



ICT Decision 2015-2 and Local Loop statement

Grand Cayman, 29 July 2015

Decision regarding Digicel's request for access to LIME's *fixed copper wire* unbundled local loop.

Statement on whether or not mandating a Cayman Islands' Licensee to provide access to its *fibre* unbundled local loop is contrary to the public interest.

Overview

The Authority makes a determination under the Dispute Regulations, 2003, regarding Digicel's request for access to LIME's unbundled fixed copper wire local loop.

The Authority determines that mandating LIME to provide access to its unbundled fixed copper wire local loop is contrary to the public interest at this time.

The Authority also concludes its public consultation as to whether or not mandating a Cayman Islands Licensee to provide access to its unbundled fibre local loop is contrary to the public interest.

The Authority considers that requiring any Cayman Islands Licensee to provide access to its unbundled fibre local loop is contrary to the public interest at this time.

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BACKGROUND

1. On 14 February 2012, pursuant to the *Information and Communications Technology Authority (Dispute Resolution) Regulations, 2003* (the '**Dispute Regulations**'), Digicel (Cayman) Ltd ('**Digicel**') submitted a dispute determination request to the Information and Communications Technology Authority (the '**Authority**' or '**ICTA**') contending that a dispute had arisen between Digicel and Cable & Wireless (Cayman Islands) Ltd ('**LIME**') relating to Digicel's request for access to LIME's unbundled *fixed wire* local loop (fixed wire '**ULL**') (the '**Dispute**').
2. The fixed wire local loop most commonly refers to the copper wire connection that goes from the local telephone exchange (the local exchange is usually a building that houses the electronic components that route the telephone calls/data) to the network interface device at the customer premises where the Licensee's network connects to the customer's premises' wiring.
3. The local loop can also refer to the *fibre optic cable* ('**fibre**') connection between the optical network termination ('**ONT**') point at the customer's premises and the optical distribution frame ('**ODF**') at the Licensee's local exchange level.
4. Further details about the local loop are set out in the Authority's 2013 *Public Consultation on Unbundling the Local Loop* ('**LLU Consultation**').¹
5. Access to LIME's ULL would mean, in effect, LIME allowing other ICTA Licensees, such as Digicel, to connect their ICT networks to LIME's copper local loop. By doing so, the other Licensees would then be able to offer their own ICT services to the customer at the retail level, including voice and broadband internet access services, by purchasing access to LIME's ULL at the wholesale level.
6. The relevant process for determining the wholesale product related to the access to ULL is most commonly known as local loop unbundling ('**LLU**').

THE DISPUTE

7. As a brief overview of the Dispute, pursuant to the *ICTA (Interconnection and Infrastructure Sharing) Regulations, 2003* (the '**Infrastructure Regulations**'),² Digicel had requested from LIME access to fully ULL that would allow Digicel among other things to take over the network connection between LIME's local exchange and a customer's premises (letter dated 17 June 2011).³
8. In reply to that request (letter dated 28 November 2011),⁴ LIME stated that "[...] given the current competitive environment in the Cayman Islands, there is no public policy basis for LIME to be required to expend the time and resources needed to develop this service and the related facilities", thus declining Digicel's

¹<http://www.icta.ky/upimages/commonfiles/1417268517CD2013-1Unbundlingthelocalloop.pdf>

²<http://www.icta.ky/upimages/commonfiles/1417429131ICTAInterconnectionInfrastructureRegulations.pdf>

³<http://www.icta.ky/upimages/commonfiles/1417281213DeterminationrequestsupportingdocumentDigicellettertoLIME17062011.pdf>

⁴<http://www.icta.ky/upimages/commonfiles/1417281291DeterminationrequestsupportingdocumentLIMElettertoDigicel28112011.pdf>

request. Digicel then submitted the Dispute to the Authority for determination (letter dated 14 February 2012)⁵.

9. Specifically, in Digicel's 14 February 2012 determination request, Digicel sought LIME to provide it with:

1. [...] a quotation for fully unbundled local loops including all rates, terms and conditions as required under section 8(9) of the Regulations with a minimum of:

- Date of availability;
- Installation intervals;
- applicable rates;
- request development and processing costs;
- other such necessary terms and conditions required to effect interconnection or infrastructure sharing.

2. provide information about feasible points for connection with LIME (for the purpose of local loop unbundling) other than at One Technology Square which are available now or that will be available in the near future.

3. pay any costs that Digicel may incur as a result of being forced to take this matter to dispute.

10. Within the period between LIME's 28 November 2011 response and Digicel's submission to the Authority of the Dispute on 14 February 2012, the Authority licensed Digicel to operate a *fibres* network and amended WestTel Ltd.'s Licence to provide for a rollout schedule of its *fibres* network. In addition, soon after Digicel's submission of the Dispute, the Authority issued a licence to DataLink detailing the rollout schedule for deployment of that Licensee's *fibres* in Grand Cayman. Furthermore, the Authority issued on 19 April 2012 an amendment to the licence of Digicel, to provide for a rollout schedule of Digicel's *fibres* network across the Cayman Islands.⁶
11. On 13 December 2012, the Authority published its determination on the jurisdictional issues related to the Dispute, wherein the Authority determined that the Infrastructure Regulations applied to the negotiations between LIME and Digicel for LIME to provide Digicel with certain requested infrastructure sharing services to allow for the unbundling of LIME's *fixed copper wire* local loop ('**ICT Decision 2012-5**').⁷
12. However, as explained in paragraphs 58 to 63 of ICT Decision 2012-5, it remained for the Authority to consider the substantive question as to whether or not LIME should be required by the Authority to provide Digicel with a quote under the Infrastructure Regulations for the infrastructure sharing services Digicel had requested. In particular, the Authority considered that LIME's statement about the public policy consideration relating to this matter (letter dated 28 November 2011)

⁵ <http://www.icta.ky/upimages/commonfiles/141728114620120214DigicellettertoICTAredeterminationrequestULL.pdf>

⁶ Further information on the amendments can be found at paragraphs 80 to 83 of this document

⁷ <http://www.icta.ky/upimages/commonfiles/1417281402ICTDecision2012-5.pdf>

was in reference to Regulation 4(2)(d) of the Infrastructure Regulations, which provides for LIME to "*not negotiate or propose to enter into an [...] infrastructure sharing agreement where the Authority determines that – [...] the requested [...] infrastructure sharing is contrary to the [...] public interest.*"

13. On 27 May 2013, the Authority issued the LLU Consultation seeking views from interested parties as to whether or not mandating the provision of access to the *fixed copper wire* local loop in the Cayman Islands is contrary to the public interest. The Authority also sought views on whether or not mandating the provision of access to the *fibre* local loop, whether LIME's *fibre* local loop or another Licensees', was contrary to the public interest.

THE LLU CONSULTATION

14. The LLU Consultation⁸ issued by the Authority on 27 May 2013 sought views/comments from interested parties on the following questions:
 - a. *What is your demand for fixed wire and/or fibre LLU? (When commenting on this question, please provide among other things your demand forecast particulars for the next five years, broken down by technology type, District and residential/business retail customers.)*
 - b. *Are the networks described at paragraphs 23 to 40 above [fixed wire network, fixed wireless network, fibre network and mobile wireless network] sufficiently similar to be considered capable of providing voice and high-speed broadband access services to retail customers that are a real competitive alternative to each other?*
 - c. *Do you agree with the benefits of mandating fixed wire and/or fibre LLU in the Cayman Islands as outlined at paragraphs 42 to 45 above? Can you quantify any of the benefits referred to? Are there any other benefits?*
 - d. *Do you agree with the costs of mandating fixed wire and/or fibre LLU in the Cayman Islands as outlined at paragraphs 46 to 49 above? Can you quantify any of the costs referred to? Are there any other costs?*
 - e. *Is mandating the provision of access to the fixed wire and/or fibre Local Loop in Grand Cayman and/or the Sister Islands contrary to the public interest?*
 - f. *Does any Licensee see any demand for fixed wire and/or fibre LLU in the Sister Islands if the Authority determines that fixed wire and/or fibre LLU should be mandated there but not in Grand Cayman?*
 - g. *Are there any other issues that the Authority should take into account as part of this consultation?*
15. Responses to the public consultation were received from two Licensees only, Digicel and LIME. Both Licensees also submitted comments to each other's

⁸<http://www.icta.ky/upimages/commonfiles/1417268517CD2013-1Unbundlingthelocalloop.pdf>

response to the LLU Consultation. An overview of each Licensee's response to the public consultation, including subsequent comments to the other Licensee's response, is summarised below.

Submissions (in date order)

Digicel's response, 15 July 2013⁹

In summary:

16. Digicel provided its demand forecasts for "fixed wire and/or fibre LLU" unbundling across the Cayman Islands for the next five years.
17. In response to the question "[a]re [fixed wire network, fixed wireless network, fibre network and mobile wireless network] sufficiently similar to be considered capable of providing voice and high-speed broadband access services to retail customers that are a real competitive alternative to each other." Digicel replied that "this question can be read in the context of not only what might theoretically be possible, but also: 1. what is likely to happen given physical and financial challenges involved in attempting the rollout of alternative networks; and 2. what customers demand."
18. Digicel further submitted that it "has asked for [ULL] because [it is] unable to compete fully across the whole of the telecommunications market in the Cayman Islands without that access."
19. Digicel estimated that the total revenue from broadband and TV provision is around "\$30m to \$35m per annum." However, it noted that "[n]ot all of this revenue will be available for competitors as large businesses with critical applications may demand an underground network and LIME (and Logic in a few areas) will be the only option for those customers unless LLU is mandated."
20. Digicel submitted that, in accordance with the national fibre rollout commitments in the existing fibre network licences as set out in the LLU Consultation, the total theoretical level of expenditure (capital and operating costs) over a ten (10) year period relating to the rolling out of fibre networks across the Cayman Islands by five Licensees [WestStar T.V. Ltd. ('**WestStar**')¹⁰, WestTel Ltd. ('**WestTel**') trading as '**Logic**')¹¹, DataLink Ltd. ('**DataLink**')¹², Infinity Broadband Ltd. ('**Infinity**', trading as '**C3**')¹³ and Digicel¹⁴], in addition to LIME, would be around \$300,000,000.
21. Digicel submitted that, the estimated cost of rolling out and running an overhead fibre network across the Cayman Islands "might be around \$40m over 5 years",

⁹ Digicel submission, available at

<http://www.icta.ky/upimages/commonfiles/141726845420130715DigicelRedactedResponsetoLLUConsultation.pdf>

¹⁰ http://www.icta.ky/upimages/licencedocument/ViewAmendment12_1417651776.pdf

¹¹ http://www.icta.ky/upimages/licencedocument/ViewAmendment18_1417646354.pdf

¹² http://www.icta.ky/upimages/licencedocument/ViewLicencedocument_1417650665.pdf

¹³ http://www.icta.ky/upimages/licencedocument/ViewAmendment6_1417648282.pdf

¹⁴ http://www.icta.ky/upimages/licencedocument/ViewAmendment20_1417640423.pdf

while a new FTTH underground network for the Cayman Islands "would cost in the region of US\$150m." In addition, Digicel submitted that the high cost of civil works (based on a European Commission 2012 report, up to 80% of the costs of next generation network (NGN) deployment) constitutes a barrier to providing a competing fixed infrastructure, thus making a "very strong case for unbundling the fixed local loop." Digicel submitted that the amount of capital that is required to be spent for digging up roads, laying ducts or laying fibre on poles, would be spent "far more productively and efficiently on delivering services over existing infrastructure."

22. Digicel further submitted that, based on the above cost figures and Digicel's estimates of the total annual revenue from broadband and TV services available for competitors, "the existing aggregated fibre rollout commitments and associated investment requirements are not sustainable." Digicel submitted that the existing aggregate investments are "already demonstrating an inefficient use of capital", which "could be used much more effectively to invest in LLU competition."
23. To support its submission, Digicel presented a price comparison chart for 2, 4 and 8 Mbps internet services provided by Digicel in Bermuda and LIME in the Cayman Islands, noting that on an unadjusted basis Digicel Bermuda's prices are on average less than a quarter of the price of those of LIME Cayman. Digicel submitted that there is "significant room for immediate improvement in terms of the prices for consumers in the Cayman Islands if a fit for purpose fixed access product is provided."
24. Digicel referenced the European Commission's "Digital Agenda Scoreboard 2013" report as demonstrating that "local loop unbundling is the future in terms of a fixed line network access product." Digicel submitted that the "report explains that new entrants use local loop unbundling (fully unbundled lines and shared access) as the main option to access the incumbent network. There is a continuous migration towards full LLU, all other types of access to the incumbent network is going down."
25. In its presentation of the general market trend in the telecommunications sector, Digicel submitted that it is "generally perceived that fibre will for the foreseeable future be the way to provide the highest speed, lower latency data stream at the lowest price (if it is not necessary to engage in civil works first)."
26. Digicel further submitted that, on the basis that there is no regulated access to LIME's underground facilities and that it is not in LIME's interest to permit access to such facilities, handling any dispute related to requests for accessing LIME's underground facilities would probably take a considerable period of time. Digicel then concluded that "it is not an option in the immediate term for an operator to seek to lay its own fibre in LIME's ducts" and, consequently, "regulated access to ULL is the way forward."
27. Digicel noted that the current number of individual fibre network deployments in the Cayman Islands is not viable, and would lead to some consolidation in the market and/or business failure if the only way forward is to require fibre network rollout.

28. Digicel referenced and commented on the technical aspects of *fixed wire* compared to the *fixed wireless* and/or *mobile networks* in terms of Internet speeds and capacity. Digicel also presented the opinion gathered from business customers it had approached in order to understand what form of access they are most likely to favour (fixed wire access provided via ducts, fixed wire access provided via overhead fibre or fixed wireless access). Digicel stated that the "*potential customers*" indicated that they would not move to "*wireless, or even to overhead fibre*" because of the "*vulnerability of overhead fibre to natural disasters*" and, "*perceived security threats to exposed overhead fibre.*" Digicel submitted that the only way for other Licensees to compete with LIME for such customers would be either to replicate LIME's underground *fixed* network or to obtain access to it, noting however that replicating an underground network is "*not economically feasible*" and "*would take many years to complete*", in addition to the significant disruption related to dig up roads and other civil works.
29. Digicel stated that it is "*fully in support of mandating fibre unbundling also assuming that it is now technologically feasible in the Cayman Islands.*" In quantifying the benefits related to unbundling in the Cayman Islands, Digicel submitted that it would "*probably aim*" to offer price discounts of "*somewhere between 10 to 40% off LIME's retail pricing or more*", or "*alternatively*" to "*offer better levels of service.*"
30. Digicel referenced the results from various studies which it submitted showed the relationship between broadband penetration and the GDP, noting that one of the studies demonstrated that "*doubling the broadband speed [...] increases GDP by 0.3%.*" Digicel further submitted that "*[c]ompetition through [LLU] will increase [broadband] penetration, lower average prices and increase average speeds.*"
31. With regard to the potential costs of mandating access to ULL, Digicel submitted that any concerns that such regulatory decision might deter investment by LIME could be addressed by the terms on which access is granted and, in particular, the price. Digicel submitted that there is plenty of benchmarking information available on ULL pricing, noting that the monthly cost of a fully unbundled local loop in the UK is about C1\$10-11.

LIME's response, 15 July 2013¹⁵

In summary:

32. LIME submitted that, while the Authority set out its view about the potential costs and benefits associated with the LLU, it "*did not assess them or compare them.*"
33. LIME submitted that the Authority's view that LLU would eliminate the need to duplicate the local loop operator last mile network "*cannot hold true in the case of the Cayman Islands*" as, in LIME's opinion, LLU "*is only relevant where there is difficulty in encouraging infrastructure investment, or there is a monopoly provider, in other words, that [there is] some type of market failure.*"

¹⁵ LIME submission, available at <http://www.icta.ky/upimages/commonfiles/141726848120130715LIMEResponsetoLLUConsultation.pdf>

34. LIME further submitted that the telecommunications sector in the Cayman Islands is characterised by *"vibrant infrastructure based competition which delivers sustainable benefits through lower prices and innovative services."*
35. LIME submitted that mandating LLU in the absence of market failure would raise concerns *"that [LLU] could be expanded to upgraded or new networks at some point in the future as those networks become analogous to today's copper network."*
36. With regard to the Authority's view that mandating LLU might lower the economic barriers for other Licensees to enter into the market for provision of voice and high-speed broadband access services to retail customers, LIME noted that such barriers are *"not so high as to prevent competitive entry in that market, as evidenced by competition for the provision of these services across a number of platforms."* Therefore, LIME submitted that mandating LLU *"proposes a "solution" to a problem that does not exist."*
37. LIME expressed concerns about the Authority's view that mandating LLU would have the potential benefit of sharing certain network operational costs. LIME claimed that this was not *"a given, as the development of a new service creates new costs"* and the availability of physical colocation for the provision of such services to other Licensees is not guaranteed and *"is not cost-free."*
38. LIME submitted that the investment in facilities-based competition¹⁶ directly benefits the economy of the Cayman Islands, as it creates jobs and has a multiplier effect on the economy, while mandating LLU would lessen the incentive to invest in the telecommunications infrastructure and, as a consequence, would *"result in a very little if any investment in the economy."*
39. LIME also submitted some results and/or opinions from various studies on the impact of LLU policies on the investment incentives, from which LIME drew a conclusion that, as a result of mandating LLU, *"the incumbent becomes reluctant to invest because it would be required to allow its competitors to access its network at regulated rates"*, and at the same time *"access seekers too would have little incentive to invest because the conditions for LLU could be so favourable that there would be no incentives to build its own network."*
40. LIME further challenged any regulatory incentive to mandate access to unbundled fibre local loop, by referring to studies that show how physical unbundling of fibre local loops depends on the choice of technology deployed by the access provider, i.e. Gigabit Passive Optical Network ('GPON') versus Point-to-Point ('P2P').

¹⁶ The term facilities-based competition (also known as infrastructure-based competition) refers to the competition between the Licensees through the deployment of competing ICT networks, as opposed to such competition developed around the provision of competing ICT services. For more discussion about the interplay between facilities-based competition and service-based competition, including its effect on investment incentives and innovations, see for example the following articles:
i) Bourreau and Dogan, 2003, *Service-based vs. Facility-based Competition in Local Access Networks*, available at <http://ses-perso.telecom-paristech.fr/bourreau/Recherche/policyLL.pdf>
ii) Kittl, Lundborg and Ruhle, 2006, *Infrastructure-Based Versus Service-Based Competition In Telecommunications*, available at http://mpira.ub.uni-muenchen.de/3571/1/MPRA_paper_3571.pdf
iii) Briglauer, Gugler and Haxhimusa, 2014, *Facility- and Service-based Competition and Investment in Fixed Broadband Networks: Lessons from a Decade of Access Regulations in the European Union Members States*, available at http://www.wu.ac.at/fileadmin/wu/d/ri/regulation/Briglauer_Gugler_Haxhimusa_Oktober_2014.pdf

According to LIME, these studies suggest that the setting of wholesale rates for access to unbundled *fibre* local loop is much more complicated and controversial than in the case for access to unbundled *fixed copper wire* local loop.

41. LIME argued that, in the context of a competitive environment, no provider should *"be obliged to unbundle its local loop"* and, as *"[i]nfrastructure based competition is working"* in the Cayman Islands, any regulatory *"intervention in a competitive market would be contrary to the public interest."*
42. LIME submitted that the public interest should be framed as the delivery of *"technology neutral broadband services to all residents of the Cayman Islands at affordable prices and in support of an advanced economy, through increasing competition as a result of sustainable investment in infrastructure development across several platforms."*

*Digicel's comments on LIME's submission, 29 July 2013*¹⁷

In summary:

43. In its submission, Digicel questioned the relevance of three studies on the impact of LLU policy on investment and broadband penetration that LIME quoted in its response to the consultation. Digicel noted that none of the papers cited by LIME concluded that copper local loop unbundling should not have been mandated. Digicel suggested that this is because *"unbundling is widespread, has increased local loop competition and regulators have absolutely no intention of withdrawing the requirement for unbundling."*
44. Digicel submitted that LLU is *"recognized by regulators worldwide as an effective way of enabling local loop competition"* and *"it is for example the most successful form of local loop competition in Europe."*
45. Digicel argued that *"unbundling should be mandated precisely because it does not make sense to replicate the first generation infrastructure."*
46. Digicel cited a study which it stated shows that *"broadband penetration is higher in countries in which the SMP operator [operator with significant market power] offers a larger share of its lines on a wholesale basis (unbundled local loops and wholesale broadband)."*
47. Digicel stated that *"it did not originally ask for fibre unbundling"* albeit it *"would support it as long as it was technically feasible."*
48. Digicel submitted that there *"is a greater case for fibre unbundling (and bundling in the Cayman Islands generally) than in other countries"*, and that *"LIME does not provide duct access despite the fact that the cost of network support infrastructure is by far the biggest cost involved with building a fixed underground network."* Digicel submitted that those *"very large costs have already been recovered by LIME during the long period of monopoly prior to competition so that access can*

¹⁷ Digicel cross-submission, available at <http://www.icta.ky/upimages/commonfiles/141764535813-07-29DigicelResponsereplytoLIMEsLLUcomments.pdf>

be provided at the cost of operating and maintenance associated with the underground duct work."

49. Digicel submitted that any *"form of regulation whatsoever can be detrimental to the market if not thought out properly"* and *"the important thing is to get the access terms right."* One alternative approach in the Cayman Islands, according to Digicel, would be *"to implement incentive regulation whereby access to fibre would be relaxed if and when duct access was provided."*
50. Digicel further quoted BT, the incumbent fixed line operator in the UK, as *"a supporter and promoter of local loop unbundling"*, as stating that *"[m]any countries have introduced [LLU] to stimulate growth and innovation of their telecoms market, often with great success."* Digicel also quoted Cable and Wireless Communications' submission to a public consultation conducted by Oftel in September 1999, which Digicel stated *"supported the unbundling of the local loop."*
51. Digicel submitted that there *"was considerable investment directly as a result of unbundling"* and that the *"investment has gone in to service provision rather than replicating first generation networks and the supporting infrastructure."* Digicel submitted that *"[t]herefore capital has been employed efficiently rather than being wasted."*
52. Digicel submitted that LLU *"leads to better services in terms of lower pricing of fixed calls and greater broadband speeds"* and that *"[i]t also enables third party operators to develop bundles of services which many customers demand from a single provider."* Digicel submitted that *"this has helped to intensify competition across telecommunications markets."*
53. Digicel concluded that there is *"a strong public interest, in enabling unbundled access to LIME's copper network to bring fixed line islandwide competition to the Cayman Islands for the first time."* Digicel also submitted that it would support unbundled access to the fibre local loop, subject to technical feasibility, *"especially given that operators have no means of accessing LIME's underground ducting without which operators cannot reasonably compete islandwide."* Digicel submitted that *"incentive regulation could perhaps relax access requirements to some extent on LIME when duct access is provided."*

*LIME's comments on Digicel's submission, 29 July 2013*¹⁸

In summary:

54. LIME submitted that, while Digicel stated that LLU *"is a popular form of access in Europe, [it] failed to advise the Authority that the prominence of [LLU] in Europe had resulted in a dearth of investment in next generation fibre networks."* LIME further submitted that *"[t]his is something [Digicel] did not fail to point out to the Office of Utilities Regulation ("OUR") in Jamaica"* in Digicel Jamaica's response in the Jamaica LRIC proceedings in 2012 whereby Digicel stated that the *"approach*

¹⁸ LIME cross-submission, available at <http://www.icta.ky/upimages/commonfiles/1417268424130729LIMECommentsDigicelResponseConsultULLRedacted.pdf>

in Europe has also resulted in substantial under investment in 4G and NGA roll-out requirements [...] so much so that the EU itself has had to commit to 9.2 billion of investment in an effort to meet current targets". LIME stated that "Digicel does recognize that the outcome of [LLU] is a flight of capital from network investment" and submitted that "if this would be contrary to the public interest in Jamaica, it would also be contrary to the public interest in the Cayman Islands."

55. In response to Digicel's statement that it would be unable to compete fully across the whole of the telecommunications market in the Cayman Islands without access to LLU, LIME submitted that *"[t]he evidence suggests that this is in fact not the case."* LIME submitted that *"WestStar, Logic and LIME (and possibly Infinity) are actively rolling out fibre networks on Grand Cayman" and, if all of them have "determined that they can compete by investing in their own facilities, there is no reason Digicel cannot."* LIME submitted at footnote 4 that *"[e]ven before WestStar and Logic began building out fibre networks of their own, competition for the provision of broadband services was so strong that the Authority determined several years ago that there was sufficient competition to justify deregulating LIME's residential broadband services."*
56. LIME submitted that Digicel's *"seeming unwillingness to invest in fibre, despite its apparent fixation on fibre as the technology of choice that it must have, is contrary to the public interest."*
57. LIME questioned the validity of Digicel's suggestion that, *"based on its prices of 2, 4 and 8 Mbps DSL broadband in Bermuda" and "as compared to LIME's price for similar speeds in Cayman, there could be delivered to customers a 15% reduction in both broadband and TV rates, should [LLU] be mandated."* LIME stated that *"it is the market in the Cayman Islands that will determine the price of broadband services in the Cayman Islands."* LIME also submitted that if LLU *"does appear to result in lower prices, they tend to be delivered through regulators anxious to validate LLU as sound regulatory policy so that a fall in prices on the face of it appears to be in the public interest."* LIME submitted that, *"[i]n other words, the retail price decreases are the result of artificially low wholesale loop prices."*
58. LIME presented the results of some studies which, according to LIME, demonstrate that *"price decreases sanctioned by artificial wholesale LLU prices result in low retail prices, but providers of broadband services by other modes of delivery are unable to compete with the artificial LLU prices and begin to lose customers."* LIME submitted that, as a result of it, the *"virtuous cycle of product development and innovation through intermodal competition is lost as the focus shifts more and more to the unbundled network to the detriment of the competitiveness of all other providers."*
59. In response to Digicel's reference to the benchmarking of LLU prices, namely the example taken from the UK with the LLU prices estimated at around CI\$10-11, LIME stated that there is *"no way of testing its validity."* In addition, LIME submitted that such prices *"would be artificially low in the Cayman Islands' context"*, noting that *"[a]lmost ##### of LIME's copper plant was replaced following Hurricane Ivan [...] [and that n]one of this plant would have been depreciated in any significant way."*

60. LIME referenced 'the Ladder of Investment' theory by Martin Cave as "*being very influential in the introduction of [LLU] in Europe.*" LIME stated that, according to the "*ladder of investment*" theory, "*[LLU] would be a form of entry assistance to new entrants into markets that are not competitive*". Further, it stated that LLU "*would only be a rung of the "investment ladder" because the new entrants would eventually invest in their own facilities after gaining customers and brand recognition.*"
61. However, LIME submitted that studies "*have shown however, that entrants do not progress to investing in their own infrastructure as was the intent of the approach but rather became dependent on [ULL].*"
62. LIME further submitted that "*Digicel's behaviour would suggest that it would rather LIME to make the investment and then use LIME's network (at subsidized prices)*"; hence LIME submitted that there "*does not appear to be any intent on Digicel's part to build its own network as was envisaged by the now-discredited hypothesis of the "ladder of investment" theory and the original intent of [LLU].*"
63. LIME submitted that, with regard to Digicel's statement that the current number of individual *fibre* network deployments in the Cayman Islands is not viable, none of the other providers "*licensed to roll out a fibre network [WestStar, Logic, Infinity and DataLink] have participated in the consultation.*" LIME submitted that that is because "*their business plans do not appear to be predicated on [LLU] and they have intentions of honouring their licence obligations.*" LIME submitted that this "*in itself should be enough to refute Digicel's arguments that the cost of investing in fibre is too high and financially infeasible.*"
64. LIME submitted that Digicel's estimation of the costs of fibre rollout in both overhead and underground fibre networks "*are grossly overstated.*" LIME submitted that "*a nationwide overhead fibre network*" would cost "*\$16 million*" and that "*the annual maintenance would be quite low.*"
65. With regard to rolling out an underground *fibre* network, LIME estimated the cost to be significantly lower than Digicel's projected US\$150 million, and the maintenance costs even lower than for an overhead system.
66. LIME noted that, based on the requirements of Digicel's fibre licence, Digicel should have its own nationwide fibre network in three years and should not require LLU anymore. LIME, therefore, submitted that if LLU were to be mandated, the Authority "*would be forcing one or more competitor(s) to offer [LLU] to a handful of customers (in all likelihood, only one customer – Digicel) for a limited number of years.*" LIME submitted that such a "*regulatory mandate would not be proportionate.*"
67. LIME submitted that the "*obligation of the Authority is to facilitate the market as a whole, not any one competitor.*" LIME submitted that "*Digicel is asking that the Authority facilitate Digicel only, to the injury of all other competitors and competition.*" LIME submitted that this "*is unacceptable and clearly contrary to the public interest.*"
68. With regard to mandating access to unbundled *fixed copper wire* local loop, LIME referred to a study which claimed that the "*long-run effect of copper unbundling is*

negative, a finding which is consistent with previous research, including with research suggesting that copper unbundling has slowed the deployment of FTTP infrastructures, especially in Europe."

AUTHORITY'S ANALYSIS

69. As set out at paragraphs 9 and 10 of the LLU Consultation, the Authority considered it relevant to evaluate the potential technological developments for the provision of voice and high-speed broadband services to ensure that any consequent decision in the Dispute will take into account foreseeable future technological developments as well as current competitive conditions. Therefore, the Authority decided that the LLU Consultation would cover not just the unbundling of the *fixed wire* local loop in relation to the Dispute but also separately the *fibre* local loop as well.

70. In relation to the specific questions asked in the LLU Consultation, summarised below are the responses the Authority received:

a. *What is your demand for fixed wire and/or fibre LLU?*

DIGICEL – provided the Authority with its demand forecasts split across the Districts of the Cayman Islands, and by corporate and consumer customers.

LIME – LIME stated that its business plans did not depend on the availability of *fixed wire* or *fibre* LLU.

b. *Are the networks described [fixed wire network, fixed wireless network, fibre network and mobile wireless network] sufficiently similar to be considered capable of providing voice and high-speed broadband access services to retail customers that are a real competitive alternative to each other?*

DIGICEL – submitted that it requested *fixed wire* unbundled loops because it is unable to compete fully across the whole of the telecommunications market in the Cayman Islands without that access.

Digicel split its submission on this issue into specific sections dealing with the benefits of such access to efficient and sustainable investment, market dynamics, no existing detailed terms and conditions for accessing underground facilities, timeframes, speed/capacity, cost and the demands of customers. (For further discussion on such issues, please refer to pages 5 to 17 of Digicel's submission.)

LIME – submitted that the networks offering broadband services do not need to be similar, noting that it is the service that the customer receives that needs to be comparable, not the networks themselves.

c. *Do you agree with the benefits of mandating fixed wire and/or fibre LLU in the Cayman Islands as outlined at paragraphs 42 to 45 above?*

DIGICEL – submitted that the benefits that would be derived from unbundling the local loop can be quantified by an improved service in terms of the price and/or quality, and the impact of increased broadband penetration on the GDP of the Cayman Islands.

LIME – submitted that "*the costs of Local Loop Unbundling outweighs the benefits.*"

- d. *Do you agree with the costs of mandating fixed wire and/or fibre LLU in the Cayman Islands as outlined at paragraphs 46 to 49 above?*

DIGICEL – submitted that any concerns that mandating LLU could deter investment by LIME could be addressed by the terms on which access is granted and in particular the price. Digicel further submitted that LIME has market dominance in terms of the retail market for broadband services (especially being the case where the business market is separated from the residential market) and fixed access is normally granted in such circumstances. Further, Digicel submitted that LIME has control of facilities (its underground civil works) which are not practically replicable and without access to which there can be no competition for some if not all of the business market.

Digicel also submitted that there is benchmarking information on ULL pricing available, providing as an example the monthly cost of a fully unbundled loop in the UK (submitting as previously stated that it is "*about 10 to 11 Cayman dollars*").

LIME – submitted that unbundling the local loop would divert operators away from investing in the Cayman Islands' economy and in advanced technologies, and would encourage those operators to use the existing facilities of other providers. In addition, LIME submitted that it would create a disincentive for any operator to build or upgrade their ICT Network, because the risk/cost of the investment would unlikely be covered by an adequate return if the benefits of that investment are required to be delivered to competitors. In this case, LIME submitted that the entire economy is harmed and the Cayman Islands will not be considered a preferred place to do business for industries that rely on cutting edge ICT Services.

- e. *Is mandating the provision of access to the fixed wire and/or fibre Local Loop in Grand Cayman and/or the Sister Islands contrary to the public interest?*

Digicel – submitted that it is in the public interest to mandate access to the *fixed wire* and *fibre* local loop as, without it: investment in the provision of broadband services will not be efficient or effective; it will take significantly longer for viable competition to take place across the whole of the Cayman Islands; investment could be wasted in multiple fibre investments in a small proportion of the Cayman Islands with limited or no investment in outlying areas; and, there will be no effective competition for at least a proportion of the customer base which demand underground networks for provision of services.

LIME – submitted that the public interest is best served by healthy investment and healthy competition in the Cayman Islands and that policies like LLU harm investment and competition and are contrary to the public interest.

- f. *Does any Licensee see any demand for fixed wire and/or fibre LLU in the Sister Islands if the Authority determines that fixed wire and/or fibre LLU should be mandated there but not in Grand Cayman?*

DIGICEL – responded that it did, and that it had provided forecasted demand requirements in that respect.

LIME - noted that the Authority's existing policies would result in the rollout of a "NGA" (i.e. a next generation access network)¹⁹ in the Sister Islands in relatively short order, and LIME encouraged the Authority not to make changes to the regulatory framework, which might jeopardise that.

- g. *Are there any other issues that the Authority should take into account as part of this consultation?*

DIGICEL – submitted that, at the indicative monthly benchmark price of "around 10 to 11 dollars (and presuming that set up prices are also reasonable)", LLU will be viable in the Sister Islands as well as in Grand Cayman.

LIME - raised the matter of framing the public interest, the need for the completion of the Authority's cost/benefit analysis and that investment and competition are healthy in the Cayman Islands today.

THE DISPUTE

71. In Digicel's determination request letter (see paragraphs 7 to 9 above), Digicel requested from LIME "[...] a quotation for fully unbundled [fixed copper wire] local loops. [...] information about feasible points for connection with LIME (for the purpose of local loop unbundling) other than at One Technology Square which are available now or that will be available in the near future. [...] pay any costs that Digicel may incur as a result of being forced to take this matter to dispute" (as referenced at paragraph 9 above).
72. Digicel, in its letter to LIME of 19 October 2011 as evidenced as part of its determination request, defined ULL as full "*Metallic Path Facility (MPF) unbundling*", clarifying that being where control over the ULL "*is transferred from [LIME] to [Digicel]. The link between [LIME's] MDF [Main distribution frame] and its switching equipment is physically re-routed and connected to [LIME's] switch [...].*" The Authority notes that 'MPF' is a reference to the twisted pair of copper wires

¹⁹ For noting, in its March 2010 'Review of the wholesale local access market' (http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf) Ofcom, the UK Telecoms Regulator, defined NGA networks as enabling the delivery of 'super-fast' broadband services. It then defined super-fast broadband as "*generally taken to mean broadband products that provide a maximum download speed that is greater than 24 Mbit/s. This threshold is commonly considered to be the maximum speed that can be supported on current generation (copper-based) networks.*" (Paragraphs 2.7 and 2.8.)

that connect a telecoms provider's MDF to its customer (that part of the fixed network is referenced in this determination as *fixed wire* ULL).

73. As set out in the **ICT Decision 2012-5**, the issue in the Dispute is whether or not the Authority determines that the infrastructure sharing as requested by Digicel from LIME, namely access to LIME's *fixed copper wire* local loop, is contrary to the public interest (Regulation 4(2)(d) of the Infrastructure Regulations). If the Authority determines that such infrastructure sharing is contrary to the public interest, then under the Infrastructure Regulations LIME "*shall not negotiate or propose to enter into [such] an [...] infrastructure sharing agreement.*"

Legal Framework

74. In making the Decision, the Authority is guided by its statutory remit, in particular as set out in the Information and Communications Technology Authority Law (2011 revision) (the '**Law**'), the Dispute Regulations and the Infrastructure Regulations.

75. Section 9 (1) of the Law states that:

[...] the Authority has power to do all things necessary or convenient to be done for or in connection with the performance of its functions under this Law.

76. Section 9 (3) of the Law states that:

[...] the principal functions of the Authority are -

- (a) to promote competition in the provision of ICT services and ICT networks where it is reasonable or necessary to do so; [...]*
- (g) to resolve disputes concerning the interconnection or sharing of infrastructure between or among ICT service providers or ICT network providers;*
- (h) to promote and maintain an efficient, economic and harmonised utilisation of ICT infrastructure; [...]*

77. Regulation 11 of the Dispute Regulations states that:

In determining a dispute, the Authority [...] may have regard to-

- (a) the subject matter of the dispute;*
- (b) the need to inquire into and investigate the dispute;*
- (c) the objectives and functions of the Authority; and*
- (d) all matters affecting the merits, and fair settlement of the dispute.*

78. Regulation 4(2) of the Infrastructure Regulations states that:

[Licensees] shall not negotiate or propose to enter into an interconnection or infrastructure sharing agreement where the Authority determines that –

- (a) *interconnection or infrastructure sharing would endanger life or safety, or irreparably damage property or threaten the integrity, security or interoperability of a public ICT service or public ICT network;*
- (b) *the licence issued to the responder exempts it from the obligation to provide interconnection of infrastructure sharing;*
- (c) *the licence issued to the requestor does not authorise it to operate the public ICT network or to provide the public ICT service for which infrastructure sharing or interconnection is sought; or*
- (d) *the requested interconnection or infrastructure sharing is **contrary to the laws of the Islands or the public interest.** (Emphasis added.)*

79. In relation to the Dispute, the Authority has reviewed the comments received from Digicel and LIME in response to the LLU Consultation and divided them into the following broad categories:

- infrastructure rollout;
- reduced network efficiencies;
- cost of local loop and broadband penetration;
- access to underground facilities;
- competition across the Cayman Islands; and,
- the relevance of other jurisdictions.

Looking at each of these categories in turn:

Infrastructure rollout

80. With regard to Digicel being able to roll out a network comparable to LIME's *fixed wire* network, the Authority notes that Digicel applied for and was licensed in February 2012 to operate a *fibre optic cable* (D1 Type) ICT Network,²⁰ and agreed soon after that to the insertion of the following Licence conditions relating to the rollout across the Cayman Islands of that *fibre*, which are currently in Digicel's licence:

- Digicel to roll out its fibre network sufficient to enable the provision of ICT services to 100% of the resident population in Grand Cayman by 31 December 2015, and to roll out its fibre network sufficient to enable the provision of ICT services to 100% of the resident population of Cayman Brac and Little Cayman by 31 December 2016.²¹

81. It is evident from the timelines set out above, all of which were proposed by Digicel at the time of its applications in early 2012, that Digicel committed to deploy a *fibre* ICT Network and enable the provision of ICT Services over that *fibre* network to all

²⁰ http://www.icta.ky/upimages/licencedocument/ViewAmendment18_1417640405.pdf

²¹ http://www.icta.ky/upimages/licencedocument/ViewAmendment20_1417640423.pdf

the resident population nationwide within a five year timeframe separate from having access to *fixed wire* ULL.

82. The Authority also notes that other Licensees have committed to roll out their *fibre* networks in the Cayman Islands, as explained below, which are expected to contribute to a significant improvement in the facilities-based competition in the general ICT sector in the Cayman Islands. In particular:

- On 9 February 2012, the Authority issued Amendment No. 18 to the licence of WestTel in which the Licensee has proposed a rollout schedule for its fibre network to enable the provision of ICT services to 100% of the resident population of Grand Cayman by 8 February 2017.²² (The rollout schedule was updated on 27 March 2014, but the end rollout date was unchanged.²³)
- On 28 March 2012, the Authority issued a licence to DataLink stipulating a rollout schedule, Annex 1A, for its fibre optic cable sufficient to enable ICT services to be provided to 100% of the resident population of Grand Cayman by 31 December 2015.²⁴ DataLink was also licensed to provide infrastructure sharing services whereby it would provide access to other licensees to lay their *fibre* in the communications space on electricity poles (i.e. what Digicel refers to as "overhead" fibre).
- On 15 January 2013, the Authority issued Amendment No. 6 to the licence of Infinity in which the Licensee has proposed a rollout schedule for its fibre optic cable network to make available all its ICT services to 100% of the resident population of Grand Cayman by 31 December 2015 and 100% of the resident population of Cayman Brac and Little Cayman by 31 July 2017.²⁵ (The rollout schedule was updated on 27 March 2014, but the end rollout date was unchanged.²⁶)
- On 27 March 2014, WestStar's licence was amended whereby it is obliged to complete its fibre network sufficient to enable the provision of ICT Services to 100% of the resident population of Grand Cayman by 9 October 2018.²⁷

In this regard, it is relevant to note that, on 15 August 2014, the Authority gave its consent to the transfer of all of the outstanding and issued shares in WestStar TV to WestTel.²⁸ WestStar's commercial offering is now merged with WestTel's services and is provided under its brand name 'Logic'.

²² http://www.icta.ky/upimages/licencedocument/ViewAmendment18_1417646354.pdf

²³ http://www.icta.ky/upimages/licencedocument/ViewAmendment22_1417646387.pdf

²⁴ http://www.icta.ky/upimages/licencedocument/ViewLicencedocument_1417650665.pdf

²⁵ http://www.icta.ky/upimages/licencedocument/ViewAmendment6_1417648282.pdf

²⁶ http://www.icta.ky/upimages/licencedocument/ViewAmendment10_1417648311.pdf

²⁷ http://www.icta.ky/upimages/licencedocument/ViewAmendment16_1417651811.pdf

²⁸ <http://www.icta.ky/upimages/commonfiles/141727969320140814ICTAtoBOTCATHoldingsLtdretransfershares.pdf>

83. Further, as referenced in the LLU Consultation,²⁹ LIME is of its own undertaking adding to its current *fibre* network to support or replace parts of its *fixed wire* network.
84. According to the Cayman Islands' Economics and Statistics Office ('ESO'), *Telecommunications equipment, TV & radio receivers* imports increased by 255.77% over the 5-year period from 2009 to 2013 (see Figure 2 of the portion highlighted in red (see Table below)).³⁰ Further, in the most recent period reported by the ESO (2011-2013), annual import volumes were valued at more than CI\$10million, reaching a record CI\$15million in 2013.

IMPORTS BY SITC CLASSIFICATION 2009 - 2013						
SITC Rev.3	COMMODITY	2009	2010	2011	2012	2013
76	TELECOMMUNICATIONS AND SOUND RECORDING AND REPRODUCING APPARATUS AND EQUIPMENT	8,788	8,583	14,952	15,768	19,922
	Portable radios & tape decks, etc., < \$100	17	27	35	16	6
	Radios, record players, tv's, video, etc.	4,542	4,134	4,020	4,221	4,873
	Telecommunications equipment, TV & radio receivers (including satellite dishes)	4,228	4,422	10,896	11,531	15,043

85. In addition, fixed broadband connections in the Cayman Islands increased by 11.2% between 2009 and 2013, and by 24.5% between 2010 and 2014.³¹ The jump from 20,335 connections in 2013 to 23,469 connections in 2014 has been the second biggest increase in connections year-on-year, after the increase of 3,337 connections between 2006 and 2007. In addition, the last two quarterly ICT monitoring data have shown particularly high increases in fixed broadband connections (1,435 in the last quarter of 2014 and 1,130 in the first quarter of 2015).³²
86. Thus, as noted above, the annual capital expenditure in the ICT equipment and the provision of services has significantly increased in the last two years, which appears to be correlated with the commitments made by the Licensees to the concurrent rollout of multiple *fibre* networks, and is an indication of a successful development of facilities-based competition in the Cayman Islands.
87. Therefore, with such investment in the ICT Network infrastructure taking place, the Authority considers that mandating LLU (both *fixed wire* and *fibre*) at this time likely risks distorting the investment incentives on those Licensees who are currently rolling out competing *fibre* access network infrastructure. Indeed, the Authority considers that the investment plans and commitments considered by those Licensees in relation to their *fibre* rollout are likely to be reduced significantly

²⁹ Paragraph 33

³⁰ http://www.eso.ky/indicators_page.html#3 Indicators, Annual Trade Data, Imports by SITC Class 2008-2013, Cell 292-298

³¹ Source: <http://www.icta.ky/upimages/commonfiles/1424707204CaymanIslandsICTstatistics.pdf>

³² <http://www.icta.ky/reports-guidelines>

should a form of service-based competition emerge from the provision of regulated access to such networks, such as *fixed wire* LLU.

88. Finally, the Authority notes that a dispute between Infinity and DataLink regarding the terms and conditions related to the attachment of *fibre* in the communications space on electricity poles is currently under review by the Authority (attaching the *fibre* to such space being one of the ways to roll out fibre across a jurisdiction).³³ The outcome of the Authority's review may affect the speed and the extent of the fibre rollout referenced above, and accordingly it may have an impact on the degree of facilities-based competition in the Cayman Islands in the near future.
89. However, while the fibre rollout of all the relevant Licensees as reported above has slowed, which may have an effect on the fibre rollout timetables set out above, the Authority considers that this does not change its support of facilities-based competition and its preference over mandated access to ULL.

Reduced network efficiencies

90. The network capabilities of providing broadband connection services via *fixed wire* are limited in comparison with *fibre* (especially when comparing with the provision of fibre that connects directly to a customer's premises (sometimes referred to as fibre-to-the-home or FTTH). In the Cayman Islands, the *fixed wire* technology deployed by LIME is based on Asymmetric Digital Subscriber Line ('ADSL') technology, which is used to deliver Internet broadband services over the local loop copper wires (*fixed wire*).
91. Based on International Telecommunications Union ('ITU') standards, a technology known as ADSL1 is capable of providing a *maximum* download speed of 12 Mbit/s and upload speed of 1.8 Mbit/s,³⁴ and ADSL2+ (also referred to as ADSL2+M) is able to provide a *maximum* download speed of about 24Mbit/s and upload speed of 3.5 Mbit/s.³⁵ Even were LIME to have deployed VDSL (very-high-bit-rate DSL), which is an enhanced DSL technology, the download and upload speeds are still limited and in particular dependent on the line distance between the customer's premises and the local exchange. For VDSL, the maximum download speed is 55 Mbit/s and upload speed is 3 Mbit/s,³⁶ and for VDSL2, the maximum download speed is 100 Mbit/s and upload speed is 100 Mbit/s, although the performance is significantly deteriorated for the line distance greater than one (1) mile.³⁷
92. While the Authority notes that the ITU has recently agreed an updated standard for DSL local loops shorter than 500m, referred to as G-Fast,³⁸ which increases the maximum achievable data speeds, such a standard is in its infancy and not one likely to be deployed by LIME in the foreseeable future. It will also likely be at least a few years before it is seen whether providers in other jurisdictions adopt this G-Fast standard to provide access to their end customers on a large scale, given its

³³ <http://www.icta.ky/infinitydatalink-pole-attachment-dispute>

³⁴ ITU G.992.1 Annex B ADSL over ISDN - <http://www.itu.int/rec/t-rec-g.992.1/e>

³⁵ ITU G.992.5 Annex M- <http://www.itu.int/rec/T-REC-G.992.5/en> and <http://www.itu.int/ITU-T/recommendations/rec.aspx?id=9653&lang=en>

³⁶ ITU G.993.1 - <http://www.itu.int/rec/T-REC-G.993.1>

³⁷ ITU G.993.2 - <https://www.itu.int/rec/T-REC-G.993.2/en>

³⁸ <http://www.itu.int/rec/T-REC-G.9701>

technical constraints requiring the technology to be deployed in close proximity to the customer's premises.

93. The speeds quoted above for *fixed wire* DSL are the theoretical *maximum* speed. While the Authority notes that the advancement in technological standards are increasing the speeds of broadband access over the copper *fixed wire*, the broadband speeds that a customer *actually* gets in terms of download/upload speed over DSL technology depends on, among other things, the proximity of the customer's premises to the Licensee's local exchange, whether older copper lines are being used, whether there is electrical interference from outside sources, and the number of, and type of, other services being used over the copper network by other customers.
94. This means that the *actual* broadband speeds a customer receives could be at times substantively lower than the *maximum* speeds referenced in the ITU standards as mentioned above.
95. *Fibre* broadband connections, on the other hand, based on fibre-to-the-cabinet services, are typically able to offer "speeds of 'up to' 38Mbit/s or 76Mbit/s." Fibre-to-the-home broadband, which involves the *fibre* optic cables connecting directly to a customer's premises, "can offer speeds of anything up to 1Gbit/s (i.e. 1,000Mbit/s)."³⁹ Indeed, such *fibre* connections also allow for further increase in download/upload speeds as the data rate of the connection is normally limited by the terminal equipment rather than the *fibre* optic cable itself.
96. There are additional advantages other than bandwidth of having a *fibre* network when compared with a *copper* based network. For example, *fibre* transmissions are unaffected by electromagnetic interference. There is also low attenuation loss (a reduction in the strength of the signal) over long distances which allows for the transmission of the data over much longer distances without the need for additional equipment (thus helping to reduce network deployment costs). Also, optical *fibre* cables do not conduct electricity, and thus do not conduct lightning strikes, which is important for the resilience of the ICT Network during electrical storms.
97. Noting the technological differences between the *fixed wire copper* and *fibre* networks, the Authority considers that, to mandate LLU in relation to *fixed wire* LLU, which is a technology that is currently being phased out across the Cayman Islands, will greatly undermine the rollout of fibre across the Cayman Islands and the promotion of an efficient and economic utilisation of ICT infrastructure.
98. Indeed, the demand for better broadband connectivity and access to faster and faster broadband speeds in the Cayman Islands, prompted by more people owning Internet-enabled electronic devices, will only increase and the ICT Networks available will need to be able to keep pace with such demand. For example, based on a report from Ofcom in the UK (the UK's telecoms regulator), it is expected that globally up to 50 billion 'smart' devices, ranging from cars to coffee machines could be connected to the Internet by 2020 (the communication of devices in this way is sometimes referenced as 'The Internet of Things'). A network based on *copper fixed wire* LLU is unlikely to be able to meet such

³⁹ <http://consumers.ofcom.org.uk/internet/broadband-switching/broadband-basics/>

demand and is likely to provide a poorer customer experience over time due to the limited broadband speeds available over it.

Cost of local loop and broadband penetration

99. Digicel submitted that unbundling LIME's *fixed wire* local loop would greatly reduce the costs associated with duplicating such a network, thus allowing Digicel to move quickly and be able to offer price reductions of between 10% to 40% off LIME's retail price "or more", or "alternatively" to "offer better levels of service" which would in turn increase broadband penetration.
100. The Authority notes that the estimates of the cost of rolling out a nationwide *fibre* network (either overhead or underground) in the Cayman Islands, as presented by Digicel and LIME, differ significantly.
101. While LIME put forward that Digicel overestimated the cost of a *fibre* underground system in the Cayman Islands, the Authority notes that, in the public version of the Fixed Module of LIME's FLLRIC model submitted on 6 May 2013,⁴⁰ the gross replacement cost ('**GRC**') of LIME's local loop access network is greater than CI\$110 million, although this is significantly lower than the GRC value shown in the Fixed Module submitted on 13 March 2012 (CI\$543 million).⁴¹
102. The Authority has not conducted a review of LIME's LRIC cost model as regards the cost of local loop access, and therefore it is not in a position to make any comment about the cost estimates presented by both Digicel and LIME in their submissions.
103. However, as mentioned above, it is noted that a number of other Licensees have committed to deploy *fibre* networks in the Cayman Islands, and LIME has also followed suit by gradually replacing its *fixed wire* local loop network, being the network Digicel now seeks access to, with a *fibre* network. As an example of such commitments to the concurrent rollout of multiple *fibre* networks in the Cayman Islands, the annual capital expenditure in the ICT networks and services rose to around CI\$40 million in the year 2013 and close to CI\$30 million in the year 2014, which is a significant increase compared to the previous years.⁴²
104. With regard to Digicel's statement that competition through *fixed wire* LLU would increase broadband penetration, which should in turn increase GDP, the Authority notes that the broadband penetration in the Cayman Islands is already at a high level compared to many other countries (comparison based on the latest statistics on fixed-broadband subscriptions published by the ITU, 2000 - 2014),⁴³ reaching approx. 41 connections per 100 inhabitants in the Cayman Islands according to the latest ICT statistics published by the Authority.⁴⁴ Accordingly, the argument for

⁴⁰ Excel file containing relevant inputs and calculations for modelling forward-looking long-run incremental costs (FLLRIC) of LIME's fixed network

⁴¹ http://www.icta.ky/fllric-phase-iii-follow-up-proceeding-public-record/download_pdf?file=2012_03_13_LIME_CYM_fixed_Public_1417513671.xls&id=118119112

⁴² <http://www.icta.ky/upimages/commonfiles/1424707204CaymanIslandsICTstatistics.pdf>

⁴³ www.itu.int/en/ITU-D/Statistics/Documents/statistics/2015/Fixed_broadband_2000-2014.xls

⁴⁴ Based on the ICTA's statistics:

<http://www.icta.ky/upimages/commonfiles/1424707204CaymanIslandsICTstatistics.pdf>

mandating access to ULL as a tool for increasing broadband penetration is not persuasive at this time for the Cayman Islands ICT sector and, by extension, for the economy of the Cayman Islands.

Access to underground facilities

105. Digicel submitted that there is no regulated access to LIME's underground telecommunications facilities (e.g. ducts) currently, noting that while access could be requested, it is not in LIME's commercial interests to permit this and Digicel therefore anticipated that LIME would dispute such a request by it.
106. Digicel further noted that the handling of any such dispute by the Authority would probably take a considerable period of time, and that Digicel does not know at this stage what, if any, space is available to do so since no independent survey has been undertaken. Digicel, therefore, concluded that it is not an option in the immediate term for an operator to seek to lay its own fibre in LIME's ducts and that, consequently, regulated access via *fixed wire* LLU is the way forward.
107. In response, the Authority notes that the Infrastructure Regulations set out the basis upon which Digicel, or any other Licensee, can request access to LIME's, or other Licensees', underground telecommunications facilities. Further, the Authority notes that where a requestor disagrees with the basis of any refusal for such access, it may refer that matter to the Authority to determine in accordance with the Dispute Regulations.⁴⁵
108. The Dispute Regulations also provide that the charges for the infrastructure sharing provided, such as for access to LIME's ducts, must be among other things non-discriminatory and based on the cost methodology as set out in Regulation 10.⁴⁶ Specifically, Regulation 10(1) states that charges for infrastructure sharing shall be, among other things:
- (b) non-discriminatory in order to ensure that a responder applies equivalent conditions in equivalent circumstances in providing equivalent services, as the responder provides for itself, any non-affiliated licensee or any subsidiary or affiliate of the responder; [...]*
- (f) based on a forward-looking long-run incremental cost methodology [...].*
109. If Digicel requires access to LIME's underground facilities, it has a regulatory route to do so. However, the Authority notes that it has not received a dispute determination request from Digicel under the Dispute Regulations relating to access to LIME's underground telecommunications facilities during the date of the commencement of the Dispute to the publication of this Decision and Statement.
110. In reference to Digicel not knowing what, if any, space is available in LIME's ducts since no independent survey has been undertaken, if such a dispute were to be brought, the Authority has the powers to request such information/undertake a study and would likely consider whether or not there was the appropriate space in

⁴⁵ Regulation 4(4)

⁴⁶ Regulation 10

LIME's ducts to accommodate another Licensee laying its *fibres* there. The Authority notes in this regard that it has already determined a dispute relating to duct access.⁴⁷

111. Therefore, the Authority considers that Digicel's submission that there is no regulated access to LIME's underground telecommunications facilities cannot be taken as legitimate argument for requesting that Authority mandate access to LIME's *fixed wire* LLU, especially given that Digicel has not brought a dispute to the Authority regarding such access.

Competition across the Cayman Islands

112. Digicel submitted that access to *fixed wire* ULL would allow it to "*compete fully across the whole of the telecommunications market in the Cayman Islands.*"
113. The Authority considers that there already exist other ways than *fixed wire* ULL for Digicel to compete "*across the whole of the telecommunications market in the Cayman Islands.*" As set out in the LLU Consultation, fixed wireless networks, fibre networks and mobile networks can all be rolled out by a Licensee to provide that Licensee with the ability to service a customer with voice and high-speed broadband access services.⁴⁸
114. In particular, the Authority notes that Digicel is licensed to roll out a *fibre* network over which it can provide a range of ICT services to the customer (for further discussion on Digicel's obligations, see paragraph 80 above.) Further, Digicel currently provides high-speed broadband services branded 'LTE Home Internet' over its LTE mobile network,⁴⁹ which should enable Digicel to provide such services to 100% of the resident population of the Cayman Islands (as provided for in Digicel's Licence Condition).⁵⁰
115. The Authority notes in this regard that, as a result of the current *fibre* rollout commitments by the Licensees (as discussed above in paragraph 82), it is estimated that approximately 50% of the households/population in the Cayman Islands is now covered by at least two competing *fibre* networks. Such a high level of *fibre* network coverage by ICT networks in the Cayman Islands is at least comparable with, if not exceeds, the achievements in *fibre* network deployment in Europe.⁵¹
116. The Authority further notes that, in accordance with the Authority's decision issued on 6 December 2007 in relation to LIME's application for forbearance from regulating LIME's high-speed Internet access service,⁵² it determined that the high-speed broadband services provided to *residential* customers in the Cayman

⁴⁷ <http://www.icta.ky/upimages/commonfiles/1417261558ICTDecision2009-2TeleCaymanAccessToGovernmentDucts.pdf>

⁴⁸ See paragraphs 23 *et seq* of LLU Consultation document

⁴⁹ <http://www.digicelcayman.com/en/services/lte-broadband>

⁵⁰ http://www.icta.ky/upimages/licencedocument/ViewAmendment23_1417640470.pdf

⁵¹ See the latest statistic published by IDATE, available at <http://blog.idate.fr/les-chiffres-du-tres-haut-debit-fixe-en-europe/?lang-pref/en/>

⁵² <http://www.icta.ky/upimages/candwservicefilingsform/141745395920071206ICTAdeterminationhigh-speedInternetforbearance.pdf>

Islands are "*subject to competition sufficient to protect the interests of customers.*" However, as regards to the competition for the high-speed broadband services provided to business customers in the Cayman Islands, the Authority considers that there is still room for further improvements in competition before the market for these services can be viewed as effectively competitive.

117. While the competition for the voice services provided over fixed networks in the Cayman Islands is still limited, in particular in relation to the market for residential and business line rental services, the Authority does note some improvements in the competition for the provision of voice calling services to the business customers in the Cayman Islands. However, the Authority considers that mandating access to ULL is not the appropriate regulatory tool, at this time, to use as a remedy for the lack of effective competition across all voice calling services provided over fixed networks.
118. Further, while mandated access to *fixed wire* and/or *fibre* ULL, if successfully implemented by all the parties involved in the LLU process, may put a short-term downward pressure on retail prices, as Digicel has submitted (though the extent of any retail price decrease will mostly depend on the underlying costs of ULL), any such decrease is likely not to be in the long term interest of customers if, as a consequence, investment in facilities-based competition is disincentivised. This is because the mandated ULL access is likely to lead to asymmetric returns whereby the economic benefit of a successful investment by a Licensee in its network will be enjoyed by those requiring the mandated access but the risk of an unsuccessful investment is borne solely by the Licensee providing that access. One of the consequences of such mandated access is likely to be a reduction in the upkeep and general maintenance of the *fixed wire* or *fibre networks* by those Licensees who have deployed them.
119. It is also worth noting that Digicel does not, in its 15 July 2013 submission to the LLU Consultation, guarantee that the provision of such *fixed wire* ULL access will mean a reduction in retail prices for consumers. Indeed, Digicel in its submission states that the benefits to be derived from *fixed wire* ULL would be an: "[...] *improved service in terms of the price and/or quality. Simply in order to win customers from LIME competitors will probably aim to: a/offer discounts of somewhere between 10 to 40% off LIME's retail pricing or more; or alternatively, b/offer better levels of service.*" (Emphasis added.)
120. In any event, the Authority considers that any reduction in retail prices and/or "*better levels of service*" do not, in this case, outweigh the longer term benefits of facilities-based competition. While service-based competition that is promoted through various forms of access regulation, including mandated LLU, is likely to have an immediate positive effect on consumer welfare, and so would lead to a positive outcome in terms of static efficiency, the ultimate goal of regulation should be the promotion of dynamic efficiency that is characterised by the long-term benefits that investment in new networks and enhanced services deliver to consumers.⁵³

⁵³ In summary, static efficiency is concerned with the most efficient combination of resources *at a given point in time* whereas dynamic efficiency is concerned with the productive efficiency of a firm *over a period of time*

121. Finally, Digicel submitted that *fixed wire* LLU should be mandated given that the current proposed number of *fibres* networks is not viable, noting that there will be further consolidation or business failure or both if the only way forward is to require Licensees to build their own *fibres* network. While the Authority notes that the purchase by Logic of WestStar reduced the number of Licensees rolling out *fibres* network to the customer, there are still five Licensees who are licensed to deploy a *fibres* network, including Digicel (Infinity, DataLink, Digicel, LIME and Logic). The Authority considers that the most efficient number of competitors in a market should normally be determined by the Industry/market itself rather than by the regulator using, in this case, mandated access to *fixed wire* ULL as a remedy for corrections in the market structure.
122. Accordingly, the Authority considers that a regulatory decision to mandate access to ULL is likely to undermine the progress made in promoting facilities-based competition across the Cayman Islands, as evidenced recently, and it would therefore not be in the long-term benefit of customers.

The relevance of other jurisdictions

123. The Authority has taken note of the opinions, results of various studies, and quotations, as presented by LIME and Digicel in relation to the costs and benefits of implementation of LLU, as experienced in various other jurisdictions. However, the Authority is not in the position to give specific weight to such studies and quotations as they are not directly relevant to the market and technical environment of the ICT sector in the Cayman Islands.
124. Further, while Digicel submitted that Digicel Bermuda's prices are on average less than a quarter of the price of those of LIME Cayman, the Authority notes that it is not in the position to comment on the circumstances specific to the broadband internet retail market in Bermuda, including the technical characteristics of the products available there, and their effect on the prices which Digicel compares to LIME's product offering in the Cayman Islands. It is worth noting in this regard that the cost of providing retail services depends on many factors unique to the jurisdiction where the particular services are being offered, such as the cost of trenching (in case of underground deployment) and pole rental (in case of overhead deployment using the space available on electricity poles), the line distance between the customer's premises and the local exchange, and that jurisdiction's population density.

Summary

125. In summary, and for the reasons set out above, the Authority does not consider that mandating access to LIME's *fixed wire* ULL at this time would contribute to the long-term benefits of the economy of the Cayman Islands, especially in the current circumstances where there have been significant investments in the deployment of *fibres* networks by various Licensees.
126. The Authority considers that any benefits of mandating access to LIME's *fixed wire* LLU on promoting competition in the provision of ICT services and networks in the Cayman Islands are likely to be limited both in the short and long term. In this

regard, the Authority notes that Digicel has requested access to LIME's *copper fixed wire* local loop, which for the reasons set out at paragraphs 90 *et seq.* is not able to compete with the broadband speeds achievable over a *fibres* network.

127. Further, the Authority notes that, as stated in Section 9(3)(a) of the Law, one of the principal functions of the Authority is to promote competition in the provision of ICT services and ICT Networks. Accordingly, the Authority considers that protecting the interests of one Licensee only based on the facts before it, in this case requiring LIME to provide infrastructure sharing services to allow Digicel to access its *fixed wire* ULL, does not satisfy the criteria stipulated in Section 9(3)(a) of the Law.
128. Digicel submitted that the rolling out of Island-wide *fibres* networks will take several years to complete and, in effect, requiring LIME to provide *fixed wire* ULL to Digicel (and other Licensees) will accelerate service competition across all three of the Islands. While the Authority considers that there is some merit in the above submission by Digicel, requiring LIME to provide *fixed wire* ULL to Digicel is in direct conflict with Digicel's commitment to *fibres* network deployment, as noted in paragraph 80 above, and for the reasons previously given is likely to undermine LIME's and other Licensees' current *fibres* network rollout plans.
129. The Authority, therefore, considers that requiring LIME to provide *fixed wire* ULL to Digicel at this time is likely to cause greater costs to competition and consumer benefits in the long term than not doing so.
130. Finally, the Authority also considers that having alternative networks to use in the event of the failure of LIME's network is necessary in order to provide better resilience of communications for the Cayman Islands. Accordingly, a regulatory decision that does not reduce incentives for Licensees to implement Island-wide *fibres* network rollout is deemed to satisfy such objectives for the greater benefits and security of the Caymans Islands.

THE DISPUTE DETERMINATION

131. Based on the Authority's analysis above, the Authority determines in the Dispute that the infrastructure sharing requested by Digicel from LIME in the determination request, namely access to LIME's *fixed copper wire* local loop, is contrary to the public interest at this time, as provided for in Regulation 4(2)(d) of the Infrastructure Regulations. Therefore, LIME "*shall not negotiate or propose to enter into an [...] infrastructure sharing agreement.*"
132. The Authority notes that Digicel has asked the Authority to direct LIME to pay any costs Digicel incurred as a result of bringing "*this matter to dispute.*" However, the Authority does not consider there is sufficient evidence before it to justify such a direction, for example the Authority does not consider that there is evidence of bad faith or unreasonable behaviour by LIME, and thus determines that each side is to bear its own costs in the matter.

THE AUTHORITY'S STATEMENT – FIBRE ULL

133. Further, and based on the Authority's analysis above, the Authority considers that to mandate access to the *fibres* ULL would also be contrary to the public interest at this time.
134. In particular, and as referenced above, a mandated access to the *fibres* ULL will lead to asymmetric returns whereby the economic benefit of a successful investment in its *fibres* network by a Licensee will be enjoyed by those requiring the mandated access but the risk of an unsuccessful investment in such *fibres* network is borne solely by the Licensee providing that access. In other words, if a Licensee successfully completes its *fibres* network rollout, another Licensee requesting mandated access will be able to share the economic benefit of such investment without investing the capital needed to roll out that network.
135. In particular, the Authority notes the substantial investment in *fibres* rollout shown by Licensees and considers that to require *fibres* LLU would likely disincentivise those Licensees from further investment in their *fibres* networks, and rollout. This, in turn, is likely to impact adversely their rollout commitments, especially to the less-populated areas of the Cayman Islands.
136. For the reasons above, the Authority considers that to mandate access to the *fibres* ULL would be contrary to the public interest at this time.