# Call for Papers for
# Green Communications Systems and Networks Symposium

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## Scope and Motivation

The dawn of 5G networks is upon us with intensifying research efforts to bring about a paradigm shift in mass connectivity and unparalleled network capabilities. As such, 5G is envisaged to include very high carrier frequencies and extreme base station and device densities with access to unprecedented spectral and spatial resources. While the anticipated high data rates and spectral efficiency are highly desirable merits of such systems, the consequential increase in energy consumption is unacceptable. Recent studies have shown that Information and Communication Technology (ICT) devices account for 2% to 10% of the world's power consumption, and that is anticipated to grow further due to their continued proliferation. Therefore, it is essential for governmental and industrial institutions to address this growing problem to reduce their carbon footprint and ensure environmental sustainability. Furthermore, the capabilities of 5G must be utilised to improve the energy efficiency of other industrial sectors making ICT a major player in reducing carbon emission across a wide range of industries. Green ICT is therefore an interdisciplinary field spanning well beyond information and computer science to power and energy systems, electronics, environmental and civil engineering, industrial engineering and social sciences to name a few.

The need for green communications and networking technologies has been recognized during the last few years by our research communities. However, many challenges still remain to be addressed. Therefore, the Green Symposium in IEEE GLOBECOM 2018 aims to consolidate and disseminate the latest developments and advances in the emerging green communications research area. This track invites participation from both academic and industry researchers working in the areas of communications and computing networks, as well communication and computing technologies enabling other green solutions such as smart grids, green cloud computing data centres, green buildings and green logistics. Authors are invited to submit papers presenting novel technical research studies as well as broader position papers.

Topics of Interest Include (but are not limited to):

- Energy-efficient protocols and networking
- Energy neutral networks
- Green communication in 5G systems
- Green transmission technologies and network protocols
- Cross-layer design and optimization for green communications and networking
- Energy-efficient routers and switches
- Green wireless cellular networks
- Green cloud computing communications protocols
- Novel network concepts and architectures lowering the overall footprint of ICT
- Self-organizing green wireless networks
- Non-energy based green issues and approaches
- Green traffic shaping and policy implementation
- Green optical communications, switching and networking
- Use of cognitive principles to reduce energy and/or resource consumption in wireline and/or wireless networks
- Power-efficient cooling and air-conditioning systems for communications and computing
- Physical layer approaches for green communications and computing
- Low cost, energy-efficient antenna and RF designs
- Green management of communication networks
- Context-based green management & green awareness
- Economy and pricing for green communication and services
- Green network monitoring
- Green sustainable storage and cloud computing
- Measurement and profiling of energy consumption
- Green scheduling for communications and computing
- Power consumption trends and reduction in communications
- Modeling and analysis for green communications and computing
- Security in green communication networks
- Standardization, policy and regulation for green communications and computing
- Mitigation of electromagnetic pollution
- Experimental test-beds and results for green communications and computing
- Communication technologies for transport and logistics efficiency, e.g., applications to road traffic optimization and supply chain management
- Communication technologies for industrial processes
- Communication technologies for green buildings

- Communication technologies for energy harvesting
- Architectures and models for smart grid communications
- Communications networks for the smart grid
- Quality of service in smart grids
- Information security in the smart grid
- Sensor and actuator networks for smart grid
- Advanced metering infrastructure and smart meter technologies
- Field trials and deployment experiences