Proposed guidance consultation

Question	Your response
Question 1: Do you consider the measures in the proposed guidance relating to the resilience of the physical infrastructure domains to be appropriate and proportionate?	Confidential? – Y / N Y
Question 2: Do you consider the measures in the proposed guidance relating to the resilience at the Control Plane to be appropriate and proportionate?	Y
Question 3: Do you consider the measures in the proposed guidance relating to the resilience of the Management Plane to be appropriate and proportionate?	Y
Question 4: Do you consider the measures in the proposed guidance relating to communications providers' own managed services to be appropriate and proportionate?	Y
Question 5: Do you consider the measures in the proposed guidance relating to communications providers' arrangements for preparing for adequate process, skills and training to be appropriate and proportionate?	Y

Call for Input

Question	Your response

CFI question 1: Does this framework accurately capture the factors relevant to assessing what is an appropriate and proportionate measure for MNOs to take with regards to power resilience for RAN cell sites?	Confidential? – Y / N Y

Question	Your response
CFI question 2: Do you agree that at a minimum MNO's networks should be able to operationally withstand short term power-related incidents?	Yes, weather-related incidents can cause power outages, so ensuring Mobile Network Operators (MNOs) are able to operationally withstand short-term power-related incident should be a minimum requirement.

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CFI question 3: What mobile services should consumers be able to expect during a power outage, what consumer harms should power backup up focus on mitigating and does this vary depending on the type or duration of the outage?	Consumers may be reliant on mobile services for communicating emergencies in relations to work, health (personal and on behalf of someone else) and/or for financial services. Due to the consumer use cases identified for mobile services, there should be minimum disruption to the service to mitigate any potential negative problems for consumers.

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CFI question 4: What technical choices are available to MNOs to reduce power consumption, and should be considered as part of assessment of appropriate and proportionate measures?	**Example choice 1** Implement AI solutions to dynamically manage resources within RAN cell sites could help maximise efficiency, as well as lower power usage[1]. **Example choice 2** Use modular site architectures to improve energy efficiency. Depending on the needs of that particular RAN cell site, some RAN cell sites may require additional hardware to keep temperatures low (i.e., via a cooling system). Having these RAN cell sites as modular, means that specific cooling solutions can just be applied to the areas that need it the most and not the entire infrastructure[2]. As a result, this will ensure energy usage is more efficient, but in turn, can help save overall running costs. **References:** 1. Hughes, R. (2023, February 23). AI-enabled computing for O-RAN increases utilization, reduces power consumption and cost - Fujitsu Blog. Fujitsu Blog. https://networkblog.global.fujitsu.com/2023/02/22/ai-enabled-computing-for-o-ran-increases-utilization-reduces-power-consumption-and-cost/ 2. NGMN Alliance. (2023). Network Energy Efficiency Phase 3A. https://www.ngmn.org/wp-content/uploads/231204_NGMN_NEE_Phase_3A.pdf.
CFI question 5: How many sites would it be feasible to upgrade and maintain and why?	As many as possible depending on what is feasible from both a financial and resource perspective. Sites in areas that are more 'susceptible' for power outages should be prioritised (as mentioned in section 5.56).
CFI question 6: Do you consider that providing a minimum of 1 hr backup to all RAN cell sites would to be proportionate to meet the security duties under s.105A to D of the Communications Act 2003?	In reference to Annex A2, 2022/23 data from Ofgem details that 35% of all 'GB Domestic power outage duration percentages' were above 1-hour. To 'improve' resiliency further, a 4-hour minimum backup to all RAN cell sites would be more proportionate to meet the security duties under s.105A to D of the Communications Act 2003. If costs are huge factor, then the RAN cell sites considered to be higher risk to power outages could be provided a 4-hour power backup, and the lower risk ones could be provided a 1-hour backup.

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CFI question 7: What cost effective solutions do you consider could meet consumers' needs during a power outage?	In agreement with the proposed solutions in section 5.57 and 5.58.
CFI question 8: **a) Is it more cost efficient to increase power backup up to any space, weight, or planning limitations, i.e., increasing power backup as much as is feasible provides the lowest £ per hour?** **b) do the benefits of any power backup solution have diminishing returns, i.e., the benefit per hour decreases as you increase the amount of power backup?**	a) ? b) No, only if there is a huge disparity between the power backup time versus expected power outage duration. Using the power outage data collected by Ofgem in GB (2022/23) from Annex A2, increasing the minimum backup on all RAN cell site to 4-hours would provide more resilience, as a large percentage (35%) of those recorded power outages have lasted longer than 1-hour.
CFI question 9: Does the mobile market fail to capture the value or importance of power backup, and if so, why?	Yes, mobile services' target audience may not be critical services, therefore, it could be argued that additional resilience is not required. However, consumers pay lots of money and have to adapt to yearly inflation to accommodate price changes set by the mobile market. Research also suggests that emergency services rely on mobile networks (e.g., TETRA) and have for 25-years. Other critical services are now adopting such technologies to operate (e.g., telecare). As a result, the use of mobile connectivity is being used a primary mode of connection for portable equipment within services (e.g., telecare alarms, etc).
CFI question 10: Should improvements in power backup be focused on solutions at sites which are identified as higher risk of outages?	No, all sites should be reviewed and actioned accordingly. However, all sites identified as higher risk of outages should be prioritised during the upgrade phase. *What makes it high risk? Weather or what's connected to it? (e.g., police force)

Question	Your response
CFI question 11: Why would any requirement lower than a minimum of 1 hour be sufficient in future? What duration do you consider would be sufficient and why?	Document proposes a 1-hour power backup as a minimum requirement going forwards. Anything below this threshold would not help solve any power outage concerns – data shown in Annex 2A supports this. However, a minimum power backup requirement of 4-hours in the future would be considered more robust in terms of resilience, as it mitigates a wider range of power outage incidents recorded in 2022/23 by Ofgem.
CFI question 12: Over what time period could industry make upgrades to provide a minimum of 1 hour at every cell site or other cost-effective solutions to address potential consumer harm?	Without understanding how many cell sites are currently active in the UK, it would be difficult to determine the length of period required to complete the proposed 1-hour power backup upgrades.

Please complete this form in full and return to resilience.team@ofcom.org.uk.