Possibilities of Reducing the Energy Consumption of NG-PON Networks Using Advanced DWBA Algorithms

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Abstract. In this article, we discuss possibilities of reducing the energy consumption in Next-Generation Passive Optical Networks (NG-PON) using advanced Dynamic Wavelength and Bandwidth Allocation (DWBA) algorithms. We propose a new predictive algorithm that optimizes a resource allocation based on predictive models and includes a control of energy-efficient states of optical network elements. The article provides a detailed analysis of existing solutions, presents our proposed approach and describes the simulation assumptions needed to evaluate it.