8 Conclusions

With the increasing demand for high speed services in both residential and commercial scenarios, as well as the increase in the bandwidth consumption (around 50% CAGR per year), the need for optical access is evident. The existing large scale deployments of 1G-EPON and quick ramp up in 10G-EPON deployments around the world pave the way for development of the next generation EPON systems, addressing the future bandwidth demand, service types, and extending the lifetime of investment into fiber-based access.

This report examines many of technical and economic aspects of NG-EPON, including bandwidth consumption trends, market drivers, and others. The report also briefly summarizes technical feasibility of various components critical in some of possible architectures of NG-EPON, including tunable transmitters and receivers, ways of achieving higher aggregate system capacity, coexistence with 1G-EPON, 10G-EPON, and alternative access technologies (for example, RFoG) on the same ODN, providing possible migration scenarios from existing EPON deployments towards NG-EPON that are least disruptive to end customers.

The selection of the NG-EPON architecture, ways of increasing the aggregate system capacity, wavelength plan, and addressing many of the collected operator requirements included in this report will likely be addressed by the future Study Group and Task Force, once they are formed. The wide range of operator requirements, especially in terms of backward compatibility with existing EPON systems, wavelength allocation plan, as well as target data rates will provide a number of technical challenges to the future Task Force to address and account for in a single project, leading to the development of a flexible and universally accepted solution for next generation of optical access based on EPON architecture.