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Emerging Intelligent Techniques for Energy Managements in Smart Cities

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Almost all over the world several countries are striving to build smart cities in order to increase productivity and socio-economic growth. Although there are several aspects of a smart city, but here, in this book entitled "Emerging Intelligent Techniques for Energy Managements," we would like to highlight some intelligent techniques from the "Energy" perspective. Intelligence is intangible. It is composed of reasoning, learning, problem solving, perception, and Artificial Intelligence (AI). AI is composed of two words Artificial and Intelligence, where Artificial defines "man-made", and intelligence defines "thinking power", hence AI means "a man-made thinking power". The objectives of energy management are to record, control, and optimize the real-time energy consumption in different residential, commercial and industrial spaces in smart cities using emerging techniques developed with the help of artificial intelligence. Requirement of a strategy that is compatible with different real-world driving scenarios has opened a significant field of study for researchers in the era of energy management.

This book aims to provide intelligent energy management strategies recently developed for smart cities with their comparison to give readers an experimental view. It also provides the categorization of them into principle-based, data-driven, and composite methods. Future trends and existing challenges are also presented in the book, which generate fresh insight into energy management strategies. Recent advancements in artificial intelligence, electrical vehicles, green building, integration of renewable energy sources and demand response approaches have facilitated developing different strategies for an intelligent energy management system. The book also provides valuable information on design of micro-grids and integration of green energy sources with the power grid. Some of the topics include the development of demand side management techniques and their implementation for energy management in smart cities. This book also includes the recent techniques developed in management of distributed energy sources and storage systems. The contents of this book will be useful for researchers and practitioners working in different areas of smart grid technology.

Table of Contents

1. Hybrid Human Powered Vehicle: Research Area of Electric Bicycles

N.T.Kurhe, V.D.Wakchaure, Umesh Gurnani and Anurag Hamilton

2. Review and Design of Indirect Evaporative Cooling System

Nitin S. Aher, Umesh Gurnani, Anurag Hamilton and D.P. Bhaskar

3. Implementation of Energy Efficient Burnishing Process for Surface Integrity Improvement of Hole Finishing Tool

Nitin J. Varpe, Ravindra S. Tajane, Umesh Gurnani and Anurag Hamilton

4. A Review on HVAC Controller for High Energy Efficiency Commercial Building

Ganesh Murade, Anirudha Mukherjee, Ganesh Shirsat, Ankit Kumar Sharma and Bhanu Pratap Soni

5. Path to Urban Sustainability by Use of IoT

Ajay Kumar and Amit Kumar Bala

6. Demand Side Energy Management in Deregulated Environment: A Review

Kshipra Pandey and Nilesh K. Patel

7. Multi-agent System Based Energy Management of Distributed Power Sources in Domestic Cooking

M. Lakshmi Swarupa, G.Divya and K. Deepika

8. Efficiency Improvement by Thermo-Mechanical Coupling

Tapan Sen and Sumit Paul

9. Power Management Strategies in Hybrid AC/DC Microgrid: A Review

Anil N. Navle and Naimish K. Zaveri

10. Review of Matrix Converter Application

Shah Faisal, Bhanu Pratap Soni and Shah Aqueel Ahmed

11. Ecological Footprint Assessment of Small Residential RCC Building

Yakub Ansari, Dilawar Husain and Jyotirmoy Haloi

12. Network Reconfiguration using Fuzzy Logic for Power Flow Balancing in IEEE 30 Bus System

Fidah Hussian, Sam Joseph Paul, Govind Rai Goyal and Aadesh Kumar Arya

13. Solution of Economic Load Dispatch Problem Using Artificial Intelligence Based Advanced Algorithms

Sam Joseph Paul, Fidah Hussian, Govind Rai Goyal and Bhanu Pratap Soni

14. Renewable Based Hybrid Microgrid Scheduling Incorporating Demand Side Management

Arnab Ghosh, Saheli Sengupta, Niladri Chakraborty and Gargi Konar

Table of Contents

15. Batteries: Classification and Review of Electric Circuit Models for Electric Vehicle

Arvind S. Pande, Bhanu Pratap Soni, Kishor V. Bhadane and Aniruddha Mukherjee

16. Energy Efficient Heat Treatment Process to Remove the Failure of Tool Steel in Industrial Component

Kiran S. Phad, Anurag Hamilton and Umesh Gurnani

17. Modern Way of Living: Smart City Management

Sharwar Ahmed Chowdhury, Pratik Nag and Subhro Chakraborty

18. A Detailed Study of Automation Techniques at Home that Contribute to Energy Efficiency

Sougata Banerjee and Subhro Chakraborty

19. Use of Autoclaved Aerated Concrete Blocks as Energy Efficient Building Construction Materials

Himanshu Yadav and V. Khan