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PP 300 kW Battery Energy Storage System Using an IGBT Converter
I. PAPIC, University of Ljubljana, Slovenia
P. ZUNKO, University of Ljubljana, Slovenia
A. KRAJIK, TAB Mezica, Slovenia
D. FOVIH, Siemens, Germany

PP An Optimal Adaptive Power System Stabilizer
A. SOOS, University of Calgary
O.P. MALIK, University of Calgary

PP Staged Fault Test Evaluation of High Voltage Equipment Maintenance Safety Grounding at a Large Hydro-Electric Power Plant
P.L. ATWATER, U.S. Bureau of Reclamation
J.M. DE HAAN, U.S. Bureau of Reclamation

PP RBF Identifier and Predictive Controller For Multi Machine Power System
G. RAMAKRISHNA, University of Calgary
O.P. MALIK, University of Calgary

PE076-EC-0-12-1998 Generator and Exciter Parameter Estimation of Fort Patrick Henry Hydro Unit 1
J.H. CHOW, Rensselaer Polytechnic Institute
R.J. MURPHY, Macdonald Incorporated

PP Opportunities, Benefits and Issues Relating to the Deregulation of the Electric Power Industry in Alberta, Canada
H.G. DREYER, EMP Technical Services Inc.
B.J. SPENCE, Brian J. Spence Prof. Corp.
C.B. MILLER, Tekarra Mgmt. Ltd.

Sponsor: Electric Machinery Committee

PP Starting Method for Sensorless Operation of Slotless Permanent Magnet Synchronous Machines
T.D. BATZEL, The Pennsylvania State University
K.Y. LEE, The Pennsylvania State University

PP Effects of Various Excitation Capacitances on Steady-State Performance of an Isolated Self-Excited Series Connected Synchronous Generator
L. WANG, National Cheng Kung University, Taiwan
Y.C. CHIANG, National Cheng Kung University, Taiwan
TUTORIAL: GAME THEORY APPLICATIONS IN POWER SYSTEMS

Thursday, July 22/8:00 AM/Sheraton Hotel/Rutherford

Sponsor: Power Engineering Education Committee
Course Coordinator: H. SINGH, PG&E Energy Services

FUNDAMENTALS AND HISTORY OF COMMUNICATION PROTOCOLS

Thursday, July 23/9:00 AM/Shaw Conference Center/Salon 10

Sponsor: Power System Communications Committee
Chair: D. NORDELL, Northern States Power

INTELLIGENT SYSTEMS IN ELECTRICITY MARKET MODELING (PANEL)

Thursday, July 22/9:00 AM/Shaw Conference Center/Salon 9

Sponsor: Power System Analysis, Computing and Economics Committee
Chair: K. TOMSOVIC

Using Market Simulation to Manage Price Risk in a Centrally Cleared Market
R. DAHLGREN, Alstom-ESCA
C.C. LIU, University of Washington
J. LAWARREE, University of Washington

Time Series Methods for Forecasting Electricity Market Pricing
Z. OBRADOVIC, Washington State University
K. TOMSOVIC, Washington State University

Coal Quality Analysis Techniques Using Artificial Neural Network Techniques
H. SALIHIFAR, University of North Dakota

Evolutionary Programming Based Optimal Power Flow Algorithm
J. YURYEVIC, University of Western Australia, Australia
K.P. WONG, University of Western Australia, Australia

RISK MANAGEMENT AND PRICE VOLATILITY (PANEL)

Thursday, July 22/9:00 AM/Shaw Conference Center/Salon 5

Sponsor: Power System Analysis, Computing and Economics Committee
Chair: R. DAHLGREN, Alstom ESCA Corporation

A Risk Manager’s Perspective
P. WEIGAND, Skipling Stone

Price Volatility—A Natural Consequence of Electricity Market Deregulation and a Trader’s Delight
C. BOTTO, PG&E Energy Trading

Risk Management in the Retail Electricity Business
H. SINGH, PG&E Energy Services

Financial Market Trading in the Australia Electricity Market
J. WISE, Wise Technology Mgmt.

Gas and Power Price Movement Relationships—A Trader’s Perspective
J. VAN RENSBURG, Alstom ESCA

TECHNICAL PAPER SESSION I

Thursday, July 22/9:00 AM/Shaw Conference Center/Salon 8

Sponsor: Power System Dynamic Performance Committee
Chair: J. PASERBA, Mitsubishi Electric Power Products, Inc

PP An Efficient Placement Algorithm of Multiple Controllers for Damping Power System Oscillations
A.R. MESSINA, Cinvestav, IPN, Unidad Guadalajara, Mexico
M. NAYEBZADEH, Siemens, Germany

PP Electromechanical Oscillation Damping in One Hydraulic Central
J.L. AGUERO, University Nacional de La Plata, Argentina
M. BEROQUI, University Nacional de La Plata, Argentina

PP Small Signal Stability Assessment Based on Transient Events
J.J. SANCHEZ-GASCA, GE Power Systems Energy Consulting
D.W. MATTHEWS, Central and Southwest Services, Inc.
W. ABDULHADI, Central and Southwest Services, Inc.

PP Experiences on Assessing Alberta Power System Voltage Stability with Respect to the WSCC Reactive Power Criteria
Z. FENG, University of Alberta
C. OAKLEY, ESBI Alberta Limited
W. XU, University of Alberta
S. McGOLDRICK, ESBI Alberta Limited

PP A Combined ANN/Simulation Tool for Electric Power System Dynamic Security Assessment
R. ARESI, University of Genova, Italy
S. MASSUCCO, University of Genova, Italy
B. DELFINO, University of Genova, Italy
A. MORFINI, University of Genova, Italy
G.B. DENEGR1, University of Genova, Italy
G.B. DELFINO, University of Genova, Italy
G.B. DENEGR1, University of Genova, Italy
G.B. DELFINO, University of Genova, Italy
G.B. DENEGR1, University of Genova, Italy
TECHNICAL PAPER SESSION II  
Thursday, July 22/2:00 PM/Shaw Conference Center/Salon 8  
Sponsor: Power System Dynamic Performance Committee  
Chair: G.K. MORISON, Powertech Labs Inc.,  
PP Emergency State Voltage Control Using a Tree Search Method  
M. LARSSON, Lund Institute of Technology, Sweden  
PP Identification of the Functional Relationship between Singularity Induced Bifurcation Points and Load Change  
S. AYASUN, Drexel University  
H.G. KWATNY, Drexel University  
PP A New Method to Find the Voltage Collapse Point  
G.M. HUANG, Texas A&M University  
T. ZHU, Texas A&M University  
PP Aluminum Plant Load Modeling for Stability Studies  
J.L. AGUERO, University Nacional de La Plata, Argentina  
M. BEROQUI, University Nacional de La Plata, Argentina  
S. ACHILLES, University Nacional de La Plata, Argentina  

HVDC TRANSMISSION AND FACTS  
Thursday, July 22/2:00 PM/Shaw Conference Center/Salon 8  
Sponsor: Transmission and Distribution Committee  
Chair: A. GOLE, University of Manitoba  
PE-136-PWRD-0-01-1999 Nonlinear Dynamics in HVDC Systems  
D.L.H. AIK, Royal Institute of Technology, Sweden  
G. ANDERSSON, Royal Institute of Technology, Sweden  
PE-184-PWRD-0-01-1999 Steady-State Solution of the HVDC Converter including AC/DC System Interaction by a Direct Method  
B.K. PERKINS, University of Manitoba  
PE-259-PWRD-0-01-1999 Modifying Blackwater HVDC for Voltage Control Capability Without Power Transfers  
G. WOLF, Public Service of New Mexico  
T. DUANE, Public Service of New Mexico  
D. MARTIN, ABB Power T & D Co., North Carolina  
PE-408-PWRD-0-01-1999 Design and Implementation of AC Voltage Dependent Current Order Limiter at Pacific HVDC Interter  
R. BUNCH, Bonneville Power Administration  
D. KOSTERB, Bonneville Power Administration  

TRANSMISSION RIGHTS—WHAT, WHY, AND HOW (PANEL)  
Thursday, July 23/2:00 PM/Shaw Conference Center/Salon 5  
Sponsor: Power System Analysis, Computing and Economics Committee  
Chair: D. SUN, Alstom, ESCA Corp.  
Fixed Transmission Right Auction  
A. OTT, PJM INTERCONNECTION  
Firm Transmission Rights  
A. PAPALEXOPOULOS, WEPEX FTR  
A Power Marketer's Experience with Fixed Transmission Rights  
H.H. YAN, Power Team  
Firm Transmission Reservations from the Energy Trader's View  
W.J. FENERTY, Skipping Stone  

PROTECTION OF TRANSMISSION LINE WORKERS FROM RF RADIATION FIELDS IN POWER TRANSMISSION LINE CORRIDORS  
Thursday, July 23/1:30 PM/Sheraton Hotel/Winter Lake Suite  
Sponsor: Transmission and Distribution Committee  
Chair: N. KOLCIO, American Electric Power Service Corp.  
FCC Regulations for Human Exposure to RF Fields  
R.A. HALLER, Fox Ridge Communications, Inc.  
RF Field Measurement and Monitoring Equipment for the Transmission and Distribution Line Worker  
R.E. JOHNSON, Narda  
Computer Monitoring for Human RF Exposure Compliance  
R.A. HALLER, Fox Ridge Communications, Inc.  
Possible Work Hazards and Available Protection  
J. AMATO, Euclid Garment Mfg Co.  
Human RF Exposure Compliance Programs  
R.A. HALLER, Fox Ridge Communications, Inc.