

1. Record Nr.	UNINA9910146086403321
Titolo	Real-time stability assessment in modern power system control centers // edited by Savu C. Savulescu
Pubbl/distr/stampa	Piscataway, New Jersey : , : IEEE Press, , c2009 [Piscataway, New Jersey] : , : IEEE Xplore, , [2009]
ISBN	1-282-03108-2 9786612031083 0-470-42391-9 0-470-42390-0
Descrizione fisica	1 online resource (455 p.)
Collana	IEEE Press series on power engineering ; ; 42
Altri autori (Persone)	SavulescuSavu Crivat
Disciplina	621.31 621.31/7
Soggetti	Electric power system stability Real-time control
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface -- Contributors -- 1 The Real-Time and Study-Mode Data Environment in Modern SCADA/EMS (Sudhir Virmani and Savu C. Savulescu) -- 1.1 Introduction -- 1.2 SCADA/EMS Architectures -- 1.3 Integrating Stability Applications with the SCADA/EMS -- 1.4 References -- 2 Overview of Key Stability Concepts Applied for Real-Time Operations (Savu C. Savulescu) -- 2.1 Introduction -- 2.2 In Search of the Stability Limits -- 2.3 Transient and Voltage Stability Limits -- 2.4 Steady-State Stability Limits -- 2.5 Concluding Remarks -- 2.6 References -- Annex 1-1. Reactive Power Steady-State Stability Criterion daL Q/dV -- 3 LIPA Implementation of Real-Time Stability Monitoring in a CIM Compliant Environment (Loris Arnold, Janos Hajagos, Susan M. Manassis, and Anie Philip) -- 3.1 Introduction -- 3.2 Static and Dynamic Security Assessment at LIPA -- 3.3 Benchmarking the Real-Time Stability Application -- 3.4 Practical Experience and Outlook -- 3.5 References -- 4 Real-Time Stability Monitoring at the Independent System Operator in Bosnia and Herzegovina (Dusko Vickovic and Roland Eichler) -- 4.1 Introduction -- 4.2 Interim

Implementation of Real-Time Stability Assessment at NOS BiH -- 4.3
Real-Time Stability Assessment in the New SCADA/EMS Environment --
4.4 Conclusions and Recommendations -- 4.5 References -- Annex 4-
1. TSL, TTC, and the Stability Envelope -- Annex 4-2. Siemens
Implementation of the Continuation Power Flow -- 5 Experience with
Real-Time Stability Assessment at Transelectrica (Horia S. Campeanu,
Cornel Erbasu, and Cornel Aldea) -- 5.1 Introduction -- 5.2 Security
Assessment Philosophy and Criteria -- 5.3 Real-Time Steady-State
Stability Assessment and Monitoring -- 5.4 Off-Line Stability Tools in
Support of System Operations -- 5.5 Conclusions and Outlook -- 5.6
References -- 6 Implementation of Online Dynamic Security
Assessment at Southern Company (Kip Morison, Lei Wang, Fred Howell,
James Viikinsalo, and Alan Martin) -- 6.1 Introduction -- 6.2 DSA
Implementation Fundamentals.
6.3 Transient Security Assessment Implementation at Southern
Company -- 6.4 Conclusions -- 6.5 References -- Annex 6-1. Further
Details of the DSA Software and Hardware Architecture -- Description
of the Core DSA Software -- Online DSA Implementation Using
DSATools -- 7 Online Security Assessment for the Brazilian System?A
Detailed Modeling Approach (Jorge L. Jardim) -- 7.1 Introduction -- 7.2
Security Criteria and Functions -- 7.3 Solution Methods and
Architecture -- 7.4 Practical Implementation Aspects -- 7.5 User
Interface And Performance -- 7.6 Concluding Remarks -- 7.7
Acknowledgments -- 7.8 References -- 8 Dynamic Network Security
Analysis in a Load Dispatch Center (Guenther Beissler, Olaf Ruhle, and
Roland Eichler) -- 8.1 Introduction -- 8.2 Siemens Approach to
Dynamic Security Assessment -- 8.3 Case Studies: Challenges,
Implementation Approach, and Solution Features -- 8.4 References --
Annex 8-1. Further Dynamic Simulation Capabilities -- Time Frame for
Dynamic Simulations -- Simulation in the Frequency Domain --
Eigenvalue and Modal Analysis -- 9 Real-Time Transient Security
Assessment in Australia at NEMMCO (Stephen J. Boroczky) -- 9.1
Introduction -- 9.2 Transient Security Assessment at NEMMCO -- 9.3
Performance and Reliability -- 9.4 Experience, Benefits, and Outlook --
9.5 References -- 10 Online Voltage Security Assessment in the
Hellenic Interconnected System (Costas Vournas, George Christoforidis,
and Thierry Van Cutsem) -- 10.1 Introduction -- 10.2 The Control
Center of HTSO -- 10.3 Online VSA in the Hellenic System -- 10.4 Use
of Online VSA For Arming Load-Shedding Protection -- 10.5
Conclusion -- 10.6 References -- Annex 10-1. Quasi-Steady-State
Simulation -- Principle of the QSS Approximation -- Handling of
Frequency in QSS Simulation -- QSS Model of the Synchronous Machine
and its Regulations -- Numerical Integration of the QSS Model -- 11
The Real-Time Supervision of Transmission Capacity in the Swedish
Grid (Lars Sandberg and Klas Rouden) -- 11.1 Introduction.
11.2 Prior and Current Application Development at SVK -- 11.3 Voltage
Security Assessment with SPICA -- 11.4 Benefiting from the Knowledge
of the Current Transmission Capacity -- 11.5 Additional SPICA
Functionality -- 11.6 Summary -- Appendix A Dima's Approach to
Steady-State Stability Assessment: Methodology Overview, Numerical
Example, and Algorithm Validation (Roberto D. Molina Mylius, Martin
Cassano, and Savu C. Savulescu) -- A.1 Methodology Overview -- A.2
Numerical Example?Independent Testing of Algorithm Implementation
-- -- A.3 Benchmarking the Methodology -- A.4 Conclusions -- A.5
References -- Appendix B SIME: A Comprehensive Approach to
Transient Stability (Mania Pavella, Daniel Ruiz-Vega, and Mevludin
Glavic) -- B.1 Introduction -- B.2 Basic Formulation -- B.3 Preventive
SIME -- B.4 Emergency SIME -- B.5 Postface -- B.6 References --

Notation -- Abbreviations and Acronyms -- Appendix C Detection and Evaluation of Stability Constrained (Marius Pomarleanu and Savu C. Savulescu) -- C.1 Introduction -- C.2 Approach -- C.3 Conclusions -- C.4 References -- Index.

Sommario/riassunto

This book answers the need for a practical, hands-on guide for assessing power stability in real time, rather than in offline simulations. Since the book is primarily geared toward the practical aspects of the subject, theoretical background is reduced to the strictest minimum. For the benefit of readers who may not be quite familiar with the underlying theoretical techniques, appendices describing key algorithms and theoretical issues are included at the end of the book. It is an excellent source for researchers, professionals, and advanced undergraduate and graduate students.
