifically, on the basis of its consumer research, Ofcom conducted the SSNIP test and investigated whether ADSL, cable and narrowband internet were in the same market.

281. Notwithstanding the above, TRA is of the view that the end-user point of view has already been adequately taken into account by TRA in its 2008 SMP Determination and through the consideration of international experience in the consultative process.

282. Having considered the views of respondents, TRA remains of the view that Batelco is dominant in the wholesale broadband access market in the Kingdom of Bahrain.

---

74 For example, the Irish operator Imagine (www.imagine.ie) provides up to 4 Mbps on its NFWS infrastructure and up to 7.6 Mbps with the ADSL infrastructure. Similarly, the Irish operator Irish Broadband (www.irishbroadband.ie) provides up to 6 Mbps on its NFWS infrastructure and 24 Mbps with the ADSL infrastructure.

4.3 List of relevant wholesale markets in which Batelco is determined dominant

283. For the reasons set out above, TRA determines that Batelco is dominant in the Kingdom of Bahrain in the following markets:

- the wholesale physical network infrastructure access market; and
- the wholesale broadband access market.