# Cooperative Wireless Networks for Better Green Services

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During the last two decades, mobile communication systems (such as GSM, GPRS and 3G networks), wireless broadcasting networks, wireless local area networks (WLAN or WiFi), and wireless sensor networks have been successfully developed and widely deployed through different technological routes for providing a variety of communication services in different application scenarios. While making tremendous contributions to social progress and economic growth, these heterogeneous wireless networks consume a lot of energy in achieving overlapped service coverage, and at the same time, generate strong electromagnetic interference (EMI) and radiation pollution, especially in big cities with high building density and user population. In order to guarantee the overall return on investment (ROI), improve user experience and quality of service (QoS), save energy, reduce EMI and radiation pollution, and enable the sustainable deployment of new profitable applications and services, this paper proposes a cross-network cooperation mechanism to effectively share network resources and infrastructures, and then adaptively control and match multi-network energy distribution characteristics according to actual user/service requirements in different geographic areas. Some idle or lightly-loaded base stations (BSs) will be temporally turned off for saving energy and reducing EMI. Initial simulation results show the proposed approach can significantly improve overall energy efficiency and QoS performance across multiple cooperative wireless networks.