Department for Digital, Culture, Media & Sport

Questions and Answers Log

Rural Connected Communities Project Competition

Introduction

The following questions and answers are in relation to the DCMS grant funding competition; **Rural Connected Communities Project**. Please send further questions to 5genquiries@culture.gov.uk, the answer to your question will be added to this document. All questions received by 27 September will receive a guaranteed response.

Subject: Location eligibility
Question: What locations within the UK are eligible to apply for the RCC Competition?
Answer: We are interested in applications from a variety of types of rural locations, from sparsely populated areas with primarily natural or agricultural land use, to more populous rural areas including some settlements. However, proposals must clearly focus on rural services, communities and economies and the benefits to them, not on any urban areas that may be within the proposed region. The project area is the area where trials will be conducted and must include either: - A contiguous rural area (which may incorporate multiple local authorities); or - Multiple, separate rural areas, with a strong rationale for why they are interlinked for the purpose of this project. The project area, at postcode-level, should meet the relevant rural classification applied by the project's host country. The relevant rural definitions can be found in the eligibility section of the "Rural Connected Communities - Overview and Application Guidance" document.

Subject: Bidding consortia
Question: Who should apply for the RCC competition?

Answer: In order to attract the broadest range of proposals, we are open to receiving proposals from consortia that can be led by any type of organisation from the public, private, third or academic sectors, providing that the consortium meets the following criteria:

● There must be a lead organisation that demonstrates that it can act as the accountable body, has the capability, and is able to manage the delivery of the project across the consortium with clear project governance and leadership.
● The consortium shows evidence of public and private sector partnership, including strong industry representation, and includes, or can demonstrate strong commitment to collaborate from, all local public sector bodies responsible for any services or assets involved in the project, or areas within which planning permission will be required.
● The consortium has access to the spectrum and network capabilities required to deliver the project, or has a clear plan to acquire or build them in a timely manner. This may be in the form of an agreement with an existing network provider, or through the deployment of new network infrastructure, in addition to any required connections to existing or third-party infrastructure. Spectrum may be commercially licenced, by using an Ofcom Innovation and Trial Licence or by making use of Ofcom's new licensing approach to provide localised access to spectrum bands that can support mobile technology.
● To be considered a consortium, at least two organisations must be requesting grant funding from DCMS.
● The consortium includes one or more organisations capable of owning and operating 5G infrastructure and services in the area.
● Projects must involve at least one micro, small or medium-sized enterprise (SME).
● The consortium can demonstrate an operating and commercial model that can be replicated outside the local area.
● The consortium should demonstrate that it can meet the match funding requirements described in the "Competition outline" section above.
● The consortium contains organisations from both the user-side and the supplier-side for at least one use case dependent on 5G technologies and with the potential to create a viable, sustainable market opportunity.
● The consortium demonstrates committed support from individuals with decision-making and budgetary responsibility from each member organisation.

Further information on consortia requirements for the Rural Connected Communities competition can be found in the "Rural Connected Communities - Overview and Application Guidance" document.

Subject: Competition briefing event attendance

Question: I'm not able to attend the 12 September competition briefing event in Leeds, will there be any other sessions in different locations?

Answer: We will only be holding one competition briefing event for RCC, which took place on 12 September in Leeds. However, we have ensured that all interested parties have the same access to the information and guidance shared on the day.

A recording of the briefing event can be found here and on the UK5G website.

Subject: Project area size and improving coverage

Question: Are there any specific eligibility criteria concerning the size of the project area? Would a project to improve coverage in an area be eligible for RCC funding?

Answer: We are open to projects of different scale subject to compliance with the definition of rural, set out on pages 8-9 of the "Rural Connected Communities - Overview and Application Guidance" document.

RCC is designed to support the overall strategy for improving mobile coverage and driving successful 5G implementation in the UK by:
● Improving the case for investment in rural network deployment by testing new commercial and technical solutions for more efficient deployment of advanced network infrastructure including 5G.
● Supporting the business case for 5G by building and proving demand from new use cases that incentivise investment in rural areas.
It is not designed as a coverage network roll-out programme, but a series of trials and testbeds to de-risk and inform future network roll-out programmes.

Subject: RCC rationale

Question: What is the purpose of the Rural Connected Communities project?

Answer: The Rural Connected Communities project (RCC) will support the overall strategy for improving mobile coverage and driving successful 5G implementation in the UK by:
- Improving the case for investment in rural network deployment by testing new commercial and technical solutions for more efficient deployment of advanced network infrastructure including 5G.
- Supporting the business case for 5G by building and proving demand from new use cases that incentivise investment in rural areas.

This will ensure that even as we move to bring better mobile coverage to rural parts of the country, we are already investing in the next generation of mobile connectivity and building the business case to help industry deliver it.

RCC is not designed as a network roll-out programme, but a series of trials and testbeds to de-risk and inform future network roll-out programmes. We aim to fund up to 10 projects in rural areas across the UK, which will help create a stronger case for investment in the deployment of 5G infrastructure for rural areas and explore how 5G can enhance the lives of people living in, working in and visiting rural locations.

Further information about the RCC competition can be found on this page and in the Overview and Application Guidance document and we will be sharing footage and presentation materials from the briefing event we held on 12th September via the UK5G website in the next week.

Subject: Consortium partner engagement
Question: How can I engage with potential consortium partners looking to form an RCC proposal?
Answer: If you are interested in applying for the Rural Connected Communities competition we would recommend registering with UK5G and signing up to their RCC collaboration platform in order to connect with other organisations that are interested in forming a consortium. We recently held a briefing event in Leeds which clarified the competition scope and application process for RCC. A recording of the briefing event can be found here and on the UK5G website.

Subject: Applying for other 5GTT funding
Question: Can an organisation apply for RCC if they have also applied for other 5GTT Programme funding competitions?
Answer: Organisations or consortia that have previously or are currently receiving funding through the 5GTT Programme are welcome to participate, but only by making proposals that are clearly new in scope and adding value beyond previous project activities that they have undertaken or are funded to undertake. Applicants involved in existing 5GTT Programme projects or considering participating in applications for other 5GTT projects will not be advantaged or disadvantaged in this or any other competition. Each proposal will be evaluated on its individual merits, although applicants should demonstrate that they are not duplicating the commitment of resources, and that they have the capacity to deliver in the event of multiple successful applications. The 5G Programme are holding a competition briefing webinar for the Industrial 5G competition on 18th September. Other 5G events being run can be found here on UK5G's website.

Subject: Joint Venture consortia
Question: Does the bidding consortium need to be a legally constituted Joint Venture?
Answer: This competition is open to applications from consortia from across the UK. Organisations which do not have a UK presence may participate in the delivery of RCC but will not be eligible to receive DCMS funding. In order to attract the broadest range of proposals, we are open to receiving proposals from consortia that can be led by any type of organisation from the public, private, third or academic sectors, providing that the consortium meets the criteria set out in the “Proposing consortium” section of the “Rural Connected Communities - Overview and Application Guidance” document. This includes the requirement that the consortium demonstrates committed support from individuals with decision-making and budgetary responsibility from each member organisation.

Subject: Public sector lead

Question: Can a Public Sector organisation lead a consortium as part of a RCC project?

Answer: Proposals can be led by any type of organisation from the public, private, third or academic sectors, providing that the consortium meets the criteria stipulated on page 9 of the Application Guidance.

The lead organisation must be able to demonstrate that it can act as the accountable body, has the capability, and is able to manage the delivery of the project across the consortium with clear project governance and leadership.

The “5G Testbeds and Trials - General Guidance for Grant Applicants” document has been updated to clarify this (v1.1).

Subject: Public sector recoverable costs

Question: Are public sector organisations able to recover management costs, for example relating to the running of a consortium?

Answer: Costs will only be eligible if they:
a) are incurred within the Grant Funding Period; and
b) are net of VAT recoverable from HM Revenue and Customs and gross of irrecoverable VAT; and
c) are directly attributable to the delivery of the Project for the Purpose; and
d) are incurred by or Distributed to UK-based organisations (non-UK organisations may be Project Participants but cannot receive Distributions of Grant Funding); and
e) are capable of being capitalised and/or treated as capital expenditure in line with the Consolidated Budgeting Guidance.

Further details of eligible costs as part of the RCC project funding can be found in the “5G Testbeds and Trials - Eligible Project Costs Guidance” document.

Subject: Supplier eligibility criteria

Question: Are there any specific eligibility criteria regarding equipment suppliers for RCC projects?

Answer: Proposals will be judged individually on their merit, against the criteria outlined in the Application Guidance, including assurance of appropriate levels of confidence in suppliers' ability to support for the full lifecycle of the project.

Subject: Procurement process requirements

Question: Do procurement processes need to be followed in order to ensure value for money when using funds awarded by DCMS as part of the RCC project?

Answer: DCMS asks consortia to set out their approach to ensure value for money as part of their application (assessed in Question 8).

If a Project Partner is a contracting authority under the Public Contracts Regulations 2015, then they will need to abide by the requirements of the regulations and nothing in this competition will affect this.

If a Project Partner is not a contracting authority, the grant agreement requires them to carry out any procurement by way of fair and open practices (noting that Project Partners' supply chains may already have been established in a compliant manner and this does not require them to re-establish them).

Subject: Deadline extension

Question: Is it possible to extend the submission deadline for RCC proposals?

Answer: Applications for RCC competition close at 12pm (midday) on Friday 25th October. We are not able to accept any proposals that have not provided all of the required materials specified in the “Rural Connected Communities - Overview and Application Guidance” document in advance of this deadline.

We recognise that the competition period may not allow for all parties in a consortium to secure full formal approval from their internal governance processes. We will accept bids noting that such approvals are pending, and expected to be granted prior to the interview stage (taking place from 25th November to 6th Dec).

Subject: Maritime zone applications

Question: Could a Rural Connected Communities bid include maritime zone based applications?

Answer: We are interested in applications from a variety of types of rural locations, from sparsely populated areas with primarily natural or agricultural land use, to more populous rural areas including some settlements. However, proposals must clearly focus on rural services, communities and economies and the benefits to them, not on any urban areas that may be within the proposed region.

The project area is the area where trials will be conducted and must include either:
- A contiguous rural area (which may incorporate multiple local authorities); or
- Multiple, separate rural areas, with a strong rationale for why they are interlinked for the purpose of this project.

The land-based project area, at postcode-level, should meet the relevant rural classification applied by the project’s host country.

If a proposal meets these criteria and also includes some relevant, 5G-enabled maritime use cases (e.g. coastal management, public safety, tourism etc.), it would be considered eligible.

Subject: Amount of grant funding

Question: Would proposals for projects seeking much less than £2 million in grant funding be eligible?

Answer: DCMS will make available grant funding ranging from £2 million to £5 million for around 10 projects, totalling up to £30 million. Projects should be part supported by financial and non-financial contributions from consortium participants and be compliant with state aid rules.

Proposals for below £2 million will not be considered of sufficient scale to support our overall strategy for improving mobile coverage and driving successful 5G implementation in the UK.

Subject: Public sector organisation costs

Question: What costs are met for public sector organisations applying for RCC?

Answer: Public sector organisations can apply for 100% of grant funding for their eligible costs. Costs will only be eligible if they:

a) are incurred within the Grant Funding Period; and
b) are net of VAT recoverable from HM Revenue and Customs and gross of irrecoverable VAT; and
c) are directly attributable to the delivery of the Project for the Purpose; and
d) are incurred by or Distributed to UK-based organisations (non-UK organisations may be Project Participants but cannot receive Distributions of Grant Funding); and
e) are capable of being capitalised and/or treated as capital expenditure in line with the Consolidated Budgeting Guidance.

More information is set out in the “5G Testbeds and Trials - General Guidance for Grant Applicants” and the “5G Testbeds and Trials - Eligible Project Costs Guidance” documents.

Subject: Contractor costs

Question: What contractor costs are eligible for funding?

Answer: The following criteria apply to the distribution of funds amongst a consortium:
● Total subcontracting cost is limited to 30% of the total project costs - a clear case must be made as to why subcontractors are not key project partners and why it is not possible for the work to be conducted by a project partner.
● No single partner can receive more than 70% of the total eligible project costs
● At least 70% of total eligible project costs should be incurred by private sector business organisations
● For all research organisations and public sector organisations the total level of project participation is set at a maximum of 30% of total eligible project costs. If your consortium contains more than one research or public sector organisation, this maximum will be distributed between them

Please read the "5G Testbeds and Trials - General Guidance for Grant Applicants" document for more information on the different categories of funding and the rules around our state aid framework.

Subject: Funding rules for different types of organisation

Question: What are the funding rules for different types of organisation within a consortium?

Answer: Across all of its investments, the 5GTT Programme expects those organisations receiving grant funding to match that funding with an equivalent amount (1:1 match funding). However, different projects and types of business can receive different levels of grant funding within that. Where a proposal does not propose 1:1 match funding of DCMS funding, then an explanation of why this is not possible should be provided. Please note the maximum grant funding rates for businesses set out below, as prescribed by state aid rules.

For experimental development involving collaboration, the maximum grant allowed towards your eligible project costs under state aid rules if you are an organisation receiving direct grant funding from DCMS is:
● up to 60% if you are a small business
● up to 50% if you are a medium-sized business
● up to 40% if you are a large business

For the purposes of this competition, the EU definition of an SME is used.

Research organisations undertaking non-economic activity will be funded as follows:
● universities: up to 80% of full economic costs
● all other research organisations: up to 100% of eligible costs

Public sector organisations or charities undertaking research activity can apply for 100% of grant funding for their eligible costs

Each member of the consortium, be they a business, research organisation, public sector organisation or charity, can claim for grant funding up to the maximum per centage they are allowed under the terms set out in the "5G Testbeds and Trials - General Guidance for Grant Applicants" document, provided no claim is in excess of the total funding being sought to the project.

Subject: Facilitating introductions
Question: Who can I contact to help facilitate introductions with potential consortium partners including MNOs?
Answer: If you are interested in applying for the Rural Connected Communities competition we would recommend registering with UK5G and signing up to their RCC collaboration platform in order to connect with other organisations that are interested in forming a consortium.

Subject: Consortium members subsidising other members
Question: Can organisations in a consortium subsidise other consortium members (e.g. a large enterprise subsidising a lower per centage contribution from a small enterprise)?
Answer: The maximum per centages of DCMS funding available to each project partner, as set out in the "5G Testbeds and Trials - Eligible Project Costs Guidance" document, are legal limits under state aid rules, which DCMS cannot provide funding in excess of. These limits apply to each project partner individually and cannot be reallocated in part or total. This does not prevent one organisation providing another with funding or staff, facilities, assets etc. However, the cost of this provision cannot be claimed as an eligible project cost, as the end beneficiary would be the receiving party and hence contribute to their maximum state aid limit.

Subject: Project elements outside of the UK
Question: Can project elements outside of the UK be included in RCC projects as in-kind contributions?
Answer: All activities funded under RCC must be carried out in the UK, subject to our location eligibility criteria. Organisations which do not have a UK presence may participate in the delivery of RCC but will not be eligible to receive any grant funding towards their project costs. This does not prevent one organisation providing another with funding or staff, facilities, assets etc. However, the cost of this provision cannot be claimed as an eligible project cost, as the end beneficiary would be the receiving party and hence contribute to their maximum state aid limit.

Subject: Oil and gas infrastructure applications

Question: Given that oil and gas infrastructure is offshore and partially onshore, would a use case of this nature be viewed in scope for RCC?

Answer: We are interested in applications from a variety of types of rural locations, from sparsely populated areas with primarily natural or agricultural land use, to more populous rural areas including some settlements. However, proposals must clearly focus on rural services, communities and economies and the benefits to them, not on any urban areas that may be within the proposed region.

The project area is the area where trials will be conducted and must include either:
- A contiguous rural area (which may incorporate multiple local authorities); or
- Multiple, separate rural areas, with a strong rationale for why they are interlinked for the purpose of this project.

The land-based project area, at postcode-level, should meet the relevant rural classification applied by the project's host country.

If a proposal meets these criteria and also includes some relevant, 5G-enabled maritime use cases (e.g. coastal management, public safety, tourism, oil/gas infrastructure management etc.), it would be considered eligible.

Subject: Third-party organisation costs

Question: Can costs relating third-party organisations be claimed as part of RCC projects?

Answer: You can claim costs relating to work carried out by third-party organisations that are not part of your project consortium, where they are subcontracted. The work being claimed must:

● be essential to the success of your project
● involve expertise that does not exist within the project team
● involve skills that it is not practical to develop in-house for your project

The following criteria apply to the distribution of funds amongst a consortium:

● Total subcontracting cost is limited to 30% of the total project costs - a clear case must be made as to why subcontractors are not key project partners and why it is not possible for the work to be conducted by a project partner.
● No single partner can receive more than 70% of the total eligible project costs
● At least 70% of total eligible project costs should be incurred by private sector business organisations
● For all research organisations and public sector organisations the total level of project participation is set at a maximum of 30% of total eligible project costs. If your consortium contains more than one research or public sector organisation, this maximum will be distributed between them

For more information, please read the "5G Testbeds and Trials - General Guidance for Grant Applicants" and the "5G Testbeds and Trials - Eligible Project Costs Guidance" documents.

If you are interested in applying for the Rural Connected Communities competition we would recommend registering with UK5G and signing up to their RCC collaboration platform in order to connect with other organisations that are interested in forming a consortium.

Subject: Third-party infrastructure provider costs

Question: Are third-party infrastructure providers eligible for funding?

Answer: Each member of the consortium, be they a business, research organisation, public sector organisation or charity, is eligible for grant funding up to the maximum per centage they are allowed under the terms set out in the "5G Testbeds and Trials - General Guidance for Grant Applicants" document, providing the costs meet the eligibility requirements, specifically

a) are incurred within the Grant Funding Period; and
b) are net of VAT recoverable from HM Revenue and Customs and gross of irrecoverable VAT; and
c) are directly attributable to the delivery of the Project for the Purpose; and
d) are incurred by or Distributed to UK-based organisations (non-UK organisations may be Project Participants but cannot receive Distributions of Grant Funding); and
e) are capable of being capitalised and/or treated as capital expenditure in line with the Consolidated Budgeting Guidance.

Subject: Research organisation funding rules

Question: What are the funding rules for research organisations within a consortium?

Answer: The following criteria apply to the distribution of funds amongst a consortium:
● Total subcontracting cost is limited to 30% of the total project costs - a clear case must be made as to why subcontractors are not key project partners and why it is not possible for the work to be conducted by a project partner.
● No single partner can receive more than 70% of the total eligible project costs
● At least 70% of total eligible project costs should be incurred by private sector business organisations
● For all research organisations and public sector organisations the total level of project participation is set at a maximum of 30% of total eligible project costs. If your consortium contains more than one research or public sector organisation, this maximum will be distributed between them.

DCMS defines research organisations as:
● universities (higher education institutions)
● non-profit research and technology organisations (RTOs) including catapults
● public sector research establishments (PSRE)

● research council institutes

Please read the “5G Testbeds and Trials - General Guidance for Grant Applicants” document for more information on the different categories of funding and the rules around our state aid framework.

Subject: Connected and Autonomous Mobility (CAM) applications

Question: Would a project designed to deliver full 5G connectivity to CAM (Connected and Autonomous Mobility) in rural communities, be within scope for RCC?

Answer: Use cases tested through RCC should help demonstrate demand from a variety of economic sectors and rural communities for 5G technologies. The use cases are expected to show a combination of societal and economic benefits that will together create a stronger case for investing in the deployment of 5G infrastructure for rural areas. These use cases will also serve to drive increased levels of technology innovation. Provided a Connected and Autonomous Mobility (CAM) use case met the requirements set out in the “Rural Connected Communities - Overview and Application Guidance” document, it would be within scope.

We are interested in applications from a variety of types of rural locations, from sparsely populated areas with primarily natural or agricultural land use, to more populous rural areas including some settlements. However, proposals must clearly focus on rural services, communities and economies and the benefits to them, not on any urban areas that may be within the proposed region.

RCC is not designed as a network roll-out programme, but a series of trials and testbeds to de-risk and inform future network roll-out programmes.

Further information about the RCC competition can be found in the “Rural Connected Communities - Overview and Application Guidance” document. A recording of the briefing event can be found here and on the UK5G website.

Subject: Consortium lead organisation

Question: What type of organisation should lead a bidding consortium?

Answer: Proposals can be led by any type of organisation from the public, private, third or academic sectors, providing that the consortium meets the criteria stipulated on page 9 of the “Rural Connected Communities - Overview and Application Guidance” document.

The lead organisation must be able to demonstrate that it can act as the accountable body, has the capability, and is able to manage the delivery of the project across the consortium with clear project governance and leadership.

Subject: Handling of sensitive information

Question: How should sensitive information be handled by RCC project consortia?

Answer: Sharing of confidential information within the consortium will be a matter for agreement among consortium members. A template collaboration form including confidentiality terms is included in the template Grant Funding Agreement. The project lead will be responsible for submitting grant claims to DCMS and these may include commercially sensitive information.

Similarly, the Grant Funding Agreement contains confidentiality terms for DCMS and the grant recipient, which includes commercially sensitive information. DCMS is subject to the Freedom of Information Act 2000, which contains suitable exemptions. Information about the procurement of goods and services by a public authority is usually considered to be commercially sensitive. This can include information provided during a tendering process and also details of a contract or transaction with a third party and would cover similar information in this grant competition.

DCMS will respect the confidentiality of bidders' commercially sensitive information.

Please see the Grant Funding Agreement for more information.

Subject: Benefits of participating in RCC

Question: What benefits are consortia likely to receive from participating in RCC?

Answer: Use cases tested through RCC will help demonstrate demand from a variety of economic sectors and rural communities for 5G technologies, as well as developing the supply model to fulfil this demand. The use cases are expected to show a combination of societal and economic benefits that will together create a stronger commercial case for investing in the deployment of 5G infrastructure for rural areas.

These use cases will also serve to drive increased levels of technology innovation. A key capability of 5G is its ability to integrate different access technologies (e.g. WiFi as well as conventional cellular) and deliver a variety of services with very different service characteristics (including using network slicing). This potentially makes 5G a key enabler of wireless expansion and innovation, across a range of different sectors. This, in turn, can help generate a new and growing rural innovation ecosystem, driving rural economic growth, and the delivery of improved, lower cost public services. That innovation ecosystem will include enterprises of all sizes, together with academic and research bodies working closely with local government, regulators and policy makers.

Project partners receiving funding will be able to obtain these benefits with financial support from DCMS.

Subject: Proposals planning to deliver or accelerate delivery of mobile connectivity

Question: Why is it important to provide evidence of local coverage for proposals planning to deliver or accelerate the delivery of mobile connectivity in the project area?

Answer: 5G provides the opportunity to improve the extent, quality and benefits of connectivity in rural areas by enabling new use cases and associated commercial and technical deployment solutions.

A key conclusion of the Future Telecoms Infrastructure Review (FTIR) was that 5G creates an opportunity for market expansion in the type of wireless services available and in the number of providers of networks and services. This includes new approaches to spectrum sharing, and new business models for managing access to spectrum, including spectrum leasing and 'neutral host' networks.

The Rural Connected Communities project (RCC) will support the overall strategy for improving mobile coverage and driving successful 5G implementation in the UK by:
● Improving the case for investment in rural network deployment by testing new commercial and technical solutions for more efficient deployment of advanced network infrastructure including 5G.
● Supporting the business case for 5G by building and proving demand from new use cases that incentivise investment in rural areas.

RCC is not designed as a network roll-out programme, but a series of trials and testbeds to de-risk and inform future network roll-out programmes.

Proposals that contain plans to deliver or accelerate the delivery of local mobile connectivity in the project area, should demonstrate evidence of low or poor connectivity using the metrics set out in the "Rural Connected Communities Overview and Application Guidance" document.

Subject: RCC proposal as part of a larger programme

Question: If our RCC proposal is part of a larger programme, should we describe the total population covered as part of this or only that in RCC project areas?

Answer: We are interested in applications from a variety of types of rural locations, from sparsely populated areas with primarily natural or agricultural land use, to more populous rural areas including some settlements. However, proposals must clearly focus on rural services, communities and economies and the benefits to them, not on any urban areas that may be within the proposed region. All activities funded under RCC must be carried out in the UK.

The project area is the area where trials will be conducted and must include either:
● A contiguous rural area (which may incorporate multiple local authorities); or
● Multiple, separate rural areas, with a strong rationale for why they are interlinked for the purpose of this project.

The project area, at postcode-level, should meet the relevant rural classification applied by the project's host country - England, Wales, Scotland, or Northern Ireland.

Your proposal should identify why DCMS funding is necessary and what you would deliver without DCMS funding, as well as what you intend to deliver with the funding. This will should then set out the additional benefits of receiving DCMS funding.

Any information beyond the requirements stated in the “Rural Connected Communities Overview and Application Guidance” document should be included in an appendix as links, e.g. to any existing documents/brochures, which explain in more detail the local environment, initiatives or other relevant details. These will not be considered as part of the assessment process but should aim to provide more in-depth background information of the wider context in which the project will form part of. Note that the evaluation team will not consider these materials when scoring proposals. However, they may be read as part of due diligence in the later stages of the assessment.

Subject: Submitting additional information

Question: Can I provide additional information as an appendix as part of an RCC proposal?

Answer: Any information beyond the requirements stated in the “Rural Connected Communities Overview and Application Guidance” document should be included in an appendix as links, e.g. to any existing documents/brochures, which explain in more detail the local environment, initiatives or other relevant details. These will not be considered as part of the assessment process but should aim to provide more in-depth background information of the wider context in which the project will form part of. Note that the evaluation team will not consider these materials when scoring proposals. However, they may be read as part of due diligence in the later stages of the assessment.

Subject: Duration of match funding

Question: Over what period is it acceptable to show the match funding in RCC proposals?

Answer: RCC projects should complete all DCMS funded activities by 31 March 2022, unless an extension is agreed with the 5GTT Programme. Non-DCMS funded activities will be expected to continue beyond this date. DCMS will, as a condition of making funding available, require the successful applicant to set out the principles of how they will create sustainable project outputs in their application, and to have an approved plan in place prior to 31 March 2022.

DCMS funded projects are expected to be:
● Part supported by financial and non-financial contributions from consortium participants; and
● Compliant with state aid rules.

Please read the “5G Testbeds and Trials - General Guidance for Grant Applicants” document for more information on the different categories of funding and the rules around our state aid framework.

Subject: DCMS handling of sensitive information

Question: Do DCMS intend to keep proposals fully confidential or should confidential aspects be marked as sensitive?

Answer: To comply with government practice on openness and transparency of public funded activities, DCMS has to publish some information relating to funded projects. Please provide a short description of your proposal in a way that will be understandable to the general public. We will publish this information for all bids, including those not awarded funding, so do not include any commercially confidential information, e.g. intellectual property or patent details.

We would also like to publish the partners involved in your proposal and the public description of the project, but this is not mandatory. Please confirm in the application form to indicate if you are happy for these to be published as well.

DCMS will process your personal data in accordance with the DPA and the GDPR and, in the majority of circumstances, this will mean that your personal data will not be disclosed to third parties.

DCMS will respect the confidentiality of bidders' commercially sensitive information.

Similarly, the Grant Funding Agreement contains confidentiality terms for DCMS and the grant recipient, which includes commercially sensitive information. DCMS is subject to the Freedom of Information Act 2000, which contains suitable exemptions. Information about the procurement of goods and services by a public authority is usually considered to be commercially sensitive. This can include information provided during a tendering process and also details of a contract or transaction with a third party and would cover similar information in this grant competition.

Subject: Private sector organisation funding rules

Question: Are private sector organisations within a consortium required to match DCMS grant funding and also funding from other public sector organisations within the consortium (i.e. must total private sector contributions equal the sum of both DCMS and any other public contributions)?

Answer: No. Each member of the consortium, be they a business, research organisation, public sector organisation or charity, can claim for grant funding up to the maximum percentage of their eligible costs they are allowed under the terms set out in the "5G Testbeds and Trials - General Guidance for Grant Applicants" document, provided no claim is in excess of the total funding being sought to the project.

When applying for grant funding, each party sets out their costs, then calculates the amount of funding for which they're individually eligible. These are the maximum amounts project partners may claim and not a target (i.e. they may choose to contribute a greater percentage).

A worked example of the maximum limits is below:

Consortium Member	% funding allowed	Eligible Costs	DCMS Funding
Small Business 1	60%	£ 2,500,000	£ 1,500,000
Small Business 2	60%	£ 400,000	£ 240,000
Medium Business	50%	£ 800,000	£ 400,000
Large Business	40%	£ 1,500,000	£ 600,000
Local Authority	100%	£ 500,000	£ 500,000
Total		**£ 5,700,000**	**£ 3,240,000**

The 5GTT Programme expects 1:1 matched funding across the total of all of its investments, including RCC projects, but different projects and types of business can receive different levels of grant funding within that (e.g. if there are a high proportion of small enterprises and public sector organisations, the overall DCMS contribution may be greater than the consortium contributions). Where a proposal does not propose 1:1 match funding of DCMS funding, then a clear explanation of why the project is VfM should be included.

The following criteria apply to the distribution of funds amongst a consortium:

- Total subcontracting cost is limited to 30% of the total project costs - a clear case must be made as to why subcontractors are not key project partners and why it is not possible for the work to be conducted by a project partner.
- No single partner can receive more than 70% of the total eligible project costs
- At least 70% of total eligible project costs should be incurred by private sector business organisations
- For all research organisations and public sector organisations the total level of project participation is set at a maximum of 30% of total eligible project costs. If your consortium contains more than one research or public sector organisation, this maximum will be distributed between them.

Annex A: Characteristics of 5G

5G is the next evolution of mobile networks as defined in releases 15 and 16 of the 3GPP global standards. The deployment and roll-out of 5G will see significant enhancements on previous mobile generations (2G, 3G, 4G), taking the connectivity beyond the consumer focus on speed and data volume, to be the first network that is designed so that a single physical network can simultaneously support multiple diverse use cases, from the high density lowpower sensors, through to connected autonomous vehicles and advanced manufacturing, generating gigabytes of data per hour.

It will incorporate new architectures in the radio access network, new system architectures and new protocols, which will enable new ways of integrating mobile communication and cloud services together. It aims to offer ultra-low latency and 10+ Gbps bandwidth to the end user. 5G is being designed to blend the requirements of previous communication technologies into a new mobile network architecture. The main features of 5G and the value they add to mobile services are set out below:

Feature	Value Added
Ultra-High Bandwidth	Increases overall capacity of the mobile network, facilitating growth in users, devices and traffic demands. 5G will also enable novel use-cases such as streaming video and 3D content such as immersive or augmented reality environments, or simply more reliable video services, including video-conferencing to support connectivity for health and other people services. It will also allow for high data throughput and processing that will come from high density / large volume deployments of internet of things sensors that may also connect “dumb” low power sensors with long battery lives to artificial intelligence / machine learning capabilities in the cloud.
Ultra-Low Latency	This feature will bring about improvements to existing mobile connectivity, such as improved Voice over Internet Protocol (VoIP) quality, the streaming of Ultra High Definition video, and other tasks that are reliant on m/s accuracy such as real-time time-critical alerts for decision makers (e.g. in emergencies or for health and safety) or the visualisation of highly accurate data that can be interpreted and visualised using advanced analytics and machine learning techniques. This may include, for example, remote control of infrastructure, robotics or machinery; devices such as drones; or other safety-critical use cases such as autonomous vehicles.

Massive machine type communications	Massive Machine type communications are crucial to large deployments of Internet of Things and machine-to-machine use cases, particularly for devices distributed in rural environments with a high cost of maintenance. Ability to support massively higher number of endpoints than 4G (1 million / sq. km)
Advanced management and operations support system (OSS)	This feature will reduce operating expenses for operators and carriers. Up to 72% of 5G revenue growth is dependent on OSS/BSS transformation according to TM Forum. Automation and specifically AIpowered closed automation will be essential to monetizing the service differentiation that sets 5G apart from its predecessors. The scalability and capacity of a virtualised 5G network can enable CSPs to extend their business to become an over-the-top (OTT) service provider, offering high quality, reliable networks for the delivery of OTT services.
High-motion mobility	Better able to support users and devices on fast moving transport such as high-speed trains.
Improved security	Better protection of large amounts of data produced, as 5G technology is meant to be secure by design
Spectrum	5G will be deployed in a variety of spectrum bands at low, medium and high frequencies, each of which have different characteristics and can be used to deliver different benefits. Sub-1GHz spectrum will support improved coverage; mid-frequency spectrum (1-6 GHz) will meet demand for increased network capacity; high frequency spectrum (so-called mmWave) is likely to be used to support new 5G applications, in particular those that require very high capacity and very low latency.

Enhanced performance	With 5G, higher orders of MIMO can be deployed, compared to 4G systems. Standard MIMO networks tend to use two or four antennas to transmit data and the same number to receive it. Massive MIMO, on the other hand, is a MIMO system with an especially high number of antennas. This increases the capacity of the network significantly and provides more reliable links. Network Slicing can provide service level differentiation, enabling the provision of business-critical and mission-critical services to different customer types. Mobile Edge Computing will enable content and services to be generated and consumed locally and data to be analysed and processed locally, enabling real time services to be performed and reducing the requirements for backhaul and connections to the cloud.
Universal application support	Ability to provide connectivity for a range of use cases; from low volume, high latency to mission critical systems.

Therefore, for the purposes of this project, we will assume the following characteristics for 5G in RCC:

- It is largely a wireless system.
- It is mainly terrestrial, and may involve some satellite capability.
- It will have capabilities significantly beyond today's commercially available 4G networks, although the capability to integrate existing technologies such as Wi-Fi, 4G/LTE and low power IoT networks into a managed 5G heterogeneous network are considered in scope.
- It will support a wide range of applications for industry sectors, in addition to mobile broadband and consumer applications.
- The usage scenarios for 5G are expected to include: Enhanced mobile broadband (eMBB)
- Massive machine-type communications (mMTC)
- Ultra-reliable and low latency communications (URLLC).

5G radio access technologies

We will accept a broad interpretation of 5G that includes the 3GPP release 15 standard for 5G New Radio as well as pre-standard versions (16 onwards) which may utilise innovative communications technologies. Bids could include elements of new radio access technologies and systems that will be important for 5G (such as massive MIMO, self-optimising networks, beam-forming, mmWave and mobile-edge computing). Bidders should explain where the innovation lies and that there should be significant, but not exclusive, use of 5G New Radio capabilities.

Network architectures

Network architectures could include network slicing, software defined networks, network function virtualisation and mobile edge computing.

Convergence

This could include convergence between mobile and fixed networks or satellite networks or broadcasting.

Annex B: Possible commercial and deployment approaches

There are a number of different commercial solutions that could be adopted for 5G infrastructure in rural areas. Examples of some are set out below. These vary greatly in terms of potential market disruption, scalability and potential market / regulatory challenges.

Model	Description
Neutral Host	Comprises a single third party shared network solution provided on an open basis. Provides a shared platform supporting all MNOs' technologies.
Site and Mast Sharing	Passive infrastructure sharing (e.g. Towers/Masts) to host multiple MNOs' equipment.
Network Sharing	Two or more mobile network operators sharing passive and active infrastructure, including RAN sharing. Examples include MORAN (MultiOperator Radio Access Network) and MOCN (Multi-Operator Core Network).
Spectrum Sharing	Spectrum sharing can take many forms, including leasing, sub-licensing on a localised, geographic basis and pooling (where two licensees combine their spectrum and operate a joint RAN with that spectrum). Ofcom is making available spectrum sharing in the 3.8-4.2 GHz, 1,800MHz and 2,300MHz bands through local licences (under the spectrum sharing framework outlined in their December 2018 consultation). Ofcom has also added the 24.25-26.5 GHz band ("the lower 26 GHz band") to their spectrum sharing framework for indoor use.
Localised Roaming	Third party rural or neutral host network provides roaming to an MNO to improve coverage.
R&D/Test Bed	Small-scale deployment to test technology and potential business models.
Ecosystem Enabler	Relates to a provider which offers a technological platform on the top of connectivity to enable specific providers to deploy their applications (e.g. AgriTech, Mobility and Public Safety).

Annex C: Potential technology solutions

Mobile internet connectivity in rural and remote areas is significantly challenging due to the economic viability of deploying cellular sites in those areas.

The main factors affecting the commercial case for deploying mobile network infrastructure are:

- physical site acquisition and deployment of equipment;
- backhaul connectivity;
- power required at sites;
- the likely density of demand-creating subscribers; and access to spectrum.

There is also uncertainty in terms of what will be the revenue from 5G in rural areas. The connectivity requirements in rural areas are normally quite diverse and span from low data rate applications (e.g. weather monitoring for agritech, remote maintenance of infrastructure) to high bandwidth applications (e.g. video streaming or AR/VR experience for smart tourism).

Although new relevant applications in rural areas have the potential to generate extra revenue to MNOs, they are still in the early stages of their development. This makes it challenging to assess the timeframe to recover the investment in increasing infrastructure in rural areas. Finding innovative ways to tackle these challenges, would significantly assist in providing the required connectivity to the rural communities - and building the business case for investment in other rural areas.

5G technology enablers for rural connectivity

With support for higher capacity, as well as ultra-low latency and machine-type communication services and the integration of multiple technologies with greater flexibility, 5G networks could support a much broader set of uses than 4G networks, dynamically configurable in software.

5G mobile communications systems also offer the potential for convergence of various networks, creating a “network of networks”, converging fixed and mobile networks, and in which a single investment can support infrastructure meeting demand from diverse subscribers and usage types. It will also support seamless connectivity to numerous devices by integrating different technologies, intelligence and flexibility. This convergence should enable the acceleration and extension of deployment of 5G infrastructure in rural areas.

Possible technical solutions

We would expect proposals focused on technological solutions to feature some or all of the below:

- Core network technologies
- Management and network orchestration
- Differentiated services
- Multi-access edge computing
- Radio network technologies
- Spectrum
- Satellite
- Roaming/ interworking

Another key cost is backhaul, the most common technology choices for which to date have been fibre and microwave. Both are widely deployed in today's LTE networks. However, given the ambitious expectations from 5G, which include a 20x increase in peak data rates and a 10x reduction in latency, many operators are taking a closer look at alternative connectivity solutions such as higher capacity microwave and next-generation satellites to satisfy service expectations.

Further, localised micro-data centres, following the concepts of MEC with local break-out, may reduce some of the stringent requirements on backhaul.

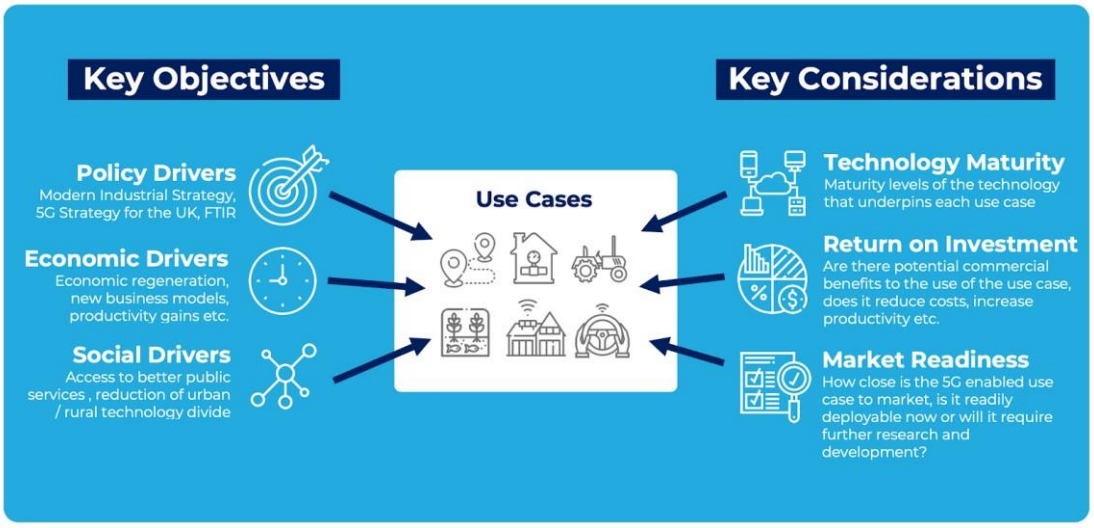
To ensure that lack of access to the radio spectrum does not prevent innovation, Ofcom have introduced a new licensing approach to provide localised access to spectrum bands that can support mobile technology. Ofcom are making spectrum in the 3.8-4.2 GHz, 1800 MHz and 2300 MHz spectrum bands available through local licences. They are introducing a new way to access spectrum that is already licensed to mobile operators but which is not being used or planned for use in a particular area within the next three years.

Annex D: Key considerations for the selection of use cases

5G offers wide-ranging capabilities. This includes, but is not limited to: enhanced mobile broadband (eMBB), which offers the capability to facilitate higher speeds and seamless user experience; and massive machine type communications (mMTC) to facilitate the connection of a large number of connected devices and facilitating applications that are heavily dependent on Ultra-Reliable Low-Latency Communication (URLLC).

These, and other 5G and advanced networking capabilities have the potential to unlock several categories of use cases and innovations, including technical and business models, across multiple industry verticals throughout the rural economy and society. However, the potential benefits for the various use cases will need to be carefully balanced against the associated technological and commercial costs.

For rural use cases to be successful, they need to consider not only market demand but also the wider benefits provided to the different stakeholders. These include: enabling economic and social development; serving existing or new customers, and meeting the connectivity requirements that will enable other advanced digital technologies. These drivers and considerations are summarised in the table below:



Key Objectives

Whilst there are several use cases emerging on the back of 5G development, **each potential use case needs to be assessed against the main objectives for rural communities**. Some of the objectives to be considered are outlined below. While not exhaustive, they provide a framework against which potential use cases for rural communities could be developed and assessed.

Area	Key Objectives
Policy	5G is viewed as an enabler to the government's policy objectives, as set out in the FTIR, to ensure world class connectivity for all. 5G deployment in a rural environment underpins key components of the "Industrial Strategy: Building a Britain fit for the future" and its underlying sector deals (e.g. Made Smarter, the Creative Industries Sector Deal, the Artificial Intelligence Sector Deal, etc.). It will help to drive the new business models, products, applications, services and experiences of the future into sectors that meet government priorities in key industry sectors and subsectors (construction, manufacturing, creative / cultural tourism etc.) that will increase productivity and drive the UK's 4th Industrial Revolution.

 **Economic**	**Productivity:** Various studies have highlighted the impact of high speed mobile connectivity in enhancing business productivity and increase in operational efficiencies. Economic research undertaken by IHS identified global productivity gains from 5G use cases to exceed $2.1 trillion (between 2020 – 2035). At a GVA of £20,500 per resident, productivity levels in rural areas are relatively lower than the national average (GVA £25,400 per resident). As such, increased productivity is seen as a key driver for multiple 5G use cases. A number of current 5G rural use cases focus on enhancing farm productivity, reducing manual intervention, subsequently driving cost efficiencies amongst others. **New Business Models:** 5G is expected to be a key enabler of low-cost, mMTC-capable smart public infrastructure which is envisaged to lower costs and enable new revenue models amongst other socio-economic benefits. 5G is seen as an enabler for the deployment of sensors in public infrastructure which could enable new ownership and management models based on flexible usage and preventative maintenance (for example, smart utility infrastructure), and for remote inspections and maintenance using technologies such as drones. This could open public infrastructure to a family of use cases that is aimed at reducing operational costs in delivering public services and introduce new revenue streams.[2] **Economic Regeneration:** Surveys commissioned by Amazon UK on rural SMEs, identified that 56% of those surveyed indicate 5G networks and IoT as significantly relevant to their business growth[4]. The connectivity and innovative use cases enabled by 5G could complement Local Industrial Strategies for economic development and regeneration of rural SMEs clusters. Innovative 5G use cases could potentially provide rural communities with a platform to leapfrog the rest of the UK with regard to Industry 4.0, ECommerce and Technology applications subsequently attracting private sector investment and growth. In order to achieve this it is crucial that RCC identifies use cases and commercial models that improve the case for investment in rural connectivity infrastructure and drive innovative new use cases of 5G in rural
	environments, so that all communities – not just the most economically active urban communities – benefit from early 5G deployment and adoption.

Social

A lack of reliable and consistent mobile network coverage in rural areas significantly reduces connectivity and can lead to people living in these areas feeling socially isolated and/or excluded as they miss out on contact and social plans with friends and family, particularly when that contact is spontaneous rather than planned in advance. Aside from this social exclusion challenge, which could also be tackled by improving 4G coverage, there are also significant societal benefits and considerations from introducing ultra fast connectivity through 5G. In particular this could include better public safety, ehealth and e-learning applications, and reduced urbanisation by making rural areas more attractive for residents to live and work. This will help to reduce the digital divide between regions.

Annex E: Connectivity data sources

Local authority-level data

Local authority data is available here: https://www.ofcom.org.uk/research-and-data/multisector-research/infrastructure-research/connected-nations-update-spring-2019. The following metrics should be used:

Coverage type	Description	Syntax (Mobile / Fixed)
Geographic coverage	4G services, geographic (outdoor) at -105dBm threshold	TNS 4G_geo_out_0 PNS 4G_geo_out_1 4G_geo_out_2 4G_geo_out_3
Roads coverage	Data services, motorways and A-roads, at -105dBm threshold	TNS Data_mway_ard_in_0 PNS Data_mway_ard_in_1 Data_mway_ard_in_2 Data_mway_ard_in_3
Premise coverage	4G services, premises (outdoor) at -105dBm threshold and 4G services, premises (indoor) at -95dBm threshold	TNS 4G_prem_out_0 PNS 4G_prem_out_1 4G_prem_out_2 4G_prem_out_3 TNS 4G_prem_in_0 PNS 4G_prem_in_1 4G_prem_in_2 4G_prem_in_3

Fixed broadband	% of premises unable to receive 2Mbit/s Number of premises unable to receive 2Mbit/s	Percentage of premises that do not have access to services above 2Mbit/s Number of premises that do not have access to services above 2Mbit/s

Postcode-level data

Postcode-level data is here: https://www.ofcom.org.uk/phones-telecoms-and-internet/advicefor-consumers/advice/ofcom-checker

Bidders should have a good understanding of their intervention area, so should demonstrate poor connectivity at premise level (both fixed and mobile broadband), using the Ofcom coverage checker. The 'map view' is recommended, to illustrate connectivity across an area (not just postcode) by each operator.

Other info

Bidders should demonstrate any other aspects of poor connectivity not captured by the metrics above.