

CALL FOR PAPERS

IEEE Internet of Things Journal

Special Issue on Energy Self-Sustainable Internet of Everything for 6G

Extremely massive connectivity for small devices has been considered as a key performance indicators for 6G to enable ubiquitous Internet of Everything (IoE), where most of devices will be either battery-powered or battery-less. How to prolong their lifetime becomes a key challenge. This calls for effort from two complementary aspects: 1) energy efficiency to reduce the IoE networks' energy consumption, and 2) energy self-supply within the IoE networks to open up flexible and on-demand energy supply to IoE devices. It is envisioned that IoE networks will possess energy self-sustainability in 6G. To make it a reality, tremendous efforts should be invested on both the base station/network side and the device side. Meanwhile, energy self-sustainable IoE networks can be achieved by integrating advanced 6G technologies (such as RIS, ISAC, AI and Reconfigurable antennas) to jointly enhance the efficiency and performance of WPT and WIT or reduce the end-to-end energy consumption. The objective of this special issue is to provide a forum across academia and industry to explore recent advances, research opportunities, and technical challenges in energy self-sustainable IoE networks for 6G. This special issue will bring together leading researchers to present their research in this area including novel ideas, models, methodologies, system designs and architectures, as well as experiments and benchmarks. We welcome high-quality original submissions covering relevant core and frontier research topics:

- Green communication and computing;
- Information theory for wireless information and power transfer;
- Physical layer design for wireless information and power transfer;
- Underwater acoustic information and power transfer;
- Underground magnetic induction-based information and power transfer;
- High-efficient backscattering communications;
- AI-enabled energy self-sustainable network;
- Multi-domain resource scheduling for energy self-sustainable network;
- Experimental prototype design, standardization and field trials.

Important Dates

- Submission Deadline: May 31st, 2027
- First Review Due: July 31st, 2027
- Revision Due: September 30st, 2027
- Second Reviews Due/Notification: October 31st, 2027
- Final Manuscript Due: November 30th, 2027
- Publication Date: January 2028

Submission

The original manuscripts to be submitted need to follow the guidelines at: <https://ieee-iotj.org/wp-content/uploads/2025/02/IEEE-IoTJ-Author-Guidelines.pdf>, which should not be concurrently submitted for publication in other venues. Authors should submit their manuscripts through the IEEE Author Portal at: <https://ieee.atyponrex.com/journal/iot>. The authors must select as "Special Issue on Energy Self-Sustainable Internet of Everything for 6G" when they reach the "Article Type" step in the submission process.

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