Energy Efficient Traffic Load Balancing in Green Communication for Cellular Networks

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Abstract—Improvements in affordable wireless multimedia gadgets, broad Internet access and mobile traffic speeds drive fifth generation (5G) research in the deployment of energy efficient cloud access radio networks (C-RAN) with knowledge quality guaranteed. Green energy utilisation C-RAN significantly reduces the energy supply from the electricity grid, carbon footprint and operating costs. This article presents a new load balancing paradigm based on the selection of dynamic points (DPS CoMP) which stresses viable output and energy efficiency through minimum network-level utility grid utilisation. This paper looks at radiation efficiency, EE and average grid savings in transportation-intensity and renewable energy (RE), addressing the major challenges of tempo-spatial dynamics within a broad range of networks. The load balance methodology aims to balance network services, such as the use of green energy and user affiliations on the basis of BS coordination methods in a cluster. In case of low traffic, the cell sleep technology is designed to save energy by disconnecting weakly charged base stations (BSs). The proposed CoMP Load Balancing Algorithm expertly handles resource block allocation for new users and enhances energy efficiency in conventional locations and traffic-centric algorithms. Extensive simulations at system level reveal that the proposed architecture offers an adjustable compromise between radio efficiency and EE, saves 22% in grid energy use and increases the ES score by 32%. The approach is afterwards thoroughly contrasted with existing systems for additional validation of sustainable 5G wireless systems.

Keywords—*Green Communication, 5G, CoMP*