



Dr. Pål Frenger



Biography: Pål Frenger joined Ericsson Research in 1999 and is currently working at the Wireless Access Networks department at Ericsson Research in Linköping, Sweden, where he is a senior specialist in RAN energy efficiency. He has a background in link level research, in particular on turbo coding and OFDM modulation aspects. He has been involved in development efforts for both HSPA and LTE and is currently working on defining future releases of LTE, as well as 5G New Radio. He holds a Ph.D. in electrical engineering from Chalmers University of Technology, Gothenburg, Sweden.

Session Title: 5G Energy Performance - Challenges and Solutions

Abstract: The ongoing standardization of 5G New Radio represents an unprecedented opportunity to significantly enhance the energy efficiency of radio networks. When previous cellular generations were defined energy efficiency was not on the short list of key requirements. This has resulted in standards where signals are transmitted all the time from all base stations, even when there is no traffic in the network. As a consequence, current cellular systems have surprisingly low load dependence and the network energy consumption is by far dominated by the cost of transmitting reference signals. This time, when we are again standardizing a new system, the situation is very different. Thanks to pioneering work in e.g. the European research project EARTH we now have both the understanding and the tools that were lacking a decade ago when 4G LTE was being standardized. In this presentation we will discuss how to significantly reduce network energy consumption in 5G New Radio networks. We will also discuss how some of the principles in the 5G New Radio design can be used in existing 2G, 3G, and evolved 4G networks.