

BDUK NGA State Aid Assessment template

February 2017

1. Introduction

The purpose of this document is to gather and present evidence supporting suppliers' claims for Next Generation Access (NGA) compliance in accordance with BDUK's NGA technology Guidance¹

This template should be completed by suppliers that operate an NGA Broadband Network or have plans to build and operate such a network.

Suppliers are advised to engage the services of suitably qualified individuals when completing this template, i.e. with the appropriate detailed knowledge of the technical and commercial aspects of the solution proposed and of the state aid requirements that apply to that solution.

The evidence provided in the template will be used for assessment of NGA and State aid compliance by Broadband Delivery UK's (BDUK) National Competence Centre (NCC).

¹ BDUK, 2016 NBS State Aid Guidance – NGA Technology, <https://www.gov.uk/government/publications/2016-nbs-tech-guidelines>.

2. Requirement

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, the NCC requires that NGA technologies that are used in NGA white intervention areas must provide the same outputs as those defined for other established 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 at least a doubling of average download access speeds and substantially higher upload access speeds in the target NGA intervention area;
 - must be designed in anticipation of providing at least 15Mbps download speed to end-users for 90% of the time during peak times in the target area, as demonstrated by industry-standardised or reliable independent measurements;
 - must show how the solution would adapt to maintain capability and end-user experience in changes to key parameters such as increased take-up and increased demand for capacity, and be able to show using clear calculations that this is both technically and commercially viable;
 - 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

- have 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 or commercial deployment supplemented by modelling of different take-up scenarios;
- for wired NGA technologies: access network planning taking due account of wired line length and quality from existing or planned access nodes, to show that the access speeds are realistic in the geographic context;
- for fixed wireless NGA technologies: 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, and diversity of the supply chain.

3. Evidence of compliance with BDUK NGA Guidelines

Suppliers shall present evidence in the following categories based upon the criteria listed above.

Topic	Evidence
30Mbps capability	<p>For example:</p> <ul style="list-style-type: none"> a. Evidence that physical/technological constraints are accounted for the planned coverage area (e.g. transmission line characteristics, radio propagation etc.); and b. Description of the network design’s upgradeability to support 30Mbps in future; and c. Manufacturers’ product descriptions and configuration manuals; and d. Evidence of a commercially offered NGA-compliant 30Mbps product (e.g. on a web-site).
Doubling of download access speed	<p>For example:</p> <ul style="list-style-type: none"> a. A survey of current speeds per premise/postcode referring to information provided in ITT Part 2 Appendix 3: Speed and Coverage Template ; and b. Design information showing that access speeds will be or are doubled by the new network compared with current speed data.

Substantially higher upload access speed	<p>For example:</p> <ul style="list-style-type: none">c. A survey of current speeds per premise/postcode e.g. from public data published by Ofcom; andd. Design information showing that access speeds will be or are substantially higher as a result of the new network compared with current speed data.
15Mbps download speed 90% of time in busy hour	<p>For example:</p> <ul style="list-style-type: none">a. A forecast of the distribution (or average) traffic demand per user over time. Authoritative data from other comparative deployments and publically domain sources should support these forecasts; andb. Network dimensioning of links and nodes to meet these demands (including statistical multiplexing calculations and over-dimensioning where needed to manage statistical variations); andc. Evidence of sufficient backhaul, core network and Internet transit capacity for forecasted user traffic demands over time.

<p>Future capacity</p>	<p>For example:</p> <ul style="list-style-type: none"> a. User and traffic growth forecast that are comparable with both the supplier’s business model and public domain forecasts; and b. Design and dimensioning information demonstrating that network upgrade plans will match the user and traffic growth forecast; and c. Definition of triggers for individual link/node upgrades (e.g., when the use of x% of capacity is measured over a specific period).
<p>Latency and jitter</p>	<p>For example:</p> <ul style="list-style-type: none"> a. Calculations of end-to-end latency and jitter from manufacturer’s or suppliers’ specifications; and b. Measurements of latency or jitter from a reference network; and c. Demonstration that latency and jitter performance meets the requirements of typical applications (e.g. video conferencing, telephony).
<p>Supporting business case</p>	<p>For example</p> <ul style="list-style-type: none"> a. A business case that demonstrates that revenue versus cost of the proposed network provides a positive return on investment for different take-up scenarios; and b. Evidence of sufficient funding availability (including an assumption of any government subsidy where appropriate) to build the network as planned.

Planning consents	<p>For example:</p> <ul style="list-style-type: none">a. Sample planning consents or applications; and/orb. Letters of support from local authorities and landlords; and/orc. Constructive correspondence with the relevant council's planning department.
Comparative deployments	<p>For example and if possible:</p> <ul style="list-style-type: none">a. Description of the comparative deployment, whether a commercial deployment or field trial, and why it is comparative (and the significance of any differences); andb. Description of the comparative networks hypothetical ability to meet any or all of these NGA requirements.
Radio and Interference plans	<p>For example:</p> <ul style="list-style-type: none">a. Radio and interference plans that show which premises and postcodes could receive NGA-compliance services (e.g. colour coded by service/grade); andb. Frequency plan than minimises interference and demonstrates sufficient network capacity to meet the NGA requirement.

Product offerings and SLAs	<p>For example:</p> <ul style="list-style-type: none">a. Publically available product description (e.g. from a web site); andb. Sample contract terms and conditions.
Network dimensioning	<p>For example:</p> <ul style="list-style-type: none">a. Full end-to-end network capacity information including per-link and per-node capacities for access, backhaul, core network and Internet transit; andb. Demonstration that there are no bottlenecks anywhere in the network that would reduce performance below NGA requirements.
Future upgrades and longevity	<p>For example:</p> <ul style="list-style-type: none">a. Future expansion plans (linked to the required capacity growth); and/orb. Plans for new technology deployments in future; and/orc. Technology roadmap to support forecast future capacity and user requirements.