

# Preface

The transition to sustainable energy is crucial in addressing global energy demands and environmental concerns. This book explores the integration of solar energy systems with smart electrical grids, highlighting their role in achieving efficient and reliable renewable energy solutions. It delves into photovoltaic (PV) and concentrated solar power (CSP) technologies, energy storage systems, AI-driven grid management, and blockchain-based energy transactions. By bridging solar power generation with intelligent grid infrastructure, this book provides insights into optimizing energy distribution, enhancing grid resilience, and ensuring sustainability. It serves as a valuable resource for researchers, engineers, and policymakers shaping the future of renewable energy.