Danish Energy Agency

Appendix 1 Description of the deliveries (Competitive requirements)

Instructions for tenderers: The requirement specification consists of both minimum- and competitive requirements. Reservation to minimum requirements or essential elements in the procurement documents must not be included in the tender. Reservations to minimum requirements or essential elements in the procurement documents will cause the tender to be rejected. The competitive requirements must be answered by the tenderer as part of the tender with clear reference to the specific requirement in section 1.2.
Pages exceeding 15 A4 pages will not be taken into account excluding CVs.

1. Description of the deliveries

1.1 Background

In 2019, the Danish Energy Agency (DEA) wishes to facilitate an analysis regarding the anticipated broadband demand in 2025-2030, including the demand from different types of broadband users.

In 2012, a similar analysis was performed (at that time facilitated by the Danish Business Authority), where the primary focus was on fixed broadband considering download and upload speeds moving towards 2020. The analysis was updated in 2016 with projections up to 2025, also with primary focus on fixed broadband considering download and upload speeds.

A green agenda

The requirement for broadband in the future is, amongst others, influenced by the green agenda. Digitalization plays an important role in the development of a sustainable society and is part of the solution to climate and environmental changes. Hence, it is relevant for the analysis to consider how broadband could support companies and public institutions in the process of managing the climate adaptation and reducing the burden on

the environment, e.g. through productivity improvements and intelligent resource management.

Welfare
The demographic development is likewise a relevant aspect of the analysis. 95 pct. of the Danish population uses the internet regularly. The group of broadband users is expanding, both amongst younger and older digital generations. Also, increasing life expectancy and digitalization of society contribute to an increasing demand of broadband. Thus, it is among other things relevant to look at the future demand for welfare technology, which can help us in Denmark to continue to have a high level of public service.

Rural and urban areas
It is also relevant to look into how the broadband demand depends on geography, e.g. if people are settled in an urban or rural area – and whether the demand can be met by different types of technology (fixed and mobile). The demand could include information and entertainment services such as streaming and gaming, as well as the demand for access to distance learning, home office etc.

1.2 Deliveries

This section details the expected method, structure and contents of the analysis.

Development in basic services
It is recommended that the analysis is based on projections of the demand based on the development of the need in basic services, e.g.

- Streaming services, 4/8K-resolution, interactive streaming, virtual reality and augmented reality.
- Cloud computing.
- Introduction of intelligent units (Internet of Things).

The analysis should identify the key services/drivers for the development of the demand for fast broadband, including both fixed and mobile broadband. The analysis should take into account services that are still under development, and the on-going innovation potential of internet-based platforms.

Use cases
Based on the expected development of the various services, a projection of the needs of selected user types/cases, comprising both businesses and

households, should be made. These cases should be developed so that they represent both medium and heavy users, e.g.:

- The small household with little internet usage.
- The digital family.
- The cloud-based craftsman/tradesman (a small company, where accounts etc. are in the cloud).
- The online farmer (video surveillance of operations, digital reporting etc.)
- Small to medium-sized company without dedicated broadband connection and with 'regular' use of IT-solutions (non-IT company).
- Possibly other relevant use cases.

The analysis must assess the needs of the different usage types, including service needs, technology needs, and needs in relation to network delay, availability, reliability, level of jitter etc. Additionally, it must be examined under which conditions mobile broadband could replace fixed broadband solutions.

Different technologies
So far, mobile broadband has not been considered as a direct alternative to fixed broadband. More and more commercial parties are however beginning to market both mobile and combined mobile and fixed broadband solutions as alternatives to fixed broadband. Furthermore, in the years leading up to 2025, there is expectation of an increased focus on the use of the fifth generation of mobile networks (5G).

The challenges are primarily how the speeds and quality of service, which is experienced using mobile or fixed broadband, are compiled and compared. Hence, the analysis must focus broadly on quality of service (QoS) and not just download and upload speeds.

More specifically, the analysis should estimate:

- The need for download speed.
- The need for upload speed.
- The need for relevant quality parameters (QoS), e.g. latency, availability, reliability, and level of jitter.
- If there is a need for specific technologies, e.g. fiber.
- Under which conditions mobile broadband could replace fixed broadband solutions.

The analysis and its conclusions should be presented in a report of 30-60 pages, cf. the time schedule.

The report must account for all significant assumptions on which the conclusions of the report are based.

The tenderer must describe in its tender how the tenderer will solve the above-mentioned tasks.

1.3 Timetable

Milestone	2019
Kickoff meeting	Week 39
Agreement on scope of the analysis	Week 39
Report overview/summary	21 October
Draft report	18 November
Final report in English or Danish	6 December

2. Minimum and competitive requirements

2.1 Minimum requirements

Regarding the content of the tender, the minimum requirements are as follows:

- The price shall be a fixed price for all tasks included. The price shall be stated in DKK, excluding VAT, and must not exceed **DKK 500,000.**

2.2 Competitive requirements

Instructions for tenderers: The contracting authority will evaluate tenderers answers to the below listed competitive requirements, and award points depending on to which degree the answers substantiate or provide proof of tenderer's ability to meet each individual requirement. For this reason it is important, that tenderers thoroughly describe how the requirement will be met.

It is noted that Appendix A of the Tender Specifications describes the award criterion.

A) Price

The price offered is evaluated as specified in Appendix A.

B) Quality

Competitive requirements: The evaluation of the “Quality” will reflect the elements mentioned regarding “Quality” in Appendix A.

Evaluation preference: The evaluation will reflect the extent to which the tenderer in the tender shows detailed and relevant understanding of the task in the solution, including relevant activities, project management and the tenderer’s time schedule, so that a better and more detailed and relevant understanding of the tasks is assessed higher than a lesser and inaccurate understanding of the task.

C) The experience and competency of the project team

Competitive requirements: The evaluation of ”The experience and competency of the project team” will reflect the elements mentioned regarding ”The experience and competency of the project team” in Appendix A.

Evaluation preference: The evaluation will reflect the extent to which the project team’s competence level and qualifications is relevant to solution of the tasks, including any experience with similar tasks, so that a more relevant competence level, qualifications and any experience with similar tasks is assessed higher than a lesser competence level, qualifications and any experience with similar tasks.