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Broadband Delivery UK (BDUK)

National Broadband Scheme for the UK

Guidance: The role of fixed wireless technologies in addressing superfast broadband market failure

1 Introduction

- 1.1 Local broadband and community projects that are part of BDUK's superfast broadband programme will be subsidised to varying degrees by funding from DCMS, as well as other UK and potentially EU public sources. In almost all cases the funding for these local broadband projects will give rise to State aid.
- 1.2 This document provides guidance to local and community bodies as well as other interested stakeholders on the role that we expect fixed wireless technologies to play in BDUK's superfast broadband programme.
- 1.3 Local Bodies should also utilise the principles set out in this guidance when assessing a response to either an Open Market Review and/or a Public Consultation, where this relates to a fixed wireless service and making decisions on whether to classify claimed coverage as NGA provision within its coverage maps.

The guidance provided here should be read in conjunction with other detailed guidance^{1,2} dealing with the complementary elements to the requirements detailed here concerning the access conditions that apply to part-state funded networks. In particular, reference should be made to (i) the general and specific wholesale network access requirements that will apply to

¹ European Commission, State aid SA.33671 (2012/N), National Broadband scheme for Broadband Delivery UK, 20.11.2012, at http://ec.europa.eu/competition/state_aid/cases/243212/243212_1387832_172_1.pdf

² European Commission, Reference IP/12/1424, EU Guidelines for the application of state aid rules in relation to the rapid deployment of broadband networks, 19.12.2012, at http://ec.europa.eu/competition/state_aid/legislation/broadband_guidelines_en.pdf

suppliers in direct and indirect receipt of State aid³, (ii) the general condition applying to the supplier in instances where, a third party makes a new request for wholesale network access⁴, and (iii) the pricing rules that constrain the supply of specified active and passive access products⁵.

- 1.4 It is essential that State aid measures that are designed to address identified market failures in the provision of NGA, do so in a coherent and effective manner. The outcome of the proposed broadband intervention should deliver better broadband speeds and enhanced coverage. In most instances, this means an NGA Network infrastructure is deployed in defined 'white' intervention areas by a supplier and this capability provides the means to deliver superfast broadband services to end users. However, as network economics worsen as rural densities fall, the business case for fibre based NGA Networks becomes less sustainable.
- 1.5 Importantly, the requirements that we have set out here are central in promoting effective and sustainable retail competition in the supply of advanced broadband services to residential and business consumers in rural areas and both fibre based and fixed wireless technologies each have a role in delivering those outcomes.
- 1.6 In certain instances (i.e. where the business case is demonstrated) we therefore recognise that Interim NGA network technologies, such as fixed wireless, can be legitimately used by a supplier as a method of meeting defined local and community broadband objectives. There are two key elements that are detailed below that should be considered in the development of projects likely to use fixed wireless solutions to target intervention areas mapped as 'NGA white' for State aid purposes
- 1.7 In assessing projects for State aid approval, BDUK's National Competency Centre ("NCC") will require that projects submitted to it for approval that propose to use non-wired solutions in NGA white areas meet the requirements below, in addition to those required for wired NGA solutions.
- 1.8 The approach that BDUK has set out in this guidance has been developed in light of feedback from the European Commission. These requirements are deemed necessary to meet State aid requirements under EU law. They have been explicitly designed to meet those State aid requirements and are legally separate to the requirements specified under the UK/EU regulatory framework for communications.

2 Requirement 1: The subsidised solution must deliver a 'step change' in network capability and service availability and consistently provide a high quality experience to end users

- 2.1 This requirement ensures that where a basic broadband infrastructure already exists, State aid must only be used to deploy infrastructure that genuinely offers a significant new capability to end users.
- 2.2 In assessing projects for State aid approval, BDUK's National Competency Centre ("NCC") requires that interim non-wired technologies that are used in NGA white

³BDUK, *Guidance on wholesale access conditions applicable to part-state funded networks*, at:

http://www.culture.gov.uk/images/publications/BDUK_Draft_wholesale_access_conditions_050912.pdf

⁴BDUK, *Basic test for new wholesale access requests on part-state funded networks*, at: http://www.culture.gov.uk/images/publications/State_Aid_Guidance_for_new_wholesale_access_requests.pdf

⁵BDUK, *Guidance on benchmarking and other access pricing*, at: http://www.culture.gov.uk/images/publications/State_aid_Guidance_Benchmarking.pdf

intervention areas must provide the same outputs as those defined for NGA network deployments. Specifically, the NCC will expect to see that the technical solution:

- is capable of providing access speeds in excess of 30Mbps download, not only by reference to theory and technical standards, but also by evidence of calibrated performance measurements of an existing deployment within the area of interest or an demonstrably equivalent deployment in a similar geographical environment;
- provides a doubling of average access speeds in the target NGA intervention area;
- must be designed in anticipation of providing at least ~15Mbps download speed to end-users for 95% of the time during peak times in the target intervention area, as demonstrated by calibrated measurements using a methodology comparable to those used for fixed network measurements;
- must show how the solution would adapt to maintain capability an end-user experience in changes to key parameters such as increased take-up and increased demand for capacity, and be able to show that this is both technically and commercially viable supported by clear calculations;
- must have characteristics (e.g. latency, jitter) that enable advanced services to be delivered e.g. video-conferencing and High Definition video streaming to be provided to end users as evidenced by trials results not necessary obtained within the area of interest; and
- has longevity such that one might reasonably expect increases in performance within the next 7 years.

2.3 In assessing whether the requirement is being met, the NCC will require the applicant to provide evidence of the capabilities detailed above. That evidence might include:

- The Business case, including scenario analysis;
- Planning consents having being obtained, or likely to be obtained, for the proposed developments;
- Actual deployment of similar scale and end-user density;
- Field trial supplemented by modelling of different take-up scenarios;
- Radio plans and interference analysis, using planning tools correctly calibrated for the target geography, to show that the access speeds are realistic and the spectrum to be used is appropriate for its geographic context;
- Proposed product offerings and associated service level guarantees;
- Network dimensioning calculations; and
- Evidence that the enabling technology has a future development path, such as existing internationally accredited standards, on-going development of new versions of the standards, international research working groups, diversity of supply chain.

3 Requirement 2: The subsidised solution must be an interim solution chosen where a fibre-based solution is not yet economically viable, and there shall be a commitment to replace non-wired connections with fibre at a later stage

3.1 This requirement ensures that public money is used to support infrastructures that offer the most viable route to full fibre infrastructure; where that goal isn't economically viable today, any subsidised solution should support this goal eventually (i.e. when revenues increase or deployment costs decrease sufficiently).

3.2 In assessing projects for State aid approval, the NCC will expect to see that the solution is able to meet the following criteria:

- The supplier must demonstrate how its solution design has - to the extent economically viable - incorporated the deployment of long-term infrastructure that permanently reduces the barrier to further network deployment in that area; and
- The supplier must provide a commitment to transition to higher-performance fibre-based solutions when economics change in order to make deployment viable.

3.3 The evidence that the NCC would expect to be provided with that would demonstrate the commitment includes, inter alia:

- the supplier's business case showing the comparative investment case for deploying non-wired solution instead of wired solution, including economic justification for use of each non-wired network component (e.g. microwave backhaul, point-to-multipoint wireless access);
- the supplier's deployment plans for passive infrastructure (e.g. new mast sites); and
- a contractual commitment to upgrade to an NGA network, based on appropriate triggers (e.g. cell utilisation, mast capacity, level of take-up).

February 2013