

SPECIAL ISSUE

## ENERGY TRANSITION TECHNOLOGY: THE ROLE OF POWER ELECTRONICS

### 335 Power Electronics Technology for Large-Scale Renewable Energy Generation

By F. Blaabjerg, Y. Yang, K. A. Kim, and J. Rodriguez

| INVITED PAPER | This article provides the latest statistics and describes the newest developments in large-scale renewable power generation.

### 356 The More-Electric Aircraft and Beyond

By G. Buticchi, P. Wheeler, and D. Boroyevich

| INVITED PAPER | This article presents a historical retrospective of aircraft electrification and an overview of the existing frameworks of aircraft electrification.

### 371 Charging Infrastructure and Grid Integration for Electromobility

By S. Rivera, S. M. Goetz, S. Kouro, P. W. Lehn, M. Pathmanathan, P. Bauer, and R. A. Mastromauro

| INVITED PAPER | The rapid uptake of electric vehicles (EVs) resulted in a significant demand for charging infrastructure. This article demonstrates possible charging approaches and architectures, discusses related standardization issues, and explains associated control algorithms.

### 397 Grid-Connected Energy Storage Systems: State-of-the-Art and Emerging Technologies

By G. G. Farivar, W. Manalastas, Jr., H. D. Tafti, S. Ceballos, A. Sanchez-Ruiz, E. C. Lovell, G. Konstantinou, C. D. Townsend, M. Srinivasan, and J. Pou

| INVITED PAPER | This article discusses pros and cons of available energy storage, describes applications where energy storage systems are needed and the grid services they can provide, and demonstrates different power electronic solutions.

### 421 Unlocking the Hidden Capacity of the Electrical Grid Through Smart Transformer and Smart Transmission

By M. Liserre, M. A. Perez, M. Langwasser, C. A. Rojas, and Z. Zhou

| INVITED PAPER | This article emphasizes the importance of faster adoption of smart transformer at the power distribution level to enable widespread adoption of distributed energy generation and demonstrates how power electronics will become the dominant technology in the future distribution and transmission grid.

DEPARTMENTS

### 322 INDUSTRY VIEW

Gallium Nitride Versus Silicon Carbide: Beyond The Switching Power Supply

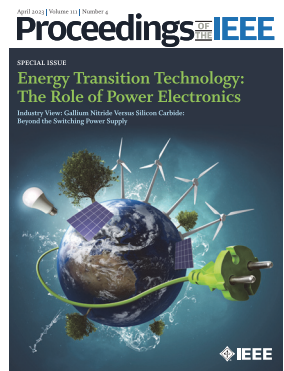
By U. K. Mishra

### 329 SCANNING THE ISSUE

Energy Transition Technology: The Role of Power Electronics

By J. Rodriguez, F. Blaabjerg, and M. P. Kazmierkowski

### 438 FUTURE SPECIAL ISSUE/SPECIAL SECTIONS



**On the Cover:** This month's cover highlights renewable energy resources whose integration is critical for clean energy and is driven by advances in power electronics.