



Handbook of Electrical Power System Dynamics: Modeling, Stability, and Control

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Handbook of Electrical Power System Dynamics: Modeling, Stability, and Control From Wiley-IEEE Press

Complete guidance for understanding electrical power system dynamics and blackouts

This handbook offers a comprehensive and up-to-date treatment of power system dynamics. Addressing the full range of topics, from the fundamentals to the latest technologies in modeling, stability, and control, *Handbook of Electrical Power System Dynamics* provides engineers with hands-on guidance for understanding the phenomena leading to blackouts so they can design the most appropriate solutions for a cost-effective and reliable operation.

Focusing on system dynamics, the book details analytical methods of power system behavior along with models for the main components of power plants and control systems used in dispatch centers. Special emphasis is given to evaluation methods for rotor angle stability and voltage stability as well as the control mechanism for frequency and voltage. With contributions from international experts in both academia and industry, the book features:

- Critical insight into new trends in power system operation and control
- Numerous examples and graphics, including more than 600 figures and 1,200 equations
- In-depth coverage of wind generation, an alternative energy system
- An easily accessible presentation for readers with varied experience, from students to practicing engineers

An invaluable resource for power system engineers and smart grid analysts, this is also an excellent reference for system operators, utility workers, manufacturers, consultants, vendors, and researchers.

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Handbook of Electrical Power System Dynamics: Modeling, Stability, and Control From Wiley-IEEE Press Bibliography

- Sales Rank: #2086739 in Books
- Published on: 2013-04-01
- Original language: English
- Number of items: 1
- Dimensions: 10.40" h x 2.20" w x 7.30" l, 3.95 pounds
- Binding: Hardcover
- 976 pages

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Editorial Review

Review

“For power electronics professionals there is great opportunity to assist society energy security needs with innovations in power electronics for reactive power control, power flow control, advanced energy storage technologies for frequency regulation, secure communications, and other aspects of the smart grid.” (*IEEE Power Electronics Society*, 1 May 2013)

About the Author

MIRCEA EREMIA, PhD, is Full Professor in the Electrical Power Systems Department at the University Politehnica of Bucharest. He has authored or coauthored more than 150 journal and conference papers as well as ten books in the field of electric power systems. Professor Eremia has extensive experience in power system analysis and engineering education.

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