



Public Consultation on the Demand for Enhanced Internet Connectivity and 5G in The Bahamas

Statement of Results and Next Steps

ECS 09/2023

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1. Introduction

In this document, the Utilities Regulation and Competition Authority (“URCA”) issues its Statement of Results and Next Steps with respect to URCA’s Public Consultation on the demand for enhanced internet connectivity and 5G in The Bahamas (“5G Public Consultation”).

URCA published its Consultation Document on 5G Consultation on the Demand for Enhanced Internet Connectivity and 5G in The Bahamas on 5 May 2023 (“Consultation Document”).¹ The Consultation Document set out, *inter alia*, the following:

- the objectives and the approach adopted by URCA with respect to the 5G Public Consultation;
- a summary overview of the main responses to the stakeholder engagement process on enhanced internet connectivity/5G in The Bahamas;
- URCA’s preliminary views on the key findings from this engagement process;
- URCA’s proposed next steps; and
- to invite comments from stakeholders on the matters set out in the Consultation Document.

The responses to the Consultation Document were initially due on 5 June 2023. Having regard to the public significance of the matters set out in the consultation, URCA extended the deadline for responses to 5 July 2023 to provide more time for licensees and other interested persons to comment.

In addition to seeking general comments and/or views on the Consultation Document, URCA also sought respondents’ views on the following questions (“Consultation Questions”):

- **Consultation Question 1:**
 - Do you agree with the key observations raised within the industry discussion groups, as summarized above? Should you disagree, please provide a detailed explanation of your view, including supporting evidence where available.
 - Do you have additional issues/observations on the potential demand for/use cases of 5G/enhanced internet connectivity you would like to raise to URCA’s attention? If so, please provide a detailed explanation of these issues/observations, including supporting evidence where available.

¹ ECS 06/2023 available at <https://www.urbahamas.bs/consultations/ecs-06-2023-5g-public-consultation/>

- **Consultation Question 2:**

- Do you agree with the key observations on the current demand for internet connectivity from end users in The Bahamas, and their expected demand for enhanced internet connectivity, as summarized above? Should you disagree, please provide a detailed explanation for your view, including supporting evidence where available.
- Do you have additional issues/observations on the potential demand for/use cases of 5G/enhanced internet connectivity for end users you would like to raise to URCA's attention? If so, please provide a detailed explanation of these issues/observations, including supporting evidence where available.

- **Consultation Question 3:**

- Do you agree with the key observations raised within the operator submissions, as summarized above? Should you disagree, please provide a detailed explanation of your view, including supporting evidence where available.
- Do you have additional issues/observations on the potential demand for/use cases of 5G/enhanced internet connectivity you would like to raise to URCA's attention? If so, please provide a detailed explanation of these issues/observations, including supporting evidence where available.

- **Consultation Question 4:**

- Do you agree with URCA's preliminary conclusions from the public engagement process as set out above? Should you disagree, please provide a detailed explanation for your view.

- **Consultation Question 5:**

- Do you agree with URCA's proposed next steps set out above? Should you disagree, please provide a detailed explanation for your view.

URCA received written responses to the Consultation Document from two parties, namely:

- The Bahamas Telecommunication Company Limited ("BTC"); and
- Cable Bahamas Limited ("CBL") and Be Aliv Limited ("Aliv") (hereinafter collectively referred to as "CBL/Aliv").

URCA thanks the said respondents for their written responses and participation in the consultation process and encourages full participation by all stakeholders going forward. URCA notes that all comments received have been carefully considered by URCA.

In this document, URCA replies to the main comments it has received from BTC and CBL/Aliv and sets out its next steps. In doing so, URCA expressly states that failure on its part to respond in this document to any comment made by any of the respondents does not necessarily signify URCA's agreement in whole or in part with such comment, that URCA has not considered such comment, or that URCA considers the comment immaterial or without merit.

1.1 Background to the Consultation

As the regulator for the electronic communications sector ("ECS") in The Bahamas, URCA is charged with the responsibility, *inter alia*, of promoting the main objectives of the Electronic Communications Policy ("ECP"). One of the main objectives of the ECP² requires URCA to further the interests of consumers in The Bahamas by promoting competition and in particular –

- (i) to enhance the efficiency of the Bahamian ECS and the productivity of the Bahamian economy;
- (ii) to promote investment and innovation in electronic communications networks and services; and
- (iii) to promote the optimal use of state assets, including radio spectrum.

The other main policy objective of the ECP requires URCA to further the interests of persons in The Bahamas by promoting affordable access to high-quality networks and carriage services in all regions of The Bahamas. URCA is cognizant that advancements in technology are a catalyst for innovation and future development of The Bahamas. As such, it is crucial that cutting-edge technology such as 5G be available for consumption in The Bahamas where necessary. Consequently, URCA identified the 5G Public Consultation as a Tier I ECS Project in the URCA Annual Plan 2022³ ("2022 Annual Plan").

For the avoidance of doubt, URCA stresses that it has adopted a phased approach to the 5G Public Consultation. URCA considers that such an approach provides a more structured and manageable process, ensuring that all relevant matters are given proper consideration and are addressed effectively. In Phase I of the 5G Public Consultation, URCA completed a public engagement exercise with the aim of assessing the demand for enhanced internet connectivity, including 5G services in The Bahamas and identifying current gaps and technological deficiencies with respect to such demands ("Phase I").

² Communications Act, 2009, s.4.

³ URCA 03/2022 available at <https://www.urbahamas.bs/wp-content/uploads/2022/05/URCA-2021-Annual-Report-and-2022-Annual-Plan-FINAL-VERSION.pdf>

During this exercise, URCA engaged with a wide range of stakeholders, including representatives of various sectors within the Bahamian economy, operators licensed to provide electronic communications services within The Bahamas and members of the general public in The Bahamas, through surveys, interviews, and other methods and measurements. After the completion of this stakeholder engagement in Phase I, URCA published the Consultation Document to invite comments from interested persons on the matters contained therein.

As URCA previously stated in section 1.3 of the Consultation Document, the objective of this public stakeholder engagement exercise was to develop a more in-depth and evidence-based understanding of the current and potential future **demand and use cases for enhanced internet connectivity and 5G services** in The Bahamas. URCA considers that such information and evidence is necessary to form the basis of discussions with the licensees and/or Government on how to **establish the most efficient way to allow meeting this demand/enabling the use cases** in The Bahamas, which URCA will now seek to facilitate in Phase II of the 5G Public Consultation.

URCA notes that its focus on the demand for 5G and enhanced internet connectivity in The Bahamas in Phase I should not be interpreted to mean that URCA has not and will not consider supply-side matters relevant to 5G including but not limited to spectrum allocation, network sharing, and cybersecurity. URCA considers that Phase II of the 5G Public Consultation will involve collaboration between the licensees, URCA and the Government to identify and address such supply-side matters in a more constructive manner.

1.2 Legal Framework

This subsection sets out the legal framework that governs URCA's power to conduct this consultation process.

Section 4 of the Comms Act provides, *inter alia*, that the electronic communications policy has as one of its main objectives, to further the interest of persons in The Bahamas in relation to the ECS by promoting affordable access to high-quality networks and carriage services in all regions of The Bahamas.

Section 11 of the Comms Act requires URCA to allow persons with sufficient interest a reasonable opportunity to comment on a proposed regulatory measure which, in the opinion of URCA:

- (i) is of public significance; or
- (ii) whose rights or interests may be materially adversely affected or prejudiced by the proposed regulatory measure. URCA must also give due consideration to those

comments prior to introducing the regulatory measure.

Section 13 of the Comms Act establishes that a regulatory measure is likely to be of public significance if it relates to a regulated sector and can lead to:

- (i) a major change in the activities carried on by URCA under the Comms Act or any other enactment;
- (ii) a significant impact on persons carrying on activities in a regulated sector; and/or
- (iii) significant impact on the general public in The Bahamas or in a part of The Bahamas.

URCA, therefore, considers that the cumulative effect of the foregoing statutory provisions required URCA to publish the Consultation Document for public consultation to provide an opportunity for all interest persons to submit written comments to URCA on the Consultation Questions and/or any other matter contained in or relevant to the 5G Public Consultation.

1.3 Structure of the Remainder of this Document

The remainder of this document is structured as follows:

- Section 2 summarises the general comments and responses to the consultation questions received from BTC and CBL/Aliv and URCA's responses thereto.
- Section 3 sets out URCA's Next Steps having considered the comments received in the consultation responses.

2. Responses to the Consultation

In this Section, URCA summarizes and responds to the key comments received from the respondents with respect to the Consultation Questions and any other matter relevant to the 5G Public Consultation.

In order to ensure that this document provides a useful and succinct assessment of the respondents' comments, URCA only discusses in this Section those responses which provide further material for discussion and/or clarification. Where the respondents have within their responses referred to matters that are outside of the scope of the Consultation Document, URCA has not provided a lengthy summary of those comments along with reasons supporting such position.

2.1 General Comments

Both BTC and CBL/Aliv provided general comments in their respective written responses. URCA summarizes below such general comments and provides its responses thereto.

BTC's Comments

In its response under the heading "*General Comments*", BTC raised the following matters:

- The challenges with reliable and quality power supply must be addressed. BTC has found itself at a disadvantage in attempting to replicate reliable power using generators, batteries and/or other alternatives, which is not sustainable and redirects resources to maintenance and improvements to BTC's redundant power supply.
- URCA's Guidance Note on the Communication Fees rebate scheme ("Guidance Note")⁴ is vague, ambiguous, and not fit for purpose. It has made an innovative investment-incentive policy a balance sheet experiment and operators must now wait and see how the process evolves in the face of uncertainty.
- URCA must ensure that the processing of premium spectrum applications is certain, predictable, and transparent.
- Uncertainty of the Government's position on a third mobile operator, operators are hesitant to plan and strategize on their near to medium-term investments as licensing of a third mobile operator would significantly impact the profitability of existing mobile

⁴ ECS 57/2022 available at <https://www.urbahamas.bs/wp-content/uploads/2022/12/Guidance-Note-for-Reductions-in-the-Communications-Licence-Fee-Consultation-Document-1.pdf>

licensees and negatively impact investment in lower population density areas of The Bahamas.

- URCA’s licensing of Starlink may impede local ECS development growth and goals and will have implications for 5G planning and deployment in The Bahamas.
- BTC recognizes the need for relevant Quality of Service (“QoS”) measures, however BTC noted that it is important to also recognize that there are external factors beyond BTC’s control that can undermine efforts to meet or exceed QoS or network performance metric targets, such as constraints on investment, spectrum resources, and access to quality power supply. These are factors which URCA has the power to directly address and positively contribute to QoS performance. BTC requested that URCA also consider the costs associated with managing a network across an archipelago, including variance in the costs of transportation and logistics.

CBL/Aliv’s Comments

In its response under the heading “*General Comments*”, CBL/Aliv made the following comments:

- The introduction of 5G services to The Bahamas comes with challenges, the predominant of which is the financial considerations given the investment in fibre and the recognition that the old investment models for telecommunications are no longer attractive.
- The implementation of 5G in small markets, especially on an archipelago such as The Bahamas raises particular issues. URCA’s proposed next steps fail to raise or address such issues which must be addressed sooner rather than later.
- URCA’s proposals are derived directly from user surveys, which have limitations and do not provide all the inputs that URCA must consider in developing its strategy for 5G.
- CBL/Aliv noted the complaints highlighted in the Consultation Document from the end-user surveys and industry focus groups. CBL/Aliv indicated that it is easy to raise such issues in a forum set up by a third party, whereas users may not consider it worth raising the issues directly to the service provider and have not done so.
- CBL/Aliv stated that it is difficult for users to imagine novel applications and evaluate their benefits without seeing them and trying them. Therefore, CBL/Aliv was not surprised that responses indicated a muted demand for new applications. Moreover, CBL/Aliv noted that while customers may be aware of the struggles they may be facing, they may struggle to articulate the solutions, particularly when they are unaware of the

capabilities of new technologies.

- URCA must recognize that technological development is the main driver of electronic communications services, not user demand and as such URCA cannot exclusively base its policies on the results of user demand studies.
- URCA's end-user surveys seem to have focused on new 5G applications and not the demand for existing mobile broadband demand which experts forecast to increase. 5G networks are needed to meet the demand for mobile broadband capacity from existing applications, particularly video messaging, programme streaming, and gaming. 5G may be the most cost-effective way of meeting that demand. Some of the QoS issues noted by URCA may only be addressed by providing additional capacity and improved performance through 5G.
- Some 5G applications that are in use or are being developed in other countries that may be applicable to The Bahamas are smart electricity grids, police, and emergency services networks. If users were presented with studies of 5G applications from other countries that are applicable to The Bahamas, their views may have been different.
- URCA has not considered the wider economic development considerations in developing its approach to 5G, including the Government's National Development Plan for The Bahamas, the Electronic Communications Sector Policy 2020-2023 and the Government's position on a third mobile operator. A high-capacity broadband network is critical to the future of the Bahamian economy. Whilst the ongoing fibre projects of the two major licensees cannot be ignored, the importance of a wireless broadband 5G network to the economic development of The Bahamas cannot be overstated.
- URCA has issued a class license to Starlink and has not published any information about the nature of its licence or the process for issuing it.
- The financial business case for the rollout of 5G throughout the entire Bahamas is difficult. It is more likely that 5G will develop initially for specific customers or hotspot locations and thereafter be rolled out incrementally to meet customer demands. The timescale for the rollout of 5G across The Bahamas is most likely to be three to five years, however the need for specific locations may come much sooner. The regulatory environment for 5G needs to be established early on to permit the selective rollout of 5G to meet demand. URCA's proposed next steps do not reflect this requirement and can be characterized as "wait and see".

URCA's Responses

Considering the range of general comments that were provided by BTC and CBL/Aliv, URCA has categorized such responses into sections below and responds to each section in turn.

BTC comments on reliable commercial power, the Guidance Note on the Communication Fees and Starlink

URCA acknowledges BTC's comments in this regard, and notes that these comments relate to matters that are outside the scope of the 5G Public Consultation.

CBL/Aliv's comments on URCA's approach to the 5G Public Consultation

URCA disagrees with CBL/Aliv's position that URCA's Consultation Document and proposed next steps therein fail to raise or address the regulatory matters relative to the rollout of 5G in The Bahamas. URCA refers CBL/Aliv to Section 1.3 of the Consultation Document where URCA (i) clarified the overall objective and phased approach to its 5G Public Consultation and (ii) emphasized the importance of identifying and addressing any regulatory and policy issues to enable the deployment of enhanced internet connectivity services, including 5G, in The Bahamas such as assigning 5G spectrum. Moreover, in section 4.3 of the Consultation Document, URCA proposed to organize working groups comprising representatives of URCA, the Government and the licensees to collaboratively identify and address relevant regulatory and policy measures. URCA considers that such a collaborative approach is necessary as URCA cannot unilaterally identify and address all the regulatory and policy matters relevant to 5G rollout. Therefore, URCA emphasizes that it will now seek to facilitate such working groups in Phase II.

CBL/Aliv's comments on user surveys and new applications

URCA notes CBL/Aliv's comments on the limitations of the end-user survey, and industry focus groups due to CBL's assumption that the participants in such surveys have a limited understanding of 5G. URCA acknowledges CBL's comments in this regard. URCA acknowledges that there may be limitations in the data collected via surveys. However, URCA notes that surveys have been and continue to be widely used and accepted as a reliable method of collecting data for studies. Moreover, URCA sought to mitigate such limitations by ensuring that the survey was administered randomly across various islands of The Bahamas to ensure that views of a wide range of respondents were collected.

URCA does not agree with CBL/Aliv's assumption that the participants in such surveys and industry focus groups have not experienced the use of 5G and other enhanced internet technologies and applications. Further, URCA notes that many of the participants in the industry focus groups have extensive and international experience in information and communications technologies and demonstrated understanding of 5G technologies and applications. URCA also

requested information from the three major operators in the Bahamian ECS to ensure that it captured the views of persons intimately involved with and aware of the recent trends in the electronic communications market.

CBL/Aliv's comments on technology-led markets

URCA acknowledges CBL/Aliv's comments that technology is the main driver of electronic communications services and not user demand and as such URCA cannot base its policies on the results of user demand studies. While URCA acknowledges that there are some instances where the introduction of a new technology leads to advancement in electronic communications services, URCA notes that the role of demand in driving the creation of new technologies should not be overlooked and undervalued.

URCA considers that a demand analysis is necessary during the 5G Public Consultation as it provides an understanding of customer needs and usage patterns and identifies the need for new technologies and services which ultimately leads to informed, evidence-based decisions on how to best meet such needs. It is URCA's view that this evidence-based approach is particularly necessary for The Bahamas based on its uncommon geographical nature. URCA notes that the United Kingdom's Department for Digital, Culture, Media and Sport ("DCMS") considered a 5G demand analysis to be important and as such commissioned a study seeking to provide a better understanding of the demand-side of the 5G market, and the opportunities and challenges (barriers to adoption) various UK consumer groups of 5G will face. URCA notes that a key component of the DCMS study was stakeholder engagement.⁵

Considering the foregoing, URCA considers that data collected in Phase I will be beneficial in providing an evidence base to supplement the proposed discussions between the Government, URCA and the Licensees in Phase II. Additionally, URCA reiterates that it is not URCA's intention to base any regulatory decisions that may be proposed solely on demand-side data, and that any regulatory measure or decision proposed by URCA will also consider relevant supply-side matters.

CBL/Aliv's comments on existing drive demand

URCA notes CBL/Aliv's observations that (i) the end-user survey seems to have focused on new 5G applications and not the use of 5G to meet the demand for mobile broadband capacity from existing applications such as video messaging, programme streaming and gaming and (ii) URCA's

⁵See pgs. 9-10 of the Department for Digital, Culture, Media and Sport Report "Realising the Benefits of 5G" available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1147979/realising_the_benefits_of_5G.pdf

analysis paid no attention to the demand for existing mobile broadband applications or forecasts produced by industry experts. URCA disagrees with CBL/Aliv's observations in this regard and refers CBL/Aliv to Section 3.2 of the Consultation Document, where URCA noted that the participants in the end-user survey identified surfing the web, video calling / conferencing, online shopping, watching videos, and live streaming as their current main uses for fixed and mobile broadband. Moreover, on this point, survey respondents complained about the low speed of their internet services, disruptions, and outages of services and intermittent/high-latency internet during video streaming and other use cases.

CBL/Aliv's comments on the 5G business case and rollout

URCA notes CBL/Aliv's observation that the rollout of 5G throughout the entire Bahamas would be a difficult business case to justify and as such 5G will likely, in the first instance, be rolled out in select locations where there is demand. URCA reminds CBL/Aliv that URCA has adopted a technology-neutral approach and that URCA is mandated to promote, amongst other things, affordable access to high quality networks and carriage service in all regions of The Bahamas. On this basis, URCA is cognizant that other technologies, outside of 5G, may be more technically and economically feasible to serve more remote areas in The Bahamas. Having regard to the foregoing, URCA considers that it is critical to identify current demands for 5G and other enhanced internet connectivity services in The Bahamas to inform URCA, the licensees and the Government on the most efficient way to meet such demands and enable use cases.

URCA acknowledges CBL/Aliv's position that 5G technology will be initially used in The Bahamas to deliver existing mobile services more efficiently, not necessarily new ones and that the 5G business case is based on revenue retention rather than additional revenues, which are difficult to obtain from customers who are used to unlimited use bundles and a saturated market, combined with high roll-out costs.

URCA notes CBL/Aliv's position that 5G cannot be ignored by any country and it will be particularly challenging to achieve in a small island state like The Bahamas and as such CBL/Aliv suggested that the primary focus of URCA should be to develop a regulatory regime that addresses the barriers to 5G investments as much as possible, while also recognizing the substantial investment risk to the operators in the market.

URCA recognizes the critical role that 5G and other enhanced internet connectivity technologies will play in the continuing development of The Bahamas and recognizes the investment risks posed to operators. Therefore, URCA considers that the approach taken in Phase I provides the licensees, URCA and the Government with necessary information and evidence to inform decision necessary to ensure that 5G and other enhanced internet technologies are available where required.

As stated in Sections 1.2 and 1.3 of the Consultation Document, URCA is cognizant that there may need to be some amendments and/or additions to the existing regulatory framework in The Bahamas to facilitate 5G, including but not limited to, assessing the need to issue additional spectrum, ensuring all mobile operators have access to fiber backhaul connectivity on reasonable terms, and/or facilitating site sharing where feasible. URCA considers that its proposed scope of work in Phase II together with its ongoing projects will seek to address those regulatory matters within the scope of URCA's powers.

CBL/Aliv's comments on other policy inputs

Regarding CBL/Aliv's concerns that URCA has failed to consider other policy inputs including the Government's National Development Plan for The Bahamas, the existing Electronic Communications Sector Policy and the Government's position on a third mobile operator, URCA clarifies that the absence of any matter in the Consultation Document should not be construed to mean that URCA has failed to consider such matter. URCA expects the Electronic Communication Sector Policy 2024 -2027 ("Sector Policy") and the Government's position on a third mobile operator to be published soon. URCA notes that the Sector Policy may shed light on the Government's position on the role of ICTs in the economic development of The Bahamas. This fact buttresses URCA's position that it cannot unilaterally identify and address all regulatory and policy issues relating to 5G and enhanced internet connectivity in The Bahamas. Consequently, a working group in this regard is necessary, which URCA proposes to facilitate in Phase II.

BTC and CBL/Aliv's comments on QoS issues

URCA notes both operators' comments on QoS issues.

In URCA's view, service providers should encourage end-users to raise issues with quality of service and customer care standards with them as these are critical matters. Circumstances where end-users are discouraged from or do not consider it worth raising such issues with service providers are concerning to URCA.

URCA considers CBL/Aliv's position that it is easier for end-user to raise quality of service and customer care standards issues in a forum set up by a third party to be evidence of the fact that URCA's proposed next step in establishing a regular forum with representatives from the business community, public sector, and the operators to discuss the current service delivery/experience in The Bahamas is appropriate.

2.2 Responses to Consultation Question 1

Do you agree with the key observations raised within the industry discussion groups, as summarized above? Should you disagree, please provide a detailed explanation of your view, including supporting evidence where available.

Do you have additional issues/observations on the potential demand for/use cases of 5G/enhanced internet connectivity you would like to raise to URCA's attention? If so, please provide a detailed explanation of these issues/observations, including supporting evidence where available.

BTC's Comments

BTC's key comments in response to Consultation Question 1 are as follows:

- BTC appreciated URCA's summary of the feedback it received on fixed internet connectivity services and 5G technology from its industry focus group participants.
- BTC noted that, in its view, there is insufficient information in the said summary for BTC to agree or disagree with any of the general comments or concerns noted since they lack specific context.
- BTC acknowledged that improvements in the service quality and reliability of its current services are necessary. BTC noted that it continuously seeks to improve those aspects of its business which are within its control, as well as expand coverage of its advanced network facilities, which is reflected in BTC's significant annual capital expenditure programs.
- BTC had no further comments or observations on potential demand for/use cases of 5G/enhanced internet connectivity beyond those included in BTC's response to URCA's Request for Information ("BTC's RFI Response").

CBL/Aliv's Comments

CBL/Aliv's key comments with respect to Consultation Question 1 are as follows:

- CBL/Aliv noted that the focus groups provided some valuable feedback on the current provision of existing fixed and wireless broadband services and the improvements these end users would wish to have. CBL/Aliv was generally not surprised that the participants in the industry focus group expressed concerns about the existing service levels and quality thereof, and that these group discussions revealed a prevailing uncertainty about the demand for 5G in The Bahamas. In CBL/Aliv's view such discussions are unlikely to provide any reliable guide to the future demand for 5G.
- On this point, CBL/Aliv noted that most businesses make greater use of fixed broadband and business connectivity services and the current rollout of fibre to the premises by CBL and BTC should address many of the QoS issues raised by the industry group participants.
- Regarding the 5G uses cases, CBL/Aliv noted that most of the industry group participants will have difficulty understanding imaginary applications and assessing their value to their businesses, especially if there are no indications of price, ease of use, or availability of the application. Moreover, some participants may be unwilling to indicate their real position in a focus group with their competitors.
- CBL/Aliv noted that the real benefits of new technology, including 5G applications, are seen when businesses use the applications to change their processes, reorganize their workforce, or address new markets and as such, it is unlikely that participants in a focus group would be able to think through these implications for their business model during a focus group meeting.
- CBL/Aliv noted that, in the short-term, the demand for 5G services is likely to come from:
 - Services for tourists in specific locations, for example for those used to high-speed 5G services at home, or for the provision of services, such as gaming, that take advantage of 5G's low latency.
 - Small businesses use fixed wireless access as a substitute for mobile or fixed broadband.
 - Specific businesses needing large data networks to connect remote or mobile points (e.g., ports, airports, distribution businesses, and network businesses).

- Residential customers needing to upgrade their existing fixed or mobile broadband connection through fixed wireless access.
- CBL/Aliv expressed that, in the medium-term, demand for 5G services is likely to come from organisations that need to connect to mobile customers with high-speed reliable networks (e.g., banking, health, gaming), and from residential customers who can gain benefit from faster speeds and/or reduced latency and who can afford a 5G handset.
- CBL/Aliv noted that the government has major opportunities to develop digital services over broadband, both for internal networks and for communications with citizens. The emergency services network and the networks operated by the Royal Bahamas Defence Force and the Royal Bahamas Police Force may benefit from 5G. CBL/Aliv noted that it appears that URCA has not considered the demand for 5G from these sectors.
- CBL/Aliv noted that the results of the industry focus groups indicate that there is an investment risk associated with 5G investments because the speed and breadth of 5G-based services and the scale of their introduction is difficult to assess in advance.
- CBL/Aliv noted that results of the industry focus groups do not indicate any incremental willingness to pay for 5G services. However, CBL/Aliv noted that international experience suggests that 5G will make its appearance in The Bahamas whether use cases are identified at this stage. Therefore, CBL/Aliv suggests that URCA's primary focus should be to develop a regulatory regime that addresses the barriers to 5G investments as much as possible, while also recognizing the substantial investment risk to the operators in the market.

URCA's Responses

URCA notes the general agreement by both BTC and CBL/Aliv that the provisioning and QoS levels of existing retail services need to be improved. URCA notes both BTC's and CBL/Aliv's representation that ongoing investments including fibre rollouts should improve QoS levels going forward. URCA encourages both BTC and CBL/Aliv to continue ongoing investments with the aim of improving QoS levels. URCA will seek to continue ongoing dialogue with both BTC and CBL/Aliv on their respective plans to improve QoS. URCA considers that its ongoing QoS framework review will also assist in ensuring that persons within The Bahamas have access to high quality services.

URCA notes that the customer care and fault repair concerns raised in the industry focus groups should not be downplayed or overlooked by the licensees and as such licensees should also seek to take necessary measures to improve their customer care and fault repair internal procedures to ensure that same are compliant with the Consumer Protection Regulations, relevant licence conditions and any other relevant measure.

URCA acknowledges CBL/Aliv's projections on the near-term, medium-term, and future-term use cases for 5G in The Bahamas. URCA notes that many of these projections are aligned with feedback URCA received from participants in the industry focus groups including the provision of services for tourists in specific locations, private 5G networks for business that need large data networks, and reliable high-speed networks for banking, health, education, and emergency services and national security. URCA notes that it has documented these use cases and will ensure that these are discussed in further detail amongst URCA, the Government and the licensees in Phase II to facilitate the enabling of such use cases.

2.3 Responses to Consultation Question 2

Do you agree with the key observations on the current demand for internet connectivity from end users in The Bahamas, and their expected demand for enhanced internet connectivity, as summarized above? Should you disagree, please provide a detailed explanation for your view, including supporting evidence where available.

Do you have additional issues/observations on the potential demand for/use cases of 5G/enhanced internet connectivity for end users you would like to raise to URCA's attention? If so, please provide a detailed explanation of these issues/observations, including supporting evidence where available.

BTC's Comments

BTC's key comments with respect to Question 2 are as follows:

- BTC noted that, for the most part, URCA's end user survey suggests most consumers are satisfied with their fixed and mobile services today. BTC stated that it appreciates that in more remote areas of the country, such as the Family Islands, service quality and reliability improvements are necessary.
- BTC further noted that it had no further comments or observations on potential demand for/use cases of 5G/enhanced internet connectivity beyond those included in BTC's RFI Response.

CBL/Aliv's Comments

CBL/Aliv's key comments with respect to Consultation Question 2 are as follows:

- CBL/Aliv noted that it is pleased to see that most customers are satisfied with their existing fixed and mobile services. CBL/Aliv noted that URCA's end-user survey did not explore customers' experience with fixed fibre broadband, where it is available such as New Providence, and whether it meets their expectations.

- CBL/Aliv noted that, in its view, telephone surveys are a good medium for collecting factual information, but they are not so good for exploring new ideas such as future demand for 5G applications.
- CBL/Aliv restated its position that it is difficult to assess the demand for new applications when users cannot try them out for themselves. Based on this position, CBL/Aliv noted that it is not surprising that the end-user survey suggests that respondents do not expect significant changes in the services or applications that they will access online in the near future. CBL/Aliv noted that this, however, should not be taken as a guide to the demand for mobile broadband, which has exploded in recent years and shows no sign of abating.
- CBL/Aliv stated that it expects the demand for mobile broadband services in The Bahamas to continue to rise based on global trends, driven in part by the wider availability of smartphones and in part by the growth of video, messaging, and gaming services. CBL/Aliv stated that Ericsson forecasts that this growth will continue for the next five years in North America. CBL/Aliv noted that data consumption in The Bahamas is slightly greater than that of North America. CBL/Aliv noted that additional network capacity will be necessary to meet this demand, either with 4G or 5G and if the necessary investment to cater to such demand is not possible, users will experience poor quality of service.

URCA's Responses

URCA notes that both BTC and CBL/Aliv were pleased that most customers that participated in the end-user survey were satisfied with their existing fixed and mobile services. URCA encourages both CBL/Aliv and BTC to continue their respective efforts in seeking to ensure that customers are satisfied.

URCA also acknowledges BTC's recognition that service quality and reliability improvements are necessary in the Family Islands. URCA will seek to continue ongoing dialogue with both BTC and CBL/Aliv on their respective plans to improve QoS levels in the Family Islands in an effort to promote digital inclusion. URCA will seek to facilitate discussions between the licensees, URCA and the Government with the aim of identifying specific measures that will improve QoS levels in the Family Islands. URCA considers that its ongoing QoS framework review will also assist in ensuring that persons in the Family Islands have access to high quality services.

URCA is unclear as to the meaning of CBL/Aliv's comment that "*If this investment is not possible, users will experience a poorer quality of service*" and as such URCA is unable to respond to this comment. URCA invites CBL/Aliv to further clarify this comment in the Phase II discussions between URCA, the Government and the licensees or in written correspondence to URCA.

URCA acknowledges CBL/Aliv's position that the demand for mobile broadband will continue to grow and that future demand will only be met with further investments in additional network capacity by the mobile operators. URCA encourages both CBL/Aliv and BTC to continue to make further investments in their respective networks to meet the growing demand for mobile broadband among their respective subscribers.

2.4 Responses to Consultation Question 3

Do you agree with the key observations raised within the operator submissions, as summarized above? Should you disagree, please provide a detailed explanation of your view, including supporting evidence where available.

Do you have additional issues/observations on the potential demand for/use cases of 5G/enhanced internet connectivity you would like to raise to URCA's attention? If so, please provide a detailed explanation of these issues/observations, including supporting evidence where available.

BTC's Comments

BTC noted that the summarized points in CBL/Aliv's response to URCA's Request for Information ("CBL/Aliv's RFI Response") are generally consistent with BTC's RFI Response and, therefore, BTC is in general agreement with the points noted in URCA's summary.

Further, BTC had no further comments or observations on potential demand for/use cases of 5G/enhanced internet connectivity beyond those included in BTC's RFI Response.

CBL/Aliv's Comments

CBL/Aliv noted BTC's RFI Response broadly accords with the views expressed by CBL/Aliv, which underscore the economic non-viability of 5G due to high capital costs, uncertain demands and the complexity of deployment.

URCA's Responses

URCA notes both BTC and CBL/Aliv's observation that their respective responses to URCA's RFI were generally aligned.

2.5 Responses to Consultation Question 4

Do you agree with URCA's preliminary conclusions from the public engagement process as set out above? Should you disagree, please provide a detailed explanation for your view.

BTC's Comments

BTC's key comments with respect to Consultation Question 4 are as follows:

- Regarding the issue of 5G and enhanced Internet connectivity, BTC agreed with URCA's preliminary conclusions.
- In particular, BTC shared URCA's view that the demand for 5G is limited. BTC noted that the costs of 5G deployment throughout The Bahamas will be significant.
- BTC also agreed that continued monitoring of 5G developments is necessary, which should include ongoing engagement with key stakeholders i.e., consumers, business, and public sector customers as well as the Government. BTC welcomed URCA's proposal to create a 5G working group, including representatives from all of these stakeholder groups, as this, in BTC's view, would provide an excellent means of keeping informed on 5G matters.
- BTC agreed that the contemplated working group could also consider areas where supply, policy and/or regulatory barriers could be reduced or eliminated to promote the deployment of 5G technology in The Bahamas, such as:
 - reviewing licensing and regulatory fees to ensure they do not inhibit investment in 5G technology;
 - reviewing spectrum allocation and licensing policies to ensure they are as flexible and as streamlined as possible to facilitate 5G deployment;
 - eliminating or reducing customs duties that raise the cost of 5G network equipment and, consequently, could slow 5G deployment; and

- ensuring access to a stable and reliable supply of electricity necessary to operate telecommunications networks.
- BTC stated that mandating the sharing of mobile operators' network facilities and/or the licensing of a third mobile network operator would negatively affect existing operators' ability to invest in 5G technology by further fragmenting what is already a small and dispersed market in The Bahamas, and by increasing market risk and uncertainty.
- Lastly, regarding service availability and QoS, BTC agreed that improvements are necessary in both these areas.

CBL/Aliv Comments

CBL/Aliv's comments with respect to Consultation Question 4 are as follows:

- CBL/Aliv agreed that there is a limited understanding about the potential demand for 5G from businesses and residential customers in The Bahamas but did not agree with URCA's preliminary conclusion that the demand for 5G will therefore be limited.
- As stated in response to previous consultation questions, CBL/Aliv is of the view that:
 - the demand for mobile broadband will come from existing uses rather than new applications.
 - 5G is likely to be the most cost-effective technology to meet future demand for mobile broadband, particularly in areas of high user density.
- CBL/Aliv noted that operators face the difficulty of making additional revenues from a mature market where penetration is at saturation level and customers can purchase bundles that give them unlimited data downloads.
- CBL/Aliv stated that a review of the present investment incentives is necessary, particularly for the Family Islands, and the Guidance Note for Reductions in the Communications Licence Fee ECS 04/2023 does not go far enough to provide incentives for operators to invest in more remote areas.
- CBL/Aliv said it does not consider it appropriate for URCA to monitor developments in 5G applications and to enable and facilitate them in the future. Businesses and residential users will become aware of how 5G applications are being used in other countries and

decide whether they provide them with value in their circumstances. Moreover, businesses will be reluctant to share their future plans because they will lose any competitive advantages derived from adopting 5G applications. URCA does not have the remit to evaluate the usefulness of applications in the business or home environment. URCA should let the market decide.

- CBL/Aliv stated that URCA has the important role of ensuring that the regulatory environment is ready for 5G, and it should devote its resources to achieving that.
- CBL/Aliv noted that the issues of quality of service that were raised by respondents are best addressed between customer and operator, so that the operator can understand the issue and suggest the best way of resolving them. URCA's role in the quality of service should be to set minimum standards, but it should not intervene in customer/operator discussions until these reach an impasse. Further, URCA's proposed stricter penalty schemes for non-compliance with QoS requirements must follow the Consumer Complaints Regulations and thorough investigations involving the operator itself.

URCA's Responses

URCA acknowledges BTC's comments on mandating the sharing of mobile operators' network facilities and notes that this is a supply-side matter that falls outside the scope of Phase I. BTC may wish to set out its position on this matter to URCA at a later, more appropriate time.

Regarding CBL/Aliv's position that URCA concludes that the demand for 5G will be limited, URCA clarifies that it considers that the demand for 5G is likely to be limited in the short term⁶.

URCA notes CBL/Aliv's position that it is not appropriate for URCA to monitor developments in 5G applications and that businesses will be reluctant to share their future plans because they will lose any competitive advantages derived from adopting 5G applications. URCA disagrees with CBL/Aliv's position in this regard. URCA notes that it is prudent for regulators to monitor global trends in their relevant markets to inform their decision-making and to ensure that proposed regulatory measures are aligned with international best practices and market trends.

URCA notes CBL/Aliv's comments on how URCA should exercise its discretion with respect to consumer complaints concerning the QoS levels experienced and considers that the exercise of URCA's discretion with respect to the handling of consumer complaints falls outside the scope of 5G Public Consultation. For the avoidance of doubt, URCA rejects CBL/Aliv's position that URCA's role, in the context of consumer quality of service complaints, is limited to setting minimum standards. Moreover, URCA rejects CBL/Aliv's attempt to fetter URCA's discretion in the handling of consumer complaints.

⁶ See section 4.1.1 of the Consultation Document

2.6 Responses to Consultation Question 5

Do you agree with URCA's proposed next steps set out above? Should you disagree, please provide a detailed explanation for your view.

BTC's Comments

BTC's key comments with respect to Consultation Question 5 are as follows:

- BTC welcomed URCA's proposal to establish a regular forum with representatives from the business and consumer communities, public sector, and operators to discuss how to facilitate meeting any existing and/or upcoming 5G use cases in The Bahamas. BTC stated that representatives from the Government should also be included in such a forum or working group, since it could play an important role in facilitating and promoting the deployment of 5G technology in The Bahamas.
- BTC also welcomed a review by URCA of the existing universal service framework. BTC agreed that a new updated basic or universal service objective ("USO") for enhanced Internet connectivity (i.e., minimum upload and download speeds and, if not unlimited, a minimum data usage level) with related affordability targets should be established. Any newly established USO should be technology neutral, and include fixed line, fixed wireless, mobile wireless and/or satellite connectivity technology options depending on location in The Bahamas and any plan requires URCA's engagement with all stakeholders i.e., end users, operators, and the Government.

BTC noted that the cost of achieving USO coverage throughout The Bahamas will be significant and as such it is unrealistic to believe that this cost could be borne entirely by BTC and CBL/Aliv. Therefore, BTC suggested that a suitable Government USO funding program for The Bahamas should be established as part of URCA's planned universal service framework review.

- BTC welcomed a review of the existing QoS regulations. BTC agrees that any such review should include further direct engagements between URCA and businesses, public sector clients, consumers, and operators to discuss prevailing issues and to identify workable solutions. In this regard, BTC considers that Bahamas Power and Light (BPL) should also be a party to these discussions. BTC noted that without a stable and reliable supply of

electricity, operators are unable to deliver stable and reliable telecommunications services. Power disruptions undermine BTC's ability to consistently meet its QoS targets. In BTC's view, any new QoS regulations applicable to licensed telecommunications operators should be linked to comparable regulations for power suppliers.

CBL/Aliv's Comments

CBL/Aliv's key comments with respect to Consultation Question 5 are as follows:

- CBL/Aliv noted that it does not agree with URCA's proposed next steps.
- CBL/Aliv noted that there are several important issues which are not mentioned in the Consultation Document that URCA needs to address, including spectrum allocation, mast deployment, network sharing and the decision on a third mobile operator. Such issues need to be resolved by URCA in the near future. In contrast, the issues identified by URCA in the Consultation Document can be addressed by the market or existing processes, without the need for URCA to spend its limited resources on them.
- CBL/Aliv requested that URCA emulate the approach taken by the Telecommunications Authority of Trinidad and Tobago ("TATT") with respect to its 5G consultation. CBL/Aliv suggested that TATT's approach reviews all regulatory policies relevant to the roll-out of 5G networks so that the regulatory environment supports the rollout of 5G networks.
- Regarding spectrum:
 - URCA's new National Spectrum Plan for 2024-27, expected to be completed in 2024, should address all relevant developments for new technologies requiring spectrum.
 - CBL/Aliv urged URCA to draw up spectrum bands plans for the key 5G spectrum bands (600 MHz and 3.5 GHz) and initiate an action plan to free up spectrum from current use if more efficient or innovative deployment of such spectrum is possible.
 - CBL/Aliv urged URCA to consider the Dynamic Spectrum Access and the GSM Association's (GSMA) recommendations for national regulatory authorities as it develops its plans for 5G spectrum.
 - CBL/Aliv also suggested that URCA consider whether existing 2G and 3G networks should be switched off as 5G networks are rolled out, given the declining use of voice-only networks and the costs of maintaining them. Such spectrum released from 2G and 3G may be reused with LTE networks over time.
 - CBL/Aliv noted that it is important for all operators to know the pricing for

premium 5G spectrum well in advance. In CBL/Aliv's view there is no scope to charge operators over and above normal spectrum fees for 5G spectrum as the business plan for 5G is already difficult to justify.

- Regarding mast deployment, CBL/Aliv suggested that URCA implements a fast-track process for determining feasibility of colocation under the Infrastructure Sharing Regulation.
- Regarding network sharing, CBL/Aliv noted that some form of network sharing may be desirable to reduce the costs of 5G rollout especially in more remote islands. In this regard, operators would need to work together with acceptable technical and commercial arrangements supported by URCA and the Government. URCA will need to consider the desirability of such arrangements and what regulatory safeguards may need to be included in such arrangements.
- Regarding the potential third mobile operator, CBL/Aliv urged URCA and the Government to publish a final decision on this matter as soon as possible as it will have an impact on the financial viability of further investment on the mobile industry and especially 5G.
- Regarding connectivity on the Family Islands, CBL/Aliv noted that the provision of high-speed communications to remote islands with small populations is expensive and uneconomic, but businesses and residents have a right to them. CBL/Aliv noted that URCA's proposal to consider such issues under its universal service review is not adequate for this task. CBL/Aliv stated universal service regulations set out minimum service levels and businesses and residents in the Family Islands should have access to services that are better than minimum standards. CBL/Aliv noted that the provision of adequate broadband services to the Family Islands should be funded by taxpayers due to the broader economic benefits to the country. Further, the provision of broadband services to the Family Islands must be seen as an economic development issue with the Government making political decisions about the locations for improved service and URCA's guidance on the level of service required and the funding of such developments.
- Regarding QoS issues:
 - CBL/Aliv thanked URCA for the feedback on customer care and QoS issues, some which are being addressed as a part of CBL/Aliv's normal business practice.
 - CBL/Aliv noted that most QoS issues are specific to a customer and may relate to customer equipment rather than network issues and as such need to be addressed individually. URCA has already established a process for complaints resolution and

reporting which CBL/Aliv considers appropriate for the resolution of complaints without the need for an additional forum as proposed by URCA. CBL/Aliv considers that such a forum would be a waste of time and resources.

- CBL/Aliv expressed its concern about a perceived threat that URCA may review the business connectivity market in the event that the QoS complaints are not resolved. In CBL/Aliv's view market reviews should not be conducted in response to reported comments during surveys outside of standard complaints procedures and without any reasonable visibility or due process to the operators concerned.
- Regarding the 5G use case forum, CBL/Aliv stated that establishing such forum is not an appropriate role for URCA. CBL/Aliv reiterated that URCA's role is to develop a regulatory environment that supports the successful rollout of new technologies. As such CBL/Aliv considers that URCA's proposal is misguided and a waste of URCA's resources. For the same reasons, CBL/Aliv does not agree with URCA's proposal for an education awareness campaign.

URCA's Responses

URCA notes that BTC welcomed URCA's proposed approach for continued engagement with stakeholders. URCA further notes BTC's support and comments with respect to URCA's upcoming review of the universal service framework in The Bahamas and URCA's ongoing review of the QoS Framework.

URCA notes that CBL/Aliv does not agree with URCA's proposed next steps. URCA notes that many of the comments and next steps raised by CBL are supply-side related and thus beyond the scope of Phase I. Therefore, URCA will not comment on the matters raised by CBL/Aliv at this time but will consider such matters in Phase II.

URCA acknowledges CBL/Aliv's further comments with respect to QoS, which largely reflect CBL/Aliv's comments made earlier on its response to the Consultation Document. Having regard to the foregoing, URCA refers to its responses with respect to CBL/Aliv's QoS comments made earlier in this document.

URCA notes CBL/Aliv's suggestion that URCA adopts TATT's approach by reviewing all regulatory policies relevant to the roll-out of 5G networks so that the regulatory environment supports the rollout of 5G networks. URCA notes the discussion on supply-side matters set out in TATT's 5G Public Consultation Document. URCA restates supply-side matters will be addressed in Phase II.

3. Next Steps

Phase I is the first step in URCA's overall plan to assess and enable 5G in The Bahamas. It is URCA's view that the information obtained in Phase 1 provides a more in-depth and evidence-based understanding of the current and potential future demand and use cases for enhanced internet connectivity and 5G services in The Bahamas.

After consideration of the responses to the Consultation Document, URCA confirms that it will continue with its next steps set out in the Consultation Document. In particular, URCA will use the information and data collected from Phase I to form the basis for discussions with the licensees and the Government on how to establish the most efficient way to meet this demand/enable the use cases in The Bahamas. This may include, amongst others, assessing the incremental investments/network upgrades required by the operators (taking into account the network sharing and joint build-out opportunities under OpenRAN/5G), and identify any regulatory and/or policy measures required to enable the deployment of 5G in The Bahamas.

In this regard, URCA will organize 5G working groups, in due course, involving representatives of URCA, the Government and the operators in order to identify and address any outstanding regulatory and policy issues, in order to develop a roadmap to 5G deployment in The Bahamas. Based on the discussions between URCA, the Government and the licensees, in Phase II URCA will develop a comprehensive roadmap that, amongst other things, (i) promotes the roll-out of 5G and any other advance internet connectivity technologies in The Bahamas to meet demands, (ii) mitigate any regulatory risks posed by the roll-out of 5G and other advanced internet connectivity technologies in The Bahamas and (iii) address any regulatory barriers, in this context, within URCA's statutory remit.