

By Zheming Jin, Giorgio Sulligoi,
Rob Cuzner, Lexuan Meng,
Juan C. Vasquez, and Josep M. Guerrero



©ISTOCKPHOTO.COM/TKPHOTOGRAPHY64

Next-Generation Shipboard DC Power System

Introducing smart grid and dc microgrid technologies
into maritime electrical networks.

IN RECENT YEARS, EVIDENCE HAS suggested that the global energy system is on the verge of a drastic revolution. The evolutionary development in power electronic technologies, the emergence of high-performance energy storage devices, and the

ever-increasing penetration of renewable energy sources (RESs) are commonly recognized as the major driving forces of the revolution. The explosion in consumer electronics is also powering this change. In this context, dc power distribution technologies have made a comeback and keep gaining a commendable increase in research interest and industrial applications. In addition, the concept of flexible and smart distribution has also been proposed, which tends to exploit distributed generation and