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Preface

The generation, delivery, and utilization of electric power and energy remain among the most challenging and exciting fields of electrical engineering. The astounding technological developments of our age are highly dependent upon a safe, reliable, and economic supply of electric power. The objective of *The Electric Power Engineering Handbook* is to provide a contemporary overview of this far-reaching field as well as a useful guide and educational resource for its study. It is intended to define electric power engineering by bringing together the core of knowledge from all of the many topics encompassed by the field. The articles are written primarily for the electric power engineering professional who is seeking factual information and secondarily for the professional from other engineering disciplines who wants an overview of the entire field or specific information on one aspect of it.

The book is organized into 15 sections in an attempt to provide comprehensive coverage of the generation, transformation, transmission, distribution, and utilization of electric power and energy as well as the modeling, analysis, planning, design, monitoring, and control of electric power systems. The individual articles within the 15 sections are different from most technical publications. They are not journal type articles nor are they textbook in nature. They are intended to be tutorials or overviews providing ready access to needed information, while at the same time providing sufficient references to more in-depth coverage of the topic. This work is a member of the Electrical Engineering Handbook Series published by CRC Press. Since its inception in 1993, this series has been dedicated to the concept that when readers refer to a handbook on a particular topic they should be able to find what they need to know about the subject at least 80% of the time. That has indeed been the goal of this handbook.

In reading the individual articles of this handbook, I have been most favorably impressed by how well the authors have accomplished the goals that were set. Their contributions are, of course, most key to the success of the work. I gratefully acknowledge their outstanding efforts. Likewise, the expertise and dedication of the editorial board and section editors have been critical in making this handbook possible. To all of them I express my profound thanks. I also wish to thank the personnel at CRC Press who have been involved in the production of this book, with a special word of thanks to Nora Konopka and Ron Powers. Their patience and perseverance have made this task most pleasant.

Leo Grigsby
Editor-in-Chief

Editor-in-Chief

Leonard L. ("Leo") Grigsby received BSEE and MSEE degrees from Texas Tech University and a Ph.D. from Oklahoma State University. He has taught electrical engineering at Texas Tech, Oklahoma State University, and Virginia Tech. He has been at Auburn University since 1984, first as the Georgia Power Distinguished Professor, later as the Alabama Power Distinguished Professor, and currently as Professor Emeritus of Electrical Engineering. He also spent nine months during 1990 at the University of Tokyo as the Tokyo Electric Power Company Endowed Chair of Electrical Engineering. His teaching interests are in network analysis, control systems, and power engineering.

During his teaching career, Professor Grigsby has received 12 awards for teaching excellence. These include his selection for the university-wide William E. Wine Award for Teaching Excellence at Virginia Tech in 1980, his selection for the ASEE AT&T Award for Teaching Excellence in 1986, the 1988 Edison Electric Institute Power Engineering Educator Award, the 1990–91 Distinguished Graduate Lectureship at Auburn University, the 1995 IEEE Region 3 Joseph M. Beidenbach Outstanding Engineering Educator Award, and the 1996 Birdsong Superior Teaching Award at Auburn University.

Dr. Grigsby is a Fellow of IEEE. During 1998–99 he was a member of the Board of Directors as Director of Div. VII for power and energy. He has served the Institute in 27 different offices at the chapter, section, region, or national level. For this service, he has received seven distinguished service awards, the IEEE Centennial Medal in 1984, and the Power Engineering Society Meritorious Service Award in 1994.

During his academic career, Professor Grigsby has conducted research in a variety of projects related to the application of network and control theory to modeling, simulation, optimization and control of electric power systems. He has been the major advisor for 35 M.S. and 21 Ph.D. graduates. With his students and colleagues, he has published over 120 technical papers and a textbook on introductory network theory. He is currently Editor for CRC Press for a book series on electric power engineering. In 1993 he was inducted into the Electrical Engineering Academy at Texas Tech University for distinguished contributions to electrical engineering.

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