

## Ofcom Call for Input

### Mobile RAN power back up

1. Mobile UK welcomes the opportunity to provide input to Ofcom's CFI on Mobile RAN back-up power. These are high level comments, which seek to establish some basic principles which should underpin policy development in this field.

In summary these are:

- Mobile UK welcomes that Ofcom is not proposing direct regulatory action at this point and is looking to build policy on an evidence base.
- Without an overall assessment of how much the customer base would value a very marginal improvement in availability through a small reduction in power outages, it is not really possible to assess what form a 'proportionate' intervention would look like with any rigour.
- The UK's power networks, after all, are generally very reliable. Ofgem reports the average 'customer minutes lost' (CML) across the UK was 32 minutes in 2022 (down from 39 minutes in 2015) – a tiny fraction of overall usage.
- It is very hard to imagine the customer base would attribute any significant value to reducing CMLs on their mobile service below 32 minutes per annum\*\*<sup>1</sup>.
- It follows that operators' scarce capital resources (and the upward of £900m estimated cost of introducing 1 hr resilience across the RAN network) would be very much better targeted on customer known priorities such as reducing congestion (including investing in 5G), extending coverage and improving security.
- Mobile UK recognises that lengthy power and mobile service outages caused by harsh weather events can cause hardship, particularly for vulnerable customers.
- Instead of very marginal improvements in the general RAN network, the focus should be on ensuring the power companies and the mobile operators can work effectively together to restore power and service as quickly as possible after extreme weather events.

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<sup>1</sup> \*\* Note 'customer' for DNOs and 'customer' for mobile networks would be measured slightly differently and so 32 mins might not be the exact CML for mobile services resulting from power loss, but the number would still be very low and the argument remains the same.

## Background

### The role of the power networks

- (1) We very much support Ofcom's continuing dialogue with Ofgem on the topic of resilience, ensuring that the needs of the telecoms industry and their customers are fully reflected in Ofgem's thinking and policy making. As Ofcom points out (5.12) arrangements are in hand to provide increased resilience in the power distribution networks.
- (2) Indeed, Ofgem has published its five-year plan for improving resilience in the power networks. £20bn has been ear-marked and will drive improvements in both the reliability and the speed of restoration of the power networks. The £20bn cost will be recovered via the regulated price of transmission and distribution and shared across the whole customer base (including an extra cost to the mobile operators).
- (3) In other words, there is a funding mechanism in place for the power sector, so that it can recover the cost of improving power resilience (and this will be reflected in the prices customers, including mobile operators, will pay for their power).
- (4) Further, Ofgem, as part of its 5-year regulatory price controls, has in place an Interruptions Incentive Scheme<sup>2</sup>, whereby DNOs are able to earn bonuses (of around £180m in total) for beating targets improvements on their reliability KPIs: Customer Minutes Lost and Customer Interruptions.
- (5) Understandably, there are fairly significant geographical variations in these KPIs. For example, in 2021/22 Scottish Hydro reported 57 customer interruptions per 100 customers and 56 minutes lost per customer<sup>3</sup>, whereas London Power Networks reported 15 customer interruptions per 100 customers and 13 customer minutes lost. As such, this variation should inform policy and have an influence on how any intervention is targeted.

### Role of resilience in the radio access network

- (6) Mobile UK recognises that extreme weather events in recent years and customers' greater reliance mobile (and anticipated need as a back-up post the copper switch-off) has brought this topic more to the fore.
- (7) However, as Ofcom correctly points out, introducing 1 hr power resilience across the RAN network would be extremely expensive to execute on a widespread basis, and,

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<sup>2</sup> <https://www.ofgem.gov.uk/sites/default/files/2022-11/RIIO-ED2%20Final%20Determinations%20Core%20Methodology.pdf>

<sup>3</sup> <https://www.ofgem.gov.uk/publications/riio-1-electricity-distribution-annual-report-2021-22-and-regulatory-financial-performance-annex-riio-1-annual-reports>

absent any specific way of funding the programme, with no return on investment, as no competitive advantage would be conferred. We welcome that Ofcom is not currently proposing a specific regulatory intervention.

- (8) Mobile UK notes that Ofcom has not, at this point, made any assessment of how much the customer base would value improvements in overall RAN resilience. Without any review of the customers' 'willingness to pay' (even if they did not pay it directly and some other mechanism was found for raising the money), it is not possible to say with any rigour what a proportionate action would look like.
- (9) With the high reliability of the power networks and, thus, the very low potential for marginal improvements in the reliability of the RAN (and power, as Ofcom observes, only accounts for 25% of outages), Mobile UK strongly suspects that this would be a very inefficient way of spending £900m+.
- (10) Moreover, it is quite clear that any further resilience will not be done through the normal operation of the market (as providers would already be able to levy a reliability premium if that were the case). Thus an appropriate method of funding any programme would have to be found. Mobile UK notes that such a discussion is outside the scope of the current call for evidence, but the issue should not be ignored during policy development.

## **Storm events**

- (11) As Ofcom mentions, the great majority of outages are of short duration. It has been the storm events which have caused power to go down for many days which have caught public attention and caused inconvenience and some distress.
- (12) We agree with Ofcom's assessment that severe storms need a multi-pronged approach, and that the UK needs to develop better plans to restore power networks more quickly. This will include, where appropriate, prioritising restoration of power to phone masts, so that power companies can not only communicate with their workforce on the ground but also communicate with their customers (particularly via SMS, where mobile handsets will have some residual power). Most importantly, consumers would benefit from continued access to friends, family, and, if needed, emergency services.
- (13) Mobile UK is very pleased to note that there is a plan to pilot this approach by SSE in north- east Scotland and by National Grid Power in Cornwall.

## **Practical issues**

- (14) Mobile networks are not designed to be networks of last resort and, as already mentioned, there is no regulatory or financial underpinning to support a 'public benefit' level of resilience. And so, to the extent that any further regulatory

intervention in the telecom sector is being considered, the improvements already in hand under the Ofgem programme must be factored in together with a viable way of addressing funding. In the absence of any funding scheme for 'public good' levels of battery back-up power, the sector would have to divert funds away from other essential (and commercial) investment.

(15) Furthermore, it is not just a question of cost. There will be many practical issues to address, such as how to make space for batteries in street cabinets (and any associated planning and landowner consents). Any enhancements would take some years to complete.

(16) Mobile UK does not entirely agree there are economies of scale from rolling out 4 hour back-up as opposed to 1 hour. This will be very situation dependent. For example, 4 hour back up batteries are larger and would be very unlikely to be accommodated within existing street furniture, for example, thus necessitating additional land to be acquired - very difficult, even with code powers – and potentially further planning and cabling resource.

(17) Environmental matters are also a factor. Diesel generators, for example, cause CO2 and noise pollution and therefore cannot be used extensively.

## Questions

**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?**

In the absence of any assessment of how much consumers and business customers would value extra power resilience, it is not really possible to assess what sort of intervention would be 'proportionate'. The answer to such a question would be highly variable from customer to customer, but it should, nonetheless, be possible for Ofcom to make some assessment of an overall 'willingness to pay' and thus establish an envelope of proportionality.

Mobile UK suspects that the vast majority of consumers, when informed about the actual average levels of power outages (as measured by Ofgem's KPIs for Customer Interruptions and Customer Minutes Lost- see below for more detail), would not attribute any significant value or be willing to pay for reduced levels of outages. The marginal improvements that could be achieved from an already very reliable power network would have minimal value.

Note – Ofcom also mentions that in many situations there is considerable overlap in coverage from cell to cell in urban areas especially, so loss power in one cell wouldn't necessarily entail loss of service.

**CFI question 2: Do you agree that at a minimum MNO's networks should be able to operationally withstand short term power-related incidents?**

Mobile UK's response to Q2 is essentially the same as Q1.

As we have mentioned, mobile operators are not funded to provide ‘public benefit’ levels of power resilience, and there are many other calls on operators’ resources, such as providing more capacity to cope with increasing demand (including upgrading to 5G). Experiencing congestion is arguably just as much a nuisance to customers than power outages and resources would be much better directed at reducing congestion, because we know that customers do not like congestion and investment can be targeted where it is needed.

Mobile operators are also spending very large sums on compliance with the telecoms security requirements to guard against catastrophic network security issues.

**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?**

No comments from Mobile UK. Individual operators may comment.

**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?**

No comments from Mobile UK. Individual operators may comment.

**CFI question 5: How many sites would it be feasible to upgrade and maintain and why?**

There are approximately 40,000 sites in the UK: some provided by Wireless Infrastructure Providers, some shared between operators and some occupied by individual operators (such as a monopole street works, of which there are several thousand). Monopoles will be the most difficult to upgrade and maintain, as there is often very little space to work with on highways. Rooftop sites could also be very difficult, particularly where extra rights have to be obtained from landowners to use more of their space.

To answer this question with any precision will be a major exercise.

**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?**

No. Mobile operators are not funded to public safety levels of resilience. Losing a few masts from many thousands in service would not constitute a material breakdown in service.

**CFI question 7: What cost effective solutions do you consider could meet consumers’ needs during a power outage?**

No comments from Mobile UK.

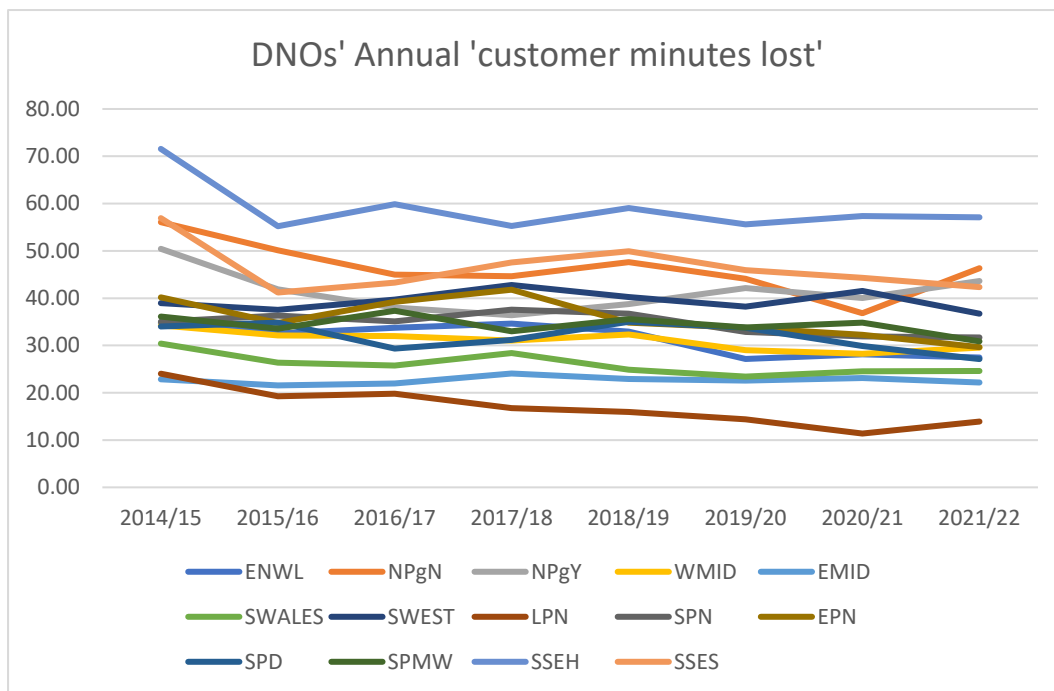
**CFI question 8: a) Is it more cost efficient to increase power backup up to any space, weight, or planning limitations, i.e., increasing power backup as much as is feasible provides the lowest £ per hour? b) do the benefits of any power backup solution have diminishing returns, i.e., the benefit per hour decreases as you increase the amount of power backup?**

The answer to this question will be very situation/site specific and will depend on existing space available, general network load and the criticality of a given site, overlap coverage from other cells and numerous other factors.

**CFI question 9: Does the mobile market fail to capture the value or importance of power backup, and if so, why?**

Customers undoubtedly take account of network reliability when considering their purchase options, albeit as a secondary consideration over coverage, performance, and price. But power resilience is only a small element of overall reliability and, if there was demand for greater power resilience, this would be reflected in how operators weight their investment. As it is, they take a risk-based approach, taking account of geographical vulnerabilities and/or the needs of their respective customers bases.

Moreover, in general, our power networks are very reliable and improving.



Source: Ofgem RIIO – ED1 Network Performance Summary by DNO. Average in 2022 was 32 customer minutes lost.

Mobile UK does not have concrete evidence, but common sense would indicate that customers would pay very little extra (if anything) to ensure one hour cover, when, on average, they are only losing 32 minutes of service per annum in 2022 (39 minutes in 2015).

There are, on average across the industry, 39 customer interruptions per 100 customers per annum (i.e. as an individual, you have less than a 40% chance of having any interruption in a given year caused by a power outage – ignoring for simplicity that you may get service from a neighbouring cell. This is down from 50% in 2015)

**CFI question 10: Should improvements in power backup be focused on solutions at sites which are identified as higher risk of outages?**

Yes. And where there is no or little overlapping coverage from neighbouring cells.

**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?**

As before, in the absence of any data on ‘customer willingness to pay’ this is impossible to answer with any rigour.

**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?**

It has not been possible to assemble an answer to this question for the whole industry, but the longer that would be allowed, the more that could be done under business usual processes. Retrofitting would be expensive and time consuming.