

FTTH network solutions are sustainable and contribute to a greener Europe

“It will shape our every day life”



Information and communication technologies are providing new answers for heavy energy consumptions sectors, such as transportation and construction sectors.

FTTH (Fiber To The Home) networks can bring environmental benefits to many different areas. The present study focuses specifically on teleworking, telemedicine and home assistance.

FFTH solutions provide higher bandwidth than any other broadband solution.

The project compares the environmental impact of a network to these associated benefits.

The use of Life Cycle Assessment to illustrate this comparison has been made by PricewaterhouseCoopers to generate the necessary quantitative data. This work has been conducted in accordance with ISO 14040 standard.

Assumptions

Data sources and modelling assumptions have been mainly provided by the FTTH Council SUDEFIB (Sustainable Development Fibre) Committee. Data are based on European averages.

FTTH network deployment

- > 3 scenarios have been considered for the calculation: urban dense areas, urban wide areas and rural areas.
- > 4 types of deployment techniques have been considered (existing ducts or urban sewers, traditional trenches, microtrenches, aerial hanging).

Selected benefits

Teleworking, telemedicine and home assistance have been assessed.

Three cases have been envisioned for telemedicine: teledialysis, telemedical meetings and medical imaging transfer.

From the current trends (2010-2011 and beyond) in FTTH networks use, we have chosen the following ratios:

- > 10% of the working population can telework 3 days per week.
- > 20% of the senior population (75 years old and over) can benefit from home assistance.

Main outcomes

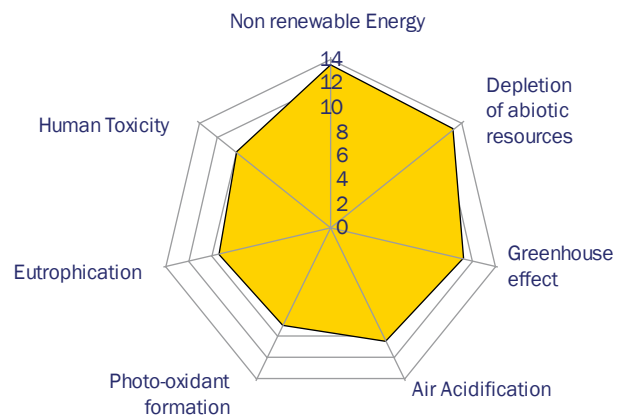
As a main quantitative finding, the environmental impact of the deployment of a typical FTTH network will be positive within less than 15 years in average considering only the three selected services.

Further either existing or developing applications will emphasize these results.

Beyond their environmental-friendly aspects, FTTH solutions can offer considerable additional social and economical benefits.

If we admit the fact that we are in the middle of a new industrial era, FTTH solutions are a key sustainable utility driver in this context.

Depreciation of a FFTH network (in years)



* For a deployment scenario made of 60 % in urban dense areas, 30% in urban wide areas and 10% in rural areas

The number of years represents the depreciation of the FTTH Network.

The impact of FTTH network deployment takes into account the following stages: production of passive and active equipments, transportation, deployment and end of life.

The environment savings are computed as the difference between the benefits drawn from the use of the FTTH network and the energy required to power the network.

The deployment stage is critical in terms of potential greenhouse gas emissions for FTTH networks (approximately 80% of the total impact).

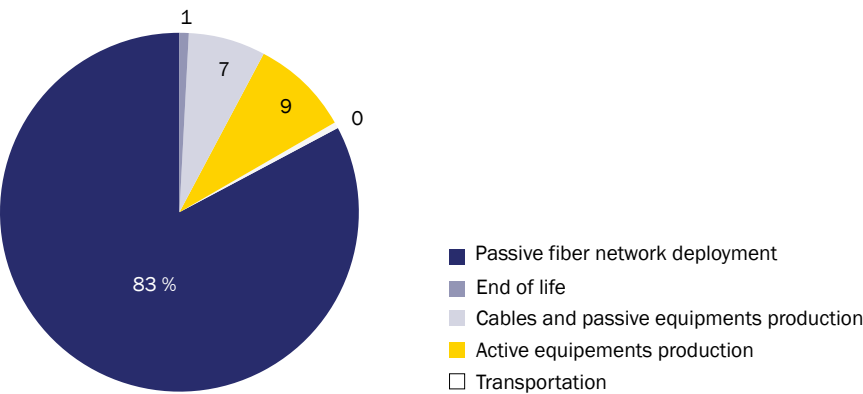
In particular, the key impacting parameter in terms of carbon emissions is the length of new ducts (meters) per home passed.

Consequently, the sustainability of FTTH solutions will be clearly demonstrated when:

- > Users' experience grows;
- > Bottlenecks such as network vertical and horizontal accesses are removed.

In the present study we consider an overall approach of FTTH alternative networks and associated services. In particular, we consider PON and Point to Point configurations using aggregated data.

Relative contributions of the different FTTH network deployment phases to climate change potential impacts (excluding use phase)



For the first 15 years of a given network implementation, greenhouse gas emission savings per user are approximately 330 kg eq. CO₂ or the equivalent of the emissions caused by a car travelling 2,000 kilometers.

For the next 15 years the savings are 780 kg eq. CO₂ or the equivalent of a car travelling 4,600 kilometers. This is due to the fact that the network is depreciated and only part of the infrastructure needs to be renewed.

This report has been prepared for and only for FTTH Council Europe in accordance with the terms of our engagement letter dated 19 November 2007 and for no other purpose. We do not accept or assume any liability or duty of care for any other purpose or to any other person to whom this report is shown or into whose hands it may come.

We remind you that this study is only based on facts, circumstances and assumptions which have been submitted to us and which are specified in the report. Should these facts, circumstances or assumptions be different, our conclusions might be different.

Moreover, the results of the study should be considered in the aggregate with regard to the assumptions made and not taken individually. For all matters of interpretation, the original paper copy of our report takes precedence over any other version.

FTTH can contribute to other fields not assessed in the present study (see also DG JRC report “The future impact of ICTs on environmental sustainability”):

- > **Energy demand**
- > **Supply chain management**
- > **E-commerce**
- > **Tele-meetings**
- > **Dematerialised products and services**
- > **Intelligent Transportation Systems**
- > **Facility management**
- > **Production progress management**
- > **Improvement of services and products use**

The study is based on global European inputs and environment. An ecodesign approach can be adopted on a network basis. The scope can be extended to other geographical contexts (US and Asia through local FTTH Councils) or to specific local deployments.

FTTH network solutions represent a responsible investment for:

- > **Operators**
- > **Public bodies**
- > **Shareholders**
- > **Utilities**

and provide decisive leverage to policy makers.

**FTTH solutions enable our society to pave a sustainable future...
Let's imagine together!**

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www.ftthcouncil.eu