Microgrids for Rural Areas
Research and case studies

Large rural areas in some regions of the world are still grappling with the challenge of electrification. The optimal solution is to provide reliable energy without adding more fossil fuel plants by using distributed renewable generation.

Microgrids are part of that solution; they are small networks of electricity users, with a local generator that is attached to a centralized larger grid, but which is also able to function independently. They need to be robust and resilient in order to provide reliable power, including in harsh climates. For remote areas microgrids have the advantage of offering an electricity supply even if there are problems with the larger power grid.

This book focuses on the challenges of rural electrification, particularly in poorer regions. It covers low voltage DC distribution system for various applications including charging of electric vehicles (EV). Written by a large team of authors with a wide range of relevant experiences, the book addresses microgrid architectures, converters, energy storage, control, EV integration, business models and economic scheduling, and the role of blockchain technology. The authors have used case studies to provide illustrative examples of the technologies discussed and solutions proposed.

About the Editors

Rajeev Kumar Chauhan is an Assistant Professor in the Department of Electrical Engineering, Dayalbagh Education Institute (Deemed University), Agra, India.

Kalpana Chauhan is an Assistant Professor in the Department of Electrical Engineering, Central University of Haryana, Mahendergarh, India.

Sri Niwas Singh is a Vice Chancellor at the Madan Mohan Malaviya University of Technology, Gorakhpur, and a Professor at the Indian Institute of Technology, Kanpur, India.

ISBN 978-1-78561-998-4

The Institution of Engineering and Technology
theiet.org
978-1-78561-998-4

Microgrids for Rural Areas
Research and case studies

Edited by Chauhan, Chauhan and Singh

The Institution of Engineering and Technology

Microgrids for Rural Areas
Research and case studies

Edited by
Rajeev Kumar Chauhan, Kalpana Chauhan and Sri Niwas Singh