CIGRE Session 2022

28 August - 02 September 2022
Paris, France

Provisional Technical Programme

See the list of Accepted Paper Proposals based on synopses review.

We wish to draw attention to the fact that Full Papers will be also peer-reviewed. Therefore, the list may evolve.

A1 - ROTATING ELECTRICAL MACHINES

PS 1 Generation Mix of the Future

ID: 244
A1 ROTATING ELECTRICAL MACHINES
Topics: PS1 - Generation Mix of the Future
Keywords: flexible coal-fired, power system

Performance Evaluation of Retrofitted Coal-fired Power Plant Simulation Model

Bongil KOO, Suchul NAM, Baekkyoung KO, Sung-Bum KANG, Joon HAN
Korea Electric Power Corporation Research Institute

ID: 430
A1 ROTATING ELECTRICAL MACHINES
Topics: PS1 - Generation Mix of the Future

A challenge faced in India by the Peak Load Stations with Nation's commitment of massive penetration of Renewables in the Generation Mix

Ashutosh Kumar PANDEY
Power System Operation Corporation Limited

ID: 431
A1 ROTATING ELECTRICAL MACHINES
Topics: PS1 - Generation Mix of the Future

Case Study for Synchronous condenser Implementation

R C JHA
NTPC Ltd.

ID: 740
A1 ROTATING ELECTRICAL MACHINES
Topics: PS1 - Generation Mix of the Future

New Proposal of the Motor-Generator Set with Renewable Energy and Storage Battery

Yoshihiro KITAUCHI, Ren AOKI
Central Research Institute of Electric Power Industry (CRIEPI)

ID: 789
A1 ROTATING ELECTRICAL MACHINES
Topics: PS1 - Generation Mix of the Future

An innovative power system stabilization method with augmented inertia synchronous condensers

Cosimo PISANI
TERNA S.p.A. Italy

ID: 834
A1 ROTATING ELECTRICAL MACHINES
Topics: PS1 - Generation Mix of the Future

Advanced Design of Nuclear Turbo-generators for increased penetration of power electronic based renewable power sources

Hervé BIELLMANN[1], Mohamed BERRIRI[1], Arnaud BUGUIN[1], Stéphane BRAEM[2], Valentin COSTAN[2], Vincent FERNAGUT[2]
[1]General Electric; [2]EDF

PS 2 Asset Management of Electrical Machines

D: 114
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines
Keywords: Battery Energy Storage System; Fuzzy Logic Control; Matlab/Simulink, Subsynchronous Torque Oscillations.

Alleviation of Subsynchronous Torque Oscillations in Series Compensated Power Grid Via Fuzzy Based Battery Energy Storage System

Mohamed Fayez AHMAD

Cairo Electricity Production Company (CEPC) (EEHC)

ID: 123
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Data Science and AI for On-line Diagnosis of Rotating Machines from Pre-existing Sensors, with applications in Hydro Generators and Wind Generators

M. E. G. ALVES[1], G. P. S. GOMES[1], M. M. PINTO[1], B. F. SARDINHA[1], H. P. SANTOS[1], L. P. FRITOLI[1], M. COSTA[1], D. P. SANTOS[1], D. L. A. NEGRÃO[2], G. TOYOSHIMA[2], Iony SIQUEIRA[3], R. A. FLAUZINO[4]
[1]RADICE TECHNOLOGY; [2]IBITU ENERGIA; [3]TECNIX; [4]USP

ID: 125
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Construction of the Partial Discharge Measurement History According to IEC 60034-27-2

P VILHENA[1], F BRASIL[2]
[1]Eletrobras Eletronorte; [2]Devry Faci

ID: 310
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines
Keywords: Insulation system, rotating machine, aging, thermal index, partial discharge trend

Review on Trend of Diagnostic factor as a Function of Thermal and Multi Aging Time of 6.6 kV Rotating Machine Insulation System

Y.H. KIM, S.C. HWANG
HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD., Korea, Republic of (South Korea)

ID: 355
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Features of Electromagnetic Processes and Force Interactions in Turbogenerators When Consuming Reactive Power

P.A. DERGACHEV, P.A. KURBATOV
NRU MPEI

ID: 741
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Preventive Maintenance Technology for Enhancement of Turbine Generator Reliability

Kazuaki OGURA, Go KAJIWARA, Kenji TANAKA
Mitsubishi Electric Corporation

ID: 742
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

On-line Partial Discharge Monitoring System for Diagnosis of Insulation Condition in Generators

Makoto TAKANEZAWA, Takashi HARAKAWA, Tomoaki TAKAHASHI, Abdullah AJLAN, Akira FUJIMOTO, Hideyuki NAKAMURA
TOSHIBA Energy Systems & Solutions Corporation

ID: 835
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Fatigue breaking mechanism study at the coils connections of a stator winding and at the magnetic core fasteners Implementation of a detection device to improve HV motor reliability

Daniel LALOY[1], Didace EKOEM[1], Maxime PLOYARD[1], Julien SOUILLIART[2], Laurent LEROY[2], Guilhem BARTHES[2], Vincent FERNAGUT[2], Romain SEIGNEURET[2]
[1]JEUMONT Electric; [2]EDF

ID: 851
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Optimally designed PMSG with swarm-based meta-heuristical optimization methods for the wind turbine applications

Abdurrahman YAVUZDEGER[1], Inayet Ozge AKSU[2], Burak ESENBOGA[3], Tugce DEMIRDELEN[4]

[1]Adana Alparslan Turkes Science and Technology University, Energy Systems Engineering Department1, Turkey; [2]ATU,Computer Engineering Department2 ,Turkey; [3]ATU,Electrical and Electronic Engineering Department3, Turkey; [4]ATU,Electrical and Electronic Engineering Department3, Turkey

ID: 862
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Automated tool for bearing fault diagnosis in induction motors, based on MCSA technique and machine learning algorithm

Guillem GIL
Instituto Tecnológico de la Energía

ID: 990
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines
Keywords: The Internet-of-Thing Technology, IoT Based System, Condition Based Maintenance, Motor Maintenance Management, High Voltage Motor, Work Optimization, Plant Servers, Data Collection Nodes (DCN), Distributed Storage Concept

IoT BASED SYSTEM USED FOR MOTOR MAINTENANCE MANAGEMENT TO COLLECT, ANALYZE, AND MONITOR THE CONDITION FOR HIGH VOLTAGE MOTOR OF POWER GENERATION PLANT

Chaiyanat SUPHATTANA
TNC-CIGRE, Thailand

ID: 997
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Performance and Reliability of the Wind Turbines at Lam Takong Jolabha Vadhana Power Plant: A Review

Prapapong VANGTOOK, Panu SUWICHARCHERDCHOO
TNC-CIGRE, Thailand

ID: 1061
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Experience with Stator Core Integrity Tests at Highly Stressed Turbine Generators - A Technical Comparison of Different Type of Ring Flux Tests

Jürgen R. WEIDNER
GenAdvice Consulting, Germany

ID: 1062
A1 ROTATING ELECTRICAL MACHINES
Topics: PS2 - Asset Management of Electrical Machines

Synchronous machines during high rates of change of frequency in inverter-based power systems

Alf ASSENKAMP[1], Christian KREISCHER[2]
[1]TUV Rheinland Industrie Service GmbH, Germany; [2]HSU HH, Germany

PS 3 DEVELOPMENTS OF ROTATING ELECTRICAL MACHINES AND OPERATIONAL EXPERIENCE

ID: 247
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

Research on Non-invasive Condition Monitoring-Based Predictive Maintenance of Electric Motors

Yuanqi TANG, Xianhe SHANG
CNNP Nuclear Operation Management Co., Ltd., China

ID: 248
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

Research on Fault Analysis and Remote Fault Diagnosis Technology of New Type Large Capacity Synchronous Condenser

Chao XIA
China Electric Power Research Institute, China

ID: 353
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

Series of Powerful Water-cooled Turbine Generator

M.B. ROYTGARTS, O.V. ANTONYUK, A.A. IVANOVSKY, N.V. GRISHIN, V.N. ZHELEZNYAK, D.V. ZHUKOV, A.G. MIGAS
JSC "Power machines"

ID: 354
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

Features of Akkuyu NPP Turbogenerators and Factory Test Results

E. KADI-OGLY[1], A. TSVETKOV[1], B. WAHDAME[2], Ph. MEYER[2], P. CHAY[2], D. DE-ROZARIO[2]
[1]Turbine Technologies AAEM; [2]GE Power Portfolio

ID: 432
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

Failure of Large Turbo-Generator during first run-Case Study of Indian Power Utility

Harshvardhan SENGHANI
NTPC Ltd.

ID: 836
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

Increasing flexibility of historical power generation thanks to micro hybrid concept, the Xflex hydro live demonstrator at Vogelgrun HPP

Jean-Louis DROMMI[1], Elena VAGNONI[2], Francesco GERINI[2], Rachid CHERKAOUI[2], Mario PAOLONE[2], Christophe NICOLET[3], Christian LANDRY[3], Antoine BEGUIN[3]
[1]EDF; [2]EPFL SUISSE; [3]Power Vision Engineering Sarl, SUISSE

ID: 863
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

Fundamental model of full power converter variable speed Hydro Generators: Control and Simulation

Luis ROUCO
Universidad Pontificia Comillas

ID: 1021
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

When does a generator rotor become un-repairable and ultimately scrap? New advances in repair techniques and stress analysis could extend the feasibility of a repair further than traditionally though

Wojciech BETLEJ, Tony CROUCHER
Quartzelec Ltd

ID: 1063
A1 ROTATING ELECTRICAL MACHINES
Topics: PS3 - Developments of Rotating Electrical Machines and Operational Experience

Experience with CO2 free Generator Operation

Uwe EICKELBECK
Siemens Energy, Germany

A2 - POWER TRANSFORMERS AND REACTORS

PS 1 EXPERIENCE AND NEW REQUIREMENTS FOR TRANSFORMERS FOR RENEWABLE GENERATION

D: 100
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation
Keywords: HVDC converter transformer, Condition assessment, Risk assessment, Diagnostics

Condition Assessment of HVDC converter transformers at limited time of outage applied to the Fenno–Skan transmission system

Evgenii ERMAKOV[1], Lena MELZER[1], Tomas LINDSTEDT[1], Niclas SCHÖNBORG[2], Gert-Ove PERSSON[2]
[1]Hitachi ABB Powergrids, Sweden; [2]Svenska kraftnät, Sweden

ID: 127
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Advantages of Evaluation of the Loading and Ambient Temperature Profile for Solar Collector Power Transformer based on Dynamic Loading Mode

W CALIL[1], E COSTA[2], T LANERYD[3], A GUSTAFSON[3]
[1]Hitachi ABB Power Grids, Brazil; [2]São Paulo University,; [3]Hitachi ABB Power Grids, Sweden

ID: 216
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Design of Effective Grounding in Microgrids with Inverter-based Distributed Energy Resources (DERs)

Aleksandar VUKOJEVIC, Paul PABST
Commonwealth Edison, United States of America

ID: 249
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Investigations on Vacuum Tap Changer Failures of Converter Transformers and Maintenance Suggestions

Linjie ZHAO, Yao YUAN, Jiahui YANG, Xi ZHANG, Lianwei BAO
Electric Power Research Institute of China Southern Grid, China

ID: 250
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Research on the Electric Field Distribution and Regulation Methods of Valve-side Bushing for Convertor Transformer

Xiaoxiao KONG, Yifang WANG, Jin LI, Boxue DU
Tianjin University, China

ID: 251
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation
Keywords: White-box model; Electromagnetic transients; Simulation

Validation of a white-model box throughout small signal internal voltage transfer measurements for non-standard test conditions of a distribution transformer

Luis BRAÑA[1,2], Artur COSTA[2], Ricardo LOPES[1]
[1]Efacec Energia, Portugal; [2]Faculdade de Engenharia da Universidade do Porto, Portugal

ID: 256
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Reverse Power Flow Impacts for Legacy Power Transformers

Ed G. TENYENHUIS
Hitachi ABB Power Grids

ID: 356
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

White-box Models Development for Insulation Design and Providing Transformers Withstand to High-frequency Resonant Overvoltages

V.S. LARIN[1], D.A. MATVEEV[2], M.V. FROLOV[2]
[1]All-Russian Electrotechnical Institute (VEI – branch of FSUE "RFNC – VNIITF"); [2]Moscow Power Engineering Institute (NRU MPEI)

ID: 433
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Design and Operation Consideration for Selection of Transformers for Solar Photovoltaic Plant Applications

Koushik DAS[1], Subir KARMAKAR[2]
[1]NTPC Ltd.; [2]NTPC Ltd.

ID: 771
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Single-phase, large power, 24-pulse Thyristor Controlled Transformers

Luca BUONO
TERNA RETE ITALIA S.p.A

ID: 810
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Evaluation and Implementation of HV Dry-Type Shunt Reactors into a 420kV Transmission Grid

Peter DOPLLMAIR[1], Klaus POINTNER[1], Peter VENEDIGER[2]
[1]Trench Group; [2]TenneT

ID: 820
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

New industry standard regarding environment, health and personal safety for offshore wind turbine power transformers

Martin STÖSSL[1], Jesper GAARD[2], Jürgen GANGEL[1]
[1]Siemens Energy Austria GmbH; [2]Siemens Gamesa Renewable Energy A/S Denmark

ID: 839
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Design challenges for large offshore wind turbine transformers

Max GILLET[1], Christophe PERRIER[1], D MARNAY[1], F MARKETOS[1], M KAVUK[2], H YILDIZ[2], Tobias STIRL[3], T BOROOMAND[4]
[1]GE France; [2]GE Turkey; [3]GE Germany; [4]GE United Kingdom

ID: 884
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Mobile Fault Current Limiting and Load Flow Reactor for 220kV

Klaus POINTNER[1], Peter DOPPLMAIR[1], Victor J. HERNANDES JIMENEZ[2], Klaus REISENBERGER[1]
[1]Trench Austria Group; [2]RED Eléctrica de España

ID: 943
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

1 Statistical Analysis and Grouping of Measured Power Transformer Overvoltages

Bruno JURIŠIĆ
HRO CIGRE, Croatia

ID: 945
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Implications of Modern Transformer Thermal Models on Fleet Management

Tomislav ŽUVUPAN
HRO CIGRE, Croatia

ID: 953
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

On-line differential partial discharge measurements of Condenser Bushings on Power Transformers

Espen EBERG[1], Lars LUNDGAARD[1], Asgeir MJELVE[2]
[1]SINTEF Energy Research; [2]Elvia

ID: 1065
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS1 - Experience and New Requirements for Transformers for Renewable Generation

Impact of Transient Voltage Generated by Valve Commutation on HVDC Transformer

Rene WIMMER[1], Thomas HAMMER[2]
[1]Siemens Energy Global GmbH & Co. KG; [2]Siemens AG, Germany

PS 2 BEYOND THE MINERAL OIL-IMMERSED TRANSFORMER AND REACTORS

ID: 130
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

A Proposal to Reduce Greenhouse Gas Emission in the Electricity Transmission Sector in Brazil: A Calculation Method based on the Use of Natural Ester in Power Transformers

R SILVA, R REINERT
Cargill

ID: 277
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

A new solution of higher energy-efficient dry-type transformers with Silicon Rubber Casting technology

Shaigen HAN[1], Jian WU[2], Yonghua JIN[3], Yi YANG[4], Liingyu ZHANG[5], J. HAN[6]
[1]Energy Internet Research Institute Co., Ltd. of State Grid, China; [2]Jiangsu Dahang Transmission and Distribution Co., Ltd., China; [3]Shanghai Zhenger Intelligent Technology Co., Ltd., China; [4]Shanghai Zhenger Intelligent Technology Co., Ltd., China; [5]International Copper Association, China; [6]Danyang Power Supply Branch of Jiangsu Electric Power Co., Ltd. of State Grid, China

ID: 437
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Experience on Design, Manufacturing & Type Testing of First 420kV Class ester fluid filled shunt reactor

Gunjan AGRAWAL
Power Grid Corporation of India Ltd.

ID: 505
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Beyond the top oil temperature limit

Tor LANERYD, G FRIMPONG, N LAVESSON, J CZYZEWSKI
Hitachi ABB Power Grids

ID: 534
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Winding Insulation Characteristics of Gas Filled Transformers with SF6 Alternative Gas

Yoshiki NAKAZAWA, Shigekazu MORI, Kei TAKANO, Naoki NOGUCHI, Takeshi CHIGIRI
Toshiba Energy Systems & Solutions Corporation

ID: 535
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Technological Development of Vegetable Oil (Rapeseed Oil) Immersed Transformer

Susumu SAKAMOTO[1], Shin YAMADA[2]
[1]Kitashiba Electric Co., Ltd.; [2]Toshiba Energy Systems & Solutions Corp.

ID: 688
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Development of Transformer using Natural Ester for a Modular Substation

Jaeyong PARK, Hyeon Gu JEONG, Min Gyu KIM, Seong Eon KIM, Jongchul JUNG, Ik Choon CHO, Jongung CHOI, Young Geun KIM
LS ELECTRIC, Republic of Korea

ID: 772
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Supporting development of transformers with natural esters by comprehensive evaluation of insulation systems

Fabio SCATIGGIO
A&A Fratelli Parodi

ID: 803
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

420kV Shunt Reactors for Reactive Power Compensation Explaining the Trends Favoring Air-Core Dry-Type Technology

A. GRISENTI, A. GAUN, B. FRÖHLICH, C. NIEDERAUER
Coil Innovation GmbH

ID: 864
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Dry-type 145 kV transformers: safe indoor substations with improved environmental performance

Carlos ROY
Hitachi ABB Power Grids

ID: 1022
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Design of innovative resilient transformers for maximum operating flexibility

Radosław SZEWCZYK[1], Jean-Claude DUART[1], Anastasia O'MALLEY[2], Kurt KAINEDER[3], Robert MAYER[3], Ewald SCHWEIGER[3]
[1]DuPont; [2]Consolidated Edison Co. of NY; [3]Siemens Energy

ID: 1064
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Testing Challenges with Ester Insulating Liquids

Ivanka HOEHLEIN[1], Carolin SCHUETT[2]
[1]Siemens Energy, Germany; [2]Siemens Energy, Germany

ID: 1066
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Qualification of Insulating Liquids for Power Transformers and Tap-Changers

Rainer FROTSCHER[1], Sebastian REHKOPF[2]
[1]Maschinenfabrik Reinhausen, Germany; [2]Maschinenfabrik Reinhausen, Germany

ID: 1125
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS2 - Beyond the Mineral Oil-Immersed Transformer and Reactors

Type Testing of 80MVA Power Transformer with a new Bio-based, Biodegradable and Low Viscosity Insulating liquid

C. P. WOLMARANS[1], Ahmed GAMIL[2]

[1]Nynas; [2]SGB-SMIT Group Regensburg

PS 3 BEST PRACTICES IN TRANSFORMERS AND REACTORS PROCUREMENT

ID: 122
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

Impulse Testing of Power Transformers - Impact of Internal Varistors built into On-load Tap Changers

Dharam VIR, Pradeep RAMASWAMY, Yuriy FRADKIN, Tim ROCQUE
SPX Transformer Solutions, Inc., United States of America

ID: 131
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

High Voltage Bushings For Transformers And Shunt Reactors Considering Local Conditions – Brazilian Transmission Network Case

S MONTENEGRO[1], N VIVEIROS[2], Y NOMI[3], R ASANO[4]
[1]CHESF; [2]SIEMENS-ENERGY; [3]HITACHI-ABB; [4]UFABC

ID: 314
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement
Keywords: low-Noise, Transformer, 154kV, 50dBA

Introduced the Development of low-Noise (50dBA) Technology for 154kV Class Power Transformers

Chuljun PARK, Kyuho LEE, Moonsik KANG
HYOSUNG Corporation, Korea, Republic of (South Korea)

ID: 436
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

Complexities in Design and Manufacturing of Transformers with Low MVA, High Voltage Class

Harmanpreet Singh SEKHON
CG Power and Industrial Solutions Limited

ID: 438
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

Procurement of Transformers and Reactors-Best Practices Adopted to Achieve highest availability & reliability goal

Richik Manas DAS
Power Grid Corporation of India Ltd.

ID: 506
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

State of the art in short-circuit for transformers

Julia FORSLIN[1], J TILLERY[1], M MUNOZ[2], D SACCONE[3]
[1]Hitachi ABB Power Grids, Sweden; [2]Hitachi ABB Power Grids, Spain; [3]Hitachi ABB Power Grids, Italy

ID: 573
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

Experiences and Risks when Dealing with Remote Inspections of Factory Acceptance Tests on EHV Inductive Equipment

Pablo Andrés NARVAEZ
INTERCONEXION ELECTRICA S.A E.S.P. - ISA

ID: 840
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

RTE's experience on transformers and reactors procurement

Brice REDIN, Laetitia MAUGAIN
RTE

ID: 841
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

A simplified tool to assess transformer behaviour to GIC and other DC disturbances

Paul POUJADE, Damien BORTOLOTTI, Olivier MOREAU, Mohamed RYADI, Luc PAULHIAC
EDF

ID: 842
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

Qualification test for power transformers GIC capability

Mohamed RYADI[1], R DESQUIENS[1], Paul POUJADE[1], Damien BORTOLOTTI[1], Olivier MOREAU[1], JT MONTAVONT[1], E ALVADO[1], J RAITH[2], C LEBER[2], M STOESSL[2]
[1]EDF; [2]SIEMENS ENERGY

ID: 854
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

Investigation of the effects of core yoke lamination pressure on the vibration characteristics of shunt reactors

Oguzkan ŞENTÜRK[1], Hakan OZCAN[2], Max GILLET[3]
[1]GE Grid Solutions; [2]HO; [3]MG

ID: 1059
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

A Case Study of Earth Fault on The Power Transformer Caused by Human Error and Inadequate Design in the Interlock System

Yousef MASHAGBEH[1], Sami ABU SHARAR[2]
[1]Samra Electric Power Company, Jordan; [2]Samra Electric Power Company, Jordan

ID: 1126
A2 POWER TRANSFORMERS AND REACTORS
Topics: PS3 - Best Practices in Transformers and Reactors Procurement

Procuring transformers and reactors under a dynamic environment for a sustainable network – the Eskom way

S. MTETWA
Eskom Holdings Limited

A3 - TRANSMISSION & DISTRIBUTION EQUIPMENT

PS 1 DECENTRALISATION OF T&D EQUIPMENT

ID: 357
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Superconducting Fault Current Limiters: Operation Experience, Appliances and Integration Solutions

P. USTYUZHANIN, M. MOYZYKH, S. SAMOILENKOV
JSC “SuperOx“

ID: 401
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Metal Vapor Deposition Patterns and Characteristics on Alumina Ceramic Insulators in Vacuum

Kip BENSON, Subir CHAKRABORTY, Leslie T. FALKINGHAM, Greg WILK, Gabrielle MADDEN, Francis GOTANCO
S&C Electric Company, United States of America

ID: 509
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Applications for ultrafast current-limiting circuit breakers

Simon NEE, T MODEER, L ÄNGQUIST, S NORRGA
SciBreak AB, Sweden

ID: 545
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Recent HVDC Circuit Breaker Development and Testing

N.A. BELDA[1], R.P.P. SMEETS[1], H. ITO[2], S. TOKOYODA[2], T. INAGAKI[2], S. NEE[3], T. MODEER[3], S. MEBREHATU[4], A. HASSANPOOR[4], C.A. PLET[5]
[1]KEMA Labs; [2]MITSUBISHI Electric; [3]SciBreak AB; [4]Hitachi ABB Power Grids; [5]DNV

ID: 626
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment
Keywords: Superconducting Fault Current Limiter, Resistive Fault Current Limiter, SFCL, Fault Current, Power System Interconnection

Development of a 25.8 kV/2,000 A Compact R-SFCL

Min Jee KIM[1], Gyeong Ho LEE[1], Chae Yoon BAE[1], Kil Young AHN[1], Young-Geun KIM[1], Byoung Hee CHO[2]
[1]LS ELECTRIC Co., Ltd., Korea, Republic of (South Korea); [2]Korea Electirc Power Corporation, Korea, Republic of (South Korea)

ID: 655
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment
Keywords: High voltage circuit breakers, dielectrics, RDDS, controlled switching

RDDS measurements for 245 kV and 420 kV High Voltage Circuit Breaker

Reto KARRER, M. DHOTRE, V. TEPPATI, S. KOTILAINEN, F. LUNDQVIST, F. AGOSTINI
Hitachi ABB Powergrids Switzerland

ID: 773
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Sizing and testing of HVDC disconnectors from the dielectric point of view

Eros STELLA
GE Italy

ID: 805
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Short circuit analysis of a Doubly Fed Induction Generator and their Impact on Generator Circuit Breakers

Alois LECHNER[1], Karthikreddy VENNA[2], Hong URBANEK[2]
[1]Andritz Hydro GmbH; [2]Siemens AG Germany

ID: 843
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Experience of composite insulators on HV substation: Some French examples

Giulio ROCCHETTI[1], J SEIFERT[2], Minh NGUYEN[3], Jean-Charles MOREAU[3], Christian PONS[4]
[1]REINHAUSEN RFE; [2]REINHAUSEN power composites RPC; [3]RTE; [4]EDF

ID: 844
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Risk based technical policy for RTE's Instrument Transformer (IT)

Mandana TALEB, S TAZI, Xavier GILLES, B IZAC, L COHEN
RTE

ID: 845
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Resistive Superconductive Fault Current Limiter used in a selective protection strategy for MTDC grids

Christophe CREUSOT, A BERTHE, Alberto BERTINATO, D PAIXAO
SUPERGRID INSTITUTE

ID: 948
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS1 - Decentralisation of T&D Equipment

Seismic performance of instrument transformers

Ivan ČEHIL
HRO CIGRE, Croatia

PS 2 DECARBONISATION OF T&D EQUIPMENT

ID: 102
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

SF6-free Solutions for 420 kV Networks using gas-Insulated Substation (GIS)

Matt BARNETT[1], A FICHEUX[2], S SOUCHAL[2], B PORTAL[2], Q ROGNARD[2]
[1]SSEN Transmission United Kingdom; [2]GE Grid Solutions France

ID: 103
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Application of SF6 Alternatives for retro-filling existing Equipment

Lujia CHEN[1], L LOIZOU[1], Q LIU[1], M WALDRON[2], G WILSON[2], J OWENS[3]
[1]University of Manchester United Kingdom; [2]National Grid United Kingdom; [3]3M Company United States

ID: 126
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Comparative Continuous and Overload Current Performance of Dead-Tank Circuit Breakers with SF6 and Alternative Gases

Victor HERMOSILLO[1], Diana LEGUIZAMON-CABRA[2], Maruis CATALA[2], Ludovic DARLES[2], Cyril GREGOIRE[2], Jean-Alain RODRIGUEZ[2]
[1]GE Grid Solutions, United States of America; [2]GE Grid Solutions, France

ID: 132
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Substation Equipment Overstress Management CIGRE Technical Brochure 816 Compilation

A CARVALHO[1], J AMON[2], M LACORTE[3], C LINDNER[4], R KARRER[5]
[1]CIGRE-Brasil, Brazil; [2]Consultant; [3]Consultant; [4]AXPO; [5]Hitachi ABB

ID: 136
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Design Considerations for Implementing SF6 Alternatives for Distribution Switchgear Applications with Focus on Toxicity and Load Break Performance

Andres LASO[1], Mattewos TEFFERI[1], Sebastian GLOMB[2], Martin GOPPEL[2], Nenad UZELAC[1], Rene SMEETS[3]
[1]G&W Electric, United States of America; [2]DILO Armaturen und Anlagen GmbH, Germany; [3]KEMA Labs, Netherlands

ID: 209
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

A New 500 kV AC Overhead Transmission Line Delivering Clean Hydroelectric Power from Canada to the State of Minnesota USA Utilizing 600 kV Dry Type EHV Current Transformers

Robert MIDDLETON[1], Eric EUVRARD[1], Jim NICHOLSON[2]
[1]RHM International, United States of America; [2]Manitoba Hydro, Canada

ID: 317
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment
Keywords: SF6-Free, GCB(Gas Circuit Breaker), CFD(Computational Fluid Dynamics), 170kV, 50kA

Experimental and Numerical Analysis on the Interruption Capability of SF6-Free 170kV 50kA GCB

Jungho PARK, Manjun HA, Kyongbo SEO, Hongkyu KIM
HYOSUNG Corporation, Korea, Republic of (South Korea)

ID: 439
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Improving Human Safety & Environment by Innovative Circuit Breaker Testing

Balasaheb DOIPHODE
Scope T&M Pvt. Ltd.

ID: 440
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Health Indexing and Reliability Assessment of EHV SF6 Circuit Breaker

Sourav ADHYA
Adani Transmission Ltd.

ID: 507
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

SF6-alternative 145 kV live-tank circuit breaker

Peter STENGÅRD, Partick STOLLER, Amaya LAGO, Mirko PALAZZO, Navid MAHDIZADEH
Hitachi ABB Power Grids, Sweden

ID: 643
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Recent Development of SF6 alternative Switchgear using Natural-Origin Gases in Japan

Toshiyuki UCHII[1], Daisuke YOSHIDA[2], Shigeyuki TSUKAO[3], Koichi TAKETA[4], Kiyohiro TSUBOI[5]
[1]Toshiba Energy Systems & Solutions Corp.; [2]Mitsubishi Electric Corp.; [3]TEPCO Power Grid, Inc.; [4]Kansai Transmission and Distribution, Inc.; [5]Chubu Electric Power Grid Co., Inc.

ID: 656
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Moving towards carbon neutral high voltage Switchgear by combining eco efficient Technologies

Michael GATZSCHE, Vincent TILLIETTE, Ueli STRAUMANN, Henrik LOHRBERG, Freddy VON ARX, Adrian SKEA, Manuel NAEF, Kalpesh CHAUHAN, Navid MAHDIZADEH
Hitachi ABB Powergrids Switzerland, Germany, India

ID: 657
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment
Keywords: SF6 alternatives, MV/HV application

Hivoduct - a novel, compact, pressurized air insulated GIL for 72 kV - 420 kV: Design, Simulation and Test results

Walter HOLAUS, Michael SCHUELLER, Matthias SCHNEIDER
Hivoduct AG, OST University of Applied Science Switzerland

ID: 658
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment
Keywords: SF6 alternative, circuit breaker, 145 kV

SF6 alternative Circuit Breaker for 145 kV Gas insulated Switchgear

Patrick STOLLER, Thomas HD. BRAUN, Jakub KORBEL, Markus RICHTER
Hitachi ABB Powergrids Switzerland, Germany

ID: 799
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment
Keywords: SF6-Free, Fluoronitile, Reliability, Gas handling, Monitoring

Reliability and Operation Test of SF6-free 170kV 50kA GIS with Fluoronitile (C4F7N) Mixtures

J.U. YEUN, H.S. AHN, J. CHOI, Y.G. KIM
LS ELECTRIC Co., Ltd., Korea, Republic of (South Korea)

ID: 800
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment
Keywords: Arc Simulation, Fluornitrile Mixture Gas, Performance Index, Data Analysis

Arc Simulation and Current Interrupting Performance Index of SF6-free GIS with Fluoronitrile(C4F7N) Mixture Gas

J.S. RYU, M. CHOI, H.E. JUNG, C.Y. BAE, Y.G. KIM
LS ELECTRIC Co., Ltd., Korea, Republic of (South Korea)

ID: 848
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Switchgear scalability demonstration using environment friendly Fluoronitrile gas mixture in 420 kV GIS Substations

Cyril GREGOIRE, Q ROGNARD, Thomas BERTELOOT, Diana LEGUIZAMON, Joel OZIL, Samuel SOUCHAL, F BERNARD, Yannick KIEFFEL
GE

ID: 875
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Integrated disconnector on Generator Circuit Breakers for environmental and footprint optimization

Denis FRIGIERE, Didier RODRIGUES, Matthieu BARRE, Blandine REVAUD
GE

ID: 919
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Sensitivity Analysis of Capacitive Voltage Transformers for Frequency Response Modelling

Juan CHACÓN
Arteche Smart Grid

ID: 950
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Transmitted Overvoltage Requirements for Instrument Transformers

Tin PERKOVIĆ
HRO CIGRE, Croatia

ID: 966
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment
Keywords: HVCB, C4FN, IEC 62271-100, MOO/CFD, machine learning

Experience in the development of a 170 kV / 50 kA / 60 Hz HVCB using a C4FN+CO2 mixture

Xiangyang YE, Zeljko TANASIC, Hyung Choon KIM, Javier MANTILLA
Hyundai Electric Switzerland Ltd.

ID: 1060
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment
Keywords: Instrument transformers and bushings using alternative and eco-friendly high voltage insulation systems

Instrument Transformers and bushings using alternative and eco-friendly high voltage insulation systems

Lorenzo GIOVANELLI
TRENCH, Italy

ID: 1067
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Performance of High-Voltage Vacuum Interrupter up to 245 kV for CO2-neutral Transmission Equipment

Sylvio KOSSE[1], Stefan GIERE[2]
[1]Siemens Energy, Germany; [2]Siemens Energy, Germany

ID: 1068
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Investigation of the Switching Behaviour, Voltage Distribution and Post-Arc Current of series-connected Vacuum Interrupter Units for Live Tank and Dead Tank Circuit Breakers ≥ 420 kV

Tobias GOEBELS[1], Paul Gregor NIKOLIC[2]
[1]Siemens Energy, Germany; [2]Siemens Energy, Germany

ID: 1069
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Experience with F-gas-free High voltage products for On- and Offshore applications

Peter GRONBACH[1], Ann-Sofie MORTENSEN[2]
[1]Siemens Energy, Germany; [2]Siemens Energy, Germany

ID: 1118
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

Research of UHV Gas-insulated Transmission Line (GIL) with Perfluoronitrile (C4F7N) Gas

Keli GAO, Xianglian YAN, Zhibing LI, Wen WANG, Jie HE
China electric power research institute

ID: 1133
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS2 - Decarbonisation of T&D Equipment

UAV usage for Asset Condition Assessment

Marcel ELLENBOGEN
ISRAEL ELECTRIC CORPORATION, Israel

PS 3 DIGITALISATION OF T&D EQUIPMENT

ID: 104
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Photonic combined Current and Voltage Transformer demonstration for the Nepalese Grid

LLoyd CLAYBURN[1], S BLAIR[1], N GORDON[1], G FUSIEK[2], P NIEWCZAS[2], T HEID[2], R JIANU[3], P MUNRO[4], G MCFARLANE[4], B B SHAKYA[5], R MAHARJAN[5], S PAUDEL[5]
[1]Synaptec, United Kingdom; [2]University of Strathclyde United Kingdom; [3]CONDIS Switzerland; [4]Instrument Transformers Limited United Kingdom; [5]Kantipur Engineering College Nepal

ID: 105
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Rapid AIS PD Surveys using a UAV

Phil MOORE[1], D TEMPLETON[1], I KERR[2], M SIMMONS[2], D STEWART[2]
[1]Elimpus Ltd, United Kingdom; [2]National Grid United Kingdom

ID: 133
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Application of Machine Learning and Anomaly Detection for On-line Defect Identification in Wall Bushings in HVDC Systems

M ALVES[1], M PINTO[1], G GOMES[1], D ARAUJO[1], F PAIVA[1], B SARDINHA[1], F CARLOMAGNO[1], F FRONTIN[1], L LOPES[1], M COSTA[1], D SANTOS[1], R FLAUZINO[2], M ALVES[3], P FERREIRA[3], G LACERDA[3], D NASCIMENTO[3]
[1]RADICE TECHNOLOGY; [2]USP; [3]FURNAZ

ID: 134
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Real-time Leakage Current Measurement System Applied to LT 230 kV Insulators

D USSUNA[1], R CARVALHO[1], V FILHO[1], E FRESHI[1], W FARIAS[1], G SILVA[1], M TONETTI[2]
[1]Instituto de Tecnologia para o Desenvolvimento - LACTEC; [2]Companhia Paranaense de Energia Elétrica - COPEL

ID: 274
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Continuous IR Monitoring of Nuclear Switchyard Equipment

Daniel MARRON, Jorge CARDENAS, Alvaro PADILLA
Commonwealth Edison, United States of America

ID: 282
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Function orientation and typical application scenarios of the Internet of Things construction for power transmission and transformation equipment

Chao WU, Pengfei JIA, Xinru YU, Jianxin GUAN, Junyu DENG, Huanchao CHENG
China Electric Power Research Institute Co., Ltd, China

ID: 283
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

3D Reconstruction and Monitoring of Electric Field Distribution inside GIL/GIS by Induced Charge Tomography

Hucheng LIANG, Jin LI, Hang YAO, Boxue DU
Tianjin University, China

ID: 285
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Research on electric and temperature field of main circuit module for 12kV solid insulation switchgear

Lian CHEN[1], Hongyan WANG[2], Hong TIAN[2], Jianbin ZENG[1]
[1]Xiamen University of Technology, China; [2]ISEE Electric International Co., Ltd., China

ID: 286
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Application of digital twin technology in the field of substation equipment operation and maintenance

Shuai ZHANG, Song WANG, Linjie ZHAO, Ruihai LI
China South Power Grid International Co., Ltd., China

ID: 287
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Study and Equipment Development of Transient Characteristics Test on Electronic Current Transformer

Yuanyuan HU[1], Jun YAO[1], Jie ZHANG[1], Xiang LIU[2], Guoxiong YE[2]
[1]Wuhan Nari Limited Liability Company of State Grid Electric Power Research Institute, China; [2]China Electric Power Science Research Institute, China

ID: 347
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment
Keywords: LPIT(Low Power Instrument Transformer), 145kV, GIS(Gas Insulated Switchgear), MU(Merging Unit)

LPIT Technology Development for 3-phase 145 kV GIS

Dojin KIM, Hyunmo AHN, Dongjun SIM
HYOSUNG Corporation, Korea, Republic of (South Korea)

ID: 441
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Automated Rack In & Rack out of 22kV/33kV AIS Breakers

Sandeep KUMAR
The Tata Power Company Limited

ID: 566
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment
Keywords: re-ignitions, Transient recovery voltage, life cycle enhancement, Asset health monitoring, IEC62271-306

Application of controlled switching for a 500kV switchable line reactor connected to 600 MW solar power generating plant to reduce probability of unintentional re-ignitions and life cycle enhancement – A field case study

Tuan HOANGNGOC[1], Urmil PARIKH[2], Naveen DUBEY[2], Mirko PALAZZO[3], Hong Xuan NGUYEN[4]
[1]ABB Power Grids Vietnam; [2]ABB Power Products and Systems India Limited; [3]Hitachi ABB Power Grids Switzerland; [4]TOJI Group

ID: 574
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Analysis and Methodology to Implement Optical Current Transformers

Johan Andrés SANCHEZ
INTERCONEXION ELECTRICA S.A E.S.P. - ISA

ID: 644
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Recent Digitization of GIS and Sophistication of Equipment Condition Monitoring and Diagnosis applying AI Technologies

Eiji MATSUMOTO[1], Kazunori UCHIDA[1], Minoru SAITO[1], Akihiro YAMAGUCHI[2], Toshihiro MAEKAWA[3], Kiyotaka BABA[3]
[1]Toshiba Energy Systems & Solutions Corp.; [2]Toshiba Corp.; [3]TEPCO Power Grid, Inc.

ID: 645
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Development of Switchgear Condition Monitoring using IoT Technology for Condition Based Maintenance

Shinya AICHI, Yasunori ITO, Hiroshi YAMADA, Kaio WAKAIKI, Toshifumi SUGIMOTO
Chubu Electric Power Grid Co., Inc.

ID: 659
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment
Keywords: SF6, LPIT, GIS

Optimized LPIT (Low Power Instrument Transformers) applications in GIS based on SF6 and climate friendly insulating Gas g3

Reto CHRISTEN, M. DUPOY, P. JUGE, J. SAINT-MARC
GE Grid Solutions Switzerland, France

ID: 660
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment
Keywords: digital monitoring, switching transients, drive technologies, asset management, CBs

Field application of controlled switching &advanced digital monitoring techniques to mitigate switching transients and asset management for various power equipment connected with CBs with different drive technologies

Michael STANEK[1], Urmil PARIKH[2], Mirko PALAZZO[1], Davide ZANON[3], Sebastiano SCARPACI[3], Patrik LINDFORS-DAHLIN[4]
[1]Hitachi ABB Powergrids Switzerland; [2]ABB Power Products and Systems India Limited; [3]Hitachi ABB Powergrids Italy; [4]ABB Power Grids Sweden AB

ID: 661
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment
Keywords: contact erosion, monitoring, GCB, pumped storage

Benefits of using point-on-wave switching and innovative contact erosion monitoring for GCB in pumped-storage application

Lukas ZEHNDER, M. STANEK, C. STOLZ, L. SERIO
Hitachi ABB Powergrids Switzerland, United States, Duke Energy United States

ID: 866
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Advance High Voltage Disconnector Condition Monitoring

Juan Carlos PÉREZ
Schneider Electric

ID: 876
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Benefit of high-resolution/high bandwidth acquisition of conventional voltage and current transformers for controlled switching: illustration with latest generation of controller

Alain FANGET, Farid AIT-ABDELMALEK
GE

ID: 877
A3 TRANSMISSION AND DISTRIBUTION EQUIPMENT
Topics: PS3 - Digitalisation of T&D Equipment

Commissioning of HV primary equipment in pandemic times

Jean SOUBIES-CAMY, J FERNANDES, F DESPONTIN, Jean-Luc RAYON
GE France

B1 - INSULATED CABLES

PS 1 LEARNING FROM EXPERIENCES

ID: 106
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Fire Risk from XLPE Cables in Air

Paul FLETCHER[1], A FENTIMAN[1], G TZEMIS[2]
[1]Mott MacDonald Ltd, United Kingdom; [2]National Grid Electricity Transmission United Kingdom

ID: 275
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

One-Hour Withstand Test: Relevant to Cable System Reliability?

Michael Ian JOSEPH, Benjamin Thomas LANZ
IMCORP, United States of America

ID: 276
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Application of Fault Tree Analysis to Underground Cable Accessories

Andrew Richard MORRIS, Najwa ABOUHASSAN
Commonwealth Edison, United States of America

ID: 290
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Research on real time evaluation technology for transient temperature rise in buried cable groups based on heat transfer response modeling

Wenrong SI[1], Chenzhao FU[1], Yongchun LIANG[2], Jian YANG[3]
[1]State Grid Shanghai Electrical Power Research Institute, China; [2]Hebei University of Science and Technology, China; [3]Xi'an Jiaotong University, China

ID: 292
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Development of Economic and Environment-friendly 66kV Array Cable

Xiejun XU[1], Kai CHEN[1], Wenlin PAN[1], Qingsheng CHANG[2], Yanli XU[2], Xinhao GONG[2]
[1]Hengtong Submarine Power Cable Co., Ltd., China; [2]Hengtong Optic-Electric Co., Ltd., China

ID: 294
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Technology of Large Length 500kV XLPE Insulated AC Submarine Cable

Y. ZHAO, M. HU, W. WANG, S. XIE, H. ZHANG
Zhongtian Technology Submarine Cable Co., ltd., China

ID: 443
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Analysis of Failed Cable Termination: Role of Workmanship and Electrical Stresses

Nitin R SHINGNE
Electrical Research and Development Association (ERDA)

ID: 510
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Simulations of losses in armoured 3-core submarine cables using 3D FEM compared to measurements

Ola THYRVIN[1], Danijela PALMGREN[1], D WILLEN[2]
[1]NKT HV Cables AB, Sweden; [2]NKT Group A/S, Denmark

ID: 511
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Lightning strike to ground – a case study about observed cable damages, risk estimation and protection method

Valentinas DUBICKAS[1], Erik THUNBERG[1], Johan HANSSON[1], Andreas DERNFALK[2], Peter SIDENVALL[2]
[1]Svenska kraftnät, Sweden; [2]Independent Insulation Group, Sweden

ID: 512
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Lightning strikes to ground affecting underground power cables

Thomas WORZYK, Ola THYRVIN
NKT HV Cables AB, Sweden

ID: 538
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Failure root cause analysis and prevention of subsea cable failures in a joint industry project (JIP CALM)

T.P. DU PLESSIS[1], D. SAHA[1], M. KAVIAN[1], F.H. DE WILD[1], P.C.J. VAN DER WIELEN[1], N. BRUINSMA[2], A.P. LUIJENDIJK[2], T.J. ROETERT[2], N.G. JACOBSEN[2], F.J. SAVENIJE[3], E. WIGGELINKHUIZEN[3], J. JAYAKUMAR[3], M.J. VAN DER HOEK[4], H. DE BRUIN[5]
[1]DNV; [2]Deltares; [3]TNO; [4]VanderHoekPhotonics; [5]BREM funderingsexpertise

ID: 544
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Practical experience and modelling of the corrosion behaviour of the Aluminium metallic cable sheath

Roy ZUIJDERDUIN[1], Ranjan BHUYAN[1], Jacco SMIT[1], Matteo CARUSO[2], Johathan MOENS[2], Ralf BOSCH[2], Jos VAN ROSSUM[3]
[1]TenneT TSO; [2]Laborelec; [3]Prysmian

ID: 567
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Undesired flow of screen currents in export cable systems

J. NIEMANN-LARSEN, J. F. NIELSEN, L. E. BØGESVANG, E. HANSEN, S. D. STEFFANSEN
CIGRE Denmark, Denmark

ID: 575
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Field Experience with the Fault Location and Line Restoration of an 220 kV Underground Line with XLPE Cable Insulation

Mallory SUAREZ
INTERCOLOMBIA

ID: 663
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences
Keywords: dry type outdoor cable termination, field experience

Evolution of dry type outdoor cable terminations based on field experience

Tarek FAHMY[1], Filippo BIONDA[1], Marcel HECKEL[2]
[1]PFISTERER Switzerland AG; [2]PFISTERER Kontaktsysteme GmbH

ID: 665
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences
Keywords: temperature monitoring, current rating, computation

Temperature monitoring and current rating computation for the Cluster Westlich Aldergrund

Etienne ROCHAT, A. GOY, R. GUERICKE
Omnisens Switzerland, 50Hertz Transmission Germany

ID: 667
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences
Keywords: cable temperature monitoring, offshore wind farm

Complex cable temperature monitoring within the largest commissioned offshore wind farm

Etienne ROCHAT[1], Alexandre GOY[1], Fabien RAVET[1], Lukas Milan DOMURATH[2], Maria-Eftychia VESTARCHI[2], Hossein GORBANI[2]
[1]Omnisens Switzerland; [2]Oersted Denmark

ID: 668
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Validation of an Efficient 3D Finite Element Model for the Calculation of Losses in Three-Core Armoured Power Cables

Andreas CHRYSOCHOS[1], Dimitrios CHATZIPETROS[1], Ioannis ZTOUPIS[1], James PILGRIM[2], Vasileios KANAS[1], Konstantinos PAVLOU[1], Kostas TASTAVRIDIS[1], George GEORGALLIS[1]
[1]Hellenic Cables, Greece; [2]University of Southampton, United Kingdom

ID: 689
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Development of Analytical Method for Power Cable Creepage Phenomenon in Duct

Tomonori KAMIBAYASHI[1], Tadanori NAGAYAMA[1], Katsumi IWAMURA[2], Koki KASHIRO[2], Hiroyasu NISHIKUBO[3]
[1]Tohoku Electric Power Network Co., Inc.; [2]Furukawa Electric Co., Ltd.; [3]FITEC Corp.

ID: 690
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Investigation of a root Cause of Breakdown and the Replacement of 275 kV SCFF Cable to XLPE Cable in Japan

Yusuke IKEDA[1], Tomoteru KYOUGOKU[2], Kozo SUZUKI[3], Tai YOKOYAMA[3], Takayuki MINAMI[3]
[1]TEPCO Power Grid, Inc.; [2]TEPCO Holdings, Inc.; [3]Sumitomo Electric Industries, Ltd.

ID: 693
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Sequence Impedance of Submarine Cables

T KVARTS, Z HUANG, A C GAROLERA, O THYRVIN
CIGRE Denmark, Denmark

ID: 702
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Determination of Soil Thermal Resistance: A Holistic Approach

Andreas CHRYSOCHOS, Dimitrios CHATZIPETROS, Varvara RIZOU, Konstantinos PAVLOU, Kostas TASTAVRIDIS, George GEORGALLIS
Hellenic Cables, Greece

ID: 703
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Effect of Semi-Conducting Jackets on the Performance of Three-Core Armoured Power Cables

Andreas CHRYSOCHOS, Dimitrios CHATZIPETROS, Dimitrios KOSSYVAKIS, Vasileios KANAS, Konstantinos PAVLOU, Kostas TASTAVRIDIS, George GEORGALLIS
Hellenic Cables, Greece

ID: 714
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences
Keywords: HDD;filling materials;thermal modelling

Belgian experience with horizontal directional drilling (HDD) filling materials and thermal modelling of HDD

Tanguy SNAPS, F. EL BARNOUSSI, W. VAN DER AUWERA, Simon STUL
ENGIE

ID: 715
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences
Keywords: offshore grid;maintenance strategy;offshore cable systems

Modular Offshore Grid - design, installation and maintenance strategy for offshore cable systems

Jani KRIZTIAN, Bart MAMPAEY, Mathieu DONCHE, Pieter LEEMANS
ELIA

ID: 744
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences
Keywords: Submarine power cables

Effective of Strategic Planning in the Restoration of a Submarine Cable Fault

Ibrahim ALNASSER[1], Yasir AHMED[1], Paul O'ROURKE[2]
[1]Saudi Aramco, Saudi Arabia; [2]Construction Director, Greenlink Interconnector Limited, Ireland

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ID: 774
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

PD, temperature and acoustic measurement of Eleclink HVDC interconnector – anticipate failures to minimize service disruption and impact on train circulation

Alessandro PISTONESI
PRYSMIAN POWERLINK Italy

ID: 867
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Best practices for Partial Discharge Monitoring of HVDC Cable Systems and Qualification Tests

Fernando GARNACHO
FFII-LCOE

ID: 868
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

REE´s commitment to partial discharge monitoring in its underground cable network

Ricardo GÓMEZ
Red Eléctrica de España

ID: 869
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Lessons learned in the maintenance of REE´s submarine lines

Daniel BLANCO
Red Eléctrica de España

ID: 878
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Increasing underground cable pulling length – a way to improve cost efficiency and reliability of projects

Candice HILAIRE, Renaud ROSSETTI
RTE France

ID: 881
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Decommissioning of a Self-Contained Fluid-Filled cable: operating method and risks mitigation

Imane KAMAL[1], M LEFEVRE[2]
[1]EDF; [2]CTE+

ID: 955
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Time to failure testing of model HV XLPE Cables in salt Water at high electrical AC Stress and Temperature

Sverre HVIDSTEN[1], Karl Magnus BENGTSSON[2], Espen OLSEN[2]
[1]SINTEF Energy Research; [2]Nexans Norway

ID: 957
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Formation of Potentially Harmful Shrinkage Cavities During Operation of MassImpregnated Non-Draining HVDC Cables

Magne RUNDE[1], Ø. HESTAD[1], Carl Erik HILLESTAD[2], B KLEBO-ESPE[2], H. TOLLEFSEN[3], L. LERVIK[3], V. DUBICKAS[4], E. THUNBERG[4], J. RANTANEN[5], T. RAUHALA[5]
[1]SINTEF Energy Research; [2]Statnett; [3]Nexans Norway; [4]Svenska Kraftnät; [5]Fingrid

ID: 958
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

HVDC Cable Installation in Freshwater Lake (Suldalsvatnet)

Anders RØREN[2], Ø. PETTERSEN[2], L. SOLBERG[1]
[1]Nexans Norway AS; [2]Statnett

ID: 960
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences
Keywords: Instrumentation on HV Cable Systems for condition-based Maintenance

Instrumentation on HV Cable Systems for condition-based Maintenance

Tony LUCIGNANO, J. MATALLANA
Statnett

ID: 999
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences
Keywords: submarine cable, external hazards, protection

Future long-distance AC XLPE submarine cable from Khanom to Samui Island. Guidelines to protect the cable against external hazards

Puriwat SUTTITHAM
TNC-CIGRE, Thailand

ID: 1043
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Induced Voltage in Fibre Optic Cables Case Study

Zoran MILOSEVIC, Khalid HASSAN, Sultan KATIRI
TRANSCO, UAE

ID: 1073
B1 INSULATED CABLES
Topics: PS1 - Learning from Experiences

Advanced Analysis of Partial Discharges on Power Cables

Erik WINKELMANN
HIGHVOLT Prueftechnik Dresden GmbH

PS 2 FUTURE FUNCTIONALITIES AND APPLICATIONS

ID: 142
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Emerging Asset Management Strategies for OF Cable Technologies in North America

Ivan JOVANOVIC
G&W Electric Company, United States of America

ID: 296
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Structure Design and Test Verification for HV Dynamic Power Cable above 110kV

Pan PAN, Haitao WANG, Shuhong XIE, Ming HU
Zhongtian Technology Submarine Cables CO.,LTD., China

ID: 297
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Operational Simulation on ±100 kV/1 kA DC Superconducting Energy Pipeline for Energy Interconnection

Zhiyong YAN, Jiahui ZHU
China Electric Power Research Institute, China

ID: 359
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Development, Adjustment and Implementation of the HTS Transmission Cable Line (2.4 Km) in St. Petersburg

V.E. SYTNIKOV, A.V. KASHCHEEV, M.V. DUBININ, V.N. KARPOV, T.V. RYABIN
"R&D Center @ FGC UES", JSC

ID: 513
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Prequalification test of a 525-kV extruded DC cable system under special conditions: challenges and implications on cable system performance

Amirhossein ABBASI, T QUIST, A PETERSSON, Thomas WORZYK, Kristian GUSTAFSSON, Sridhar ALAPATI
NKT HV Cables AB, Sweden

ID: 514
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Transient Over Voltage Testing of Cable Systems in MMC-HVDC Links: A Concept Study Including Verification

Sridhar ALAPATI, K JOHANSSON, Mats SJÖBERG, M KLANG, Amirhossein ABBASI, Markus SALTZER
NKT AB, Sweden

ID: 642
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Development and site application of intelligent partial discharge and condition assessment system for underground transmission lines

Y.H. JUNG
KEPCO

ID: 691
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

A Study of Quality Management System for Underground Transmission Lines by Japanese Transmission System Operators

Takato WATANABE[1], Yutaka TSUJI[2], Masataka OGURA[3]
[1]Chubu Electric Power Grid Co., Inc.; [2]TEPCO Power Grid, Inc.; [3]Kansai Transmission and Distribution, Inc.

ID: 716
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications
Keywords: submarine cables;DTS;RTTR

Monitoring & modelling of submarine cables for DTS/RTTR application

Manly CALLEWAERT[1], Bart MAMPAEY[2], Roel VANTHILLO[1], Christian FOJTEK[1]
[1]MARLINKS; [2]ELIA

ID: 870
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Electromagnetic transients and switching strategies applied in long HVAC submarine cables

Sergio MARTÍNEZ
Red Eléctrica de España

ID: 879
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Maintenance and asset management improvement with cable monitoring systems supervision

Mathieu GROULT, C DESSORNES, Matthieu CABAU
RTE France

ID: 880
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Evaluation of the HVDC VSC cable system behaviour in presence of transient voltage phenomena

Nicolas GUERRINI[1], A FUSTIER[1], Lluis-R SALES CASALS[1], F PADILLO[1], G DENCHE CASTEJON[2], J.M. ARGUELLES ENJUANES[2], Pierre HONDAA[3], PAscale PRIEUR[3]
[1]PRYSMIAN; [2]REE; [3]RTE France

ID: 882
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Optimal energy management of offshore wind farms considering the combination of overplanting and dynamic rating – Results of the CELT4Wind project

Anne BLAVETTE[1], H. BEN AHMED[1], I DAMINOV[2], S BOURGUET[2], D TRICHET[2], G WASSELYNCK[2], I DUPONT[3], Alexandre GODARD[4], T SOULARD[5], P WARLOP[6]
[1]ENS RENNES-CNRS; [2]Université de NANTES; [3]Université Gustave Eiffel; [4]RTE France; [5]Ecole Centrale de NANTES; [6]WPD

ID: 939
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Identification of Partial Discharges in Cable Terminations using Methods Based on acoustic, electromagnetic and electrical Measurements

Juhani TAMMI[1], Tuukka SYRJÄNEN[1], Robert ALBRECHT[2], Kai SAKSELA[2], Jonas NYBERG[2], Kim BACKMAN[3], Kari LAHTI[4], Pertti PAKONEN[4]
[1]Fingrid Oyj; [2]NL Acoustics; [3]Prysmian; [4]Tampere University

ID: 959
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Optimized single-core Cable design for long Cable Circuits

Jarle BREMNES, Marius HATLO
Unitech Power Systems AS

ID: 961
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications
Keywords: Single Point Bonding of 3-core Submarine Cables

Single Point Bonding of 3-core Submarine Cables

Espen OLSEN, M. HOVDE
Nexans Norway AS

ID: 1028
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications
Keywords: Performance and characterization tests on HPTE insulation material

Performance and characterization tests on HPTE insulation material

Giovanni POZZATI
Prysmian Group Italy

ID: 1070
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Combined Type Test of HVDC Cable System with Integrated DC GIS Components for U0 = ±525 kV

Dominik HAERING[1], Shoji MASHIO[2], Maria KOSSE[3]
[1]Südkabel GmbH, Germany; [2]Sumitomo Electric Industries, Japan,[3]Siemens Energy

ID: 1071
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Pulsed electro-acoustic space charge measurements on XLPE-insulated cable specimen in laboratory environment

Mingyu ZHOU[1], Tobias FECHNER[2]
[1]Global Energy Interconnection Research Institute Europe GmbH, Germany; [2]Global Energy Interconnection Research Institute Europe GmbH, Germany

ID: 1072
B1 INSULATED CABLES
Topics: PS2 - Future Functionalities and Applications

Influence of Cabling on Harmonic Voltages in a Transmission Grid using an Exemplary Test Grid

Andrea Kerstin SCHAEFER, Jutta HANSON, Simon MASSAT, Gerd BALZER
Technische Universität Darmstadt, Germany

PS 3 TOWARDS SUSTAINABILITY

ID: 692
B1 INSULATED CABLES
Topics: PS3 - Towards Sustainability

Replacement by utilizing existing Facilities for EHV Underground Transmission Lines

Tadahiko SHIRO, Ryosuke ISHII, Masataka OGURA
Kansai Transmission and Distribution, Inc.

ID: 694
B1 INSULATED CABLES
Topics: PS3 - Towards Sustainability

Borssele 1 and 2 Projects – The First Offshore Windfarm with 72,5 kV Array Cables

G LUCAS, C N MADSEN, D ZAGKANAS
CIGRE Denmark, Denmark

ID: 717
B1 INSULATED CABLES
Topics: PS3 - Towards Sustainability
Keywords: Sustainability;power cable

Towards Sustainability: A Power Cable Industry Supplier's Perspective

Marc BAILLEUL, Annika SMEDBERG, Elisabeth RIBARITS, Davide VIELMI
BOREALISGROUP

ID: 886
B1 INSULATED CABLES
Topics: PS3 - Towards Sustainability

Potential improvements in loss reduction for underground cable systems

Frédéric LESUR
NEXANS

ID: 962
B1 INSULATED CABLES
Topics: PS3 - Towards Sustainability

Availability modelling of submarine high voltage Cable Systems

Abbas LOTFI, M. TANDBERG, Ø. BERGENE
Nexans Norway AS

B2 - OVERHEAD LINES

PS 1 CHALLENGES & NEW SOLUTIONS IN DESIGN AND CONSTRUCTION OF NEW OHL

ID: 155
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Resiliency and Reality: Unique Challenges and Learnings from Circuit Resiliency Project Planning and Execution

Justin KLEEHAMMER
Commonwealth Edison, United States of America

ID: 300
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Analysis of The Ice-shedding of Wire Based on Elastic Deformation Principle

Haiyun NI, Rongjian LIU, Erlei TANG, Kunchi YANG
Yunnan Power Grid CO., LTD, China

ID: 301
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Multi-process hybrid simulation of power system considering extreme ice and snow weather

Lizheng CHEN[1], Hengxu ZHANG[2]
[1]Shandong Jianzhu University, China; [2]Shandong University, China

ID: 362
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Plastically Compacted Steel - aluminium Wires for New Overhead Lines

V. KURYANOV[1], L. GYREVICH[2], L. TIMASHOVA[3], V. FOKIN[4]
[1]NRU "Moscow Power Engineering Institute"; [2]Volgograd State Technical University; [3]JSC "R&D Center "FGC UES"; [4]LLC "Energoservis"

ID: 364
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Selection System of High-voltage External Insulation for A.C. and D.C. Electric Transmission on the Basis Pollution Mapping

L.L. VLADIMIRSKII, O.V. SUSLOVA
JSC «NIIPT»

ID: 444
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Enhancing the Performance of Existing Overhead Distribution Lines by using Insulated covered conductor

Rahul GALGHATE
Apar Industries Ltd.

ID: 445
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Selection of Porcelain Insulator Components for Transmission Lines in High Altitude and Exposure to Ice and Snow

Sanjeev SACHDEV
Grasim Industries Ltd (Unit: Aditya Birla Insulators)

ID: 446
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Design and Testing of UHV 765/400 KV Transmission Line Monopole Structures Powergrid's Experience

Karan Vir Singh PUNDIR
Power Grid Corporation of India Ltd.

ID: 447
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Improvement of Bearing Capacity of Soil using Bamboo Nailing and Sand Piling for 400kV Transmission Line Tower Foundations in Tripura, India

L K KHAJKUMAR
Power Grid Corporation of India Ltd.

ID: 449
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Design Innovations for Mitigating Construction Challenges of Overhead Lines

Subhash C TANEJA
Power Grid Corporation of India Ltd.

ID: 539
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Full Scale Test of the 400 kV double circuit pylons (Wintrack type III)

J. SPITHOVEN[1], J. VERDUIJN[1], M.R. SHAH MOHAMMADI[2], T.J. PLOEG[2], E. PLATENKAMP[2]
[1]TenneT TSO; [2]DNV Energy Systems

ID: 591
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Challenges in Design and Supply an Australian Experience

Raghavendra KULKARNI
ElectraNet, Australia

ID: 629
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Latest design Standard on Structures for Transmissions in Japan

Yoshikazu KITANO[1], Soichiro SUGIMOTO[1], Yusuke SATO[1], Shinya HATAKEYAMA[2], Tomoaki OSONO[3], Hiroshi SHIGEMOTO[4]
[1]CRIEPI; [2]Tohoku Electric Power Network Co., Inc.; [3]TEPCO Power Grid, Inc.; [4]Kansai Transmission and Distribution, Inc.

ID: 638
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL
Keywords: Blanket Bog, Transmission Line, Peat, Foundation Design, Grid Connection, Ireland.

Design & Build of Overhead Lines in Blanket Bog

David TARRANT, Ruairi GEARY
Cigre Irish National Committee, Ireland

ID: 669
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL
Keywords: test methods, composite insulator, reliability, OHL

Applications of multi-stress Test Methods to evaluate today's Composite Insulator Reliability

Jaka STRUMBELJ[1], Christiane BAER[1], Jan LACHMAN[2], Frank SCHMUCK[3]
[1]PFISTERER Switzerland AG; [2]EGU - HV Laboratory a.s. Czech Republic; [3]Schmuck HV Insulation Consulting GmbH Switzerland

ID: 757
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

RTV Coated Insulators in Harsh Desert Environment

Raouf ZNAIDI, Faisal HUDA, Javier GARCIA, Ahmad ALTHAGAFI
GCCIA, KSA

ID: 797
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL
Keywords: Hybrid Transmission Line, HVDC Electric Field, Ion flow

Electrical environment evaluation of HVAC/HVDC hybrid transmission line using a reduced scale-model

Koo Yong SHIN[1], J.A OH[1], S.W LEE[1], T.W KIM[1], J.M WOO[2], M.N JU[2]
[1]KEPCO, Korea, Republic of (South Korea); [2]KERI, Korea, Republic of (South Korea)

ID: 815
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

A Practical Evaluation of Technical Consequences for Replacement of Shield Wires with Line Arresters on HV Overhead Lines

Mohammad LONI, Hamid JAVADI, Masoud ABDOLHOSSEINPOUR, Majid ROUSTAEI, Faramarz GHELICHI
Monenco Iran Co.

ID: 852
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Electromagnetic interference investigation of two overhead lines with a natural buried gas pipeline: An investigation on the Agri-Horasan Region in Turkey

Özgür ÇETİN[1], Hıdır DÜZKAYA[2], Cengiz TAPLAMACIOĞLU[3]
[1]Turkish Electricity Transmission Corporation Ankara, Turkey; [2]Gazi University Department of Electrical and Electronic Engineering Ankara, Turkey; [3]Gazi University Department of Electrical and Electronic Engineering Ankara, Turkey

ID: 853
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Site Application of Anti Torsion Pendulum and Interphase Space for the Prevention of Ice Load on Transmission Line Systems in Turkey

Mete UZAR[1], Wolfgang TROPPAUER[2], Dilek GURSU[3], Aytaç SAĞIR[4]
[1]TEIAS, Turkey; [2]Mosdorfer GmbH, Austria; [3]T Design, Turkey; [4]TEIAS, Turkey

ID: 912
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Rapid and cost-effective construction system for lattice structures

José Ramón LÓPEZ-BLANCO
ANISOPTER

ID: 914
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

OHTL towers compaction using aerospace-borrowed lattice structures

José Ramón LÓPEZ-BLANCO
ANISOPTER

ID: 963
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Worlds longest Span with ACSR Conductor – Design challenges

Boris ADUM, Kjell HALSAN
Statnett SF

ID: 974
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Design of Hverhead Lines in a changing Climate

Emilie IVERSEN[1], Bjørn Egil NYGAARD[1], Ø. HODNEBROG[2], M. SAND[2], M. RADOJCIC[3]
[1]Kjeller Vindteknikk, part of Norconcult; [2]CICERO; [3]Statnett SF

ID: 975
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Structural reliability analysis of Transmission lLine towers by use of advanced Weather Modelling

Andreas LEM[1], Ø. LANDE[2], S. GRINI[3]
[1]Statnett; [2]DNV; [3]KVT / Norconsult

ID: 976
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Development of Aluminium Tower for 420 kV AC line to reduce environmental impact and safety risks under construction

Gilles SABATIER-OLNE[1], Andreas LEM[2], Øyvind WELGAARD[2]
[1]Efla AS; [2]Statnett SF

ID: 1023
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

EnSysTem – software for managing design and construction new OHL lines

Łukasz NAZIMEK, Tomasz AUGUSTYNEK
ENPROM Sp. z o.o.

ID: 1024
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Enlift – device for building new and maintenance overhead line

Łukasz NAZIMEK, Sławomir LABOCHA
ENPROM Sp. z o.o.

ID: 1042
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

Conception and creation of the power system connecting the new Hatta hydro power plant

Pham PAUL
edf, Bahrain

ID: 1076
B2 OVERHEAD LINES
Topics: PS1 - Challenges & New Solutions in Design and Construction of New OHL

2022 Synopses_B2_PS1_Design and construction of a high and heavy lattice tower for 380 kV transmission line

Kyriaki PAPADOPOULOU
TenneT TSO GmbH, Germany

PS 2 LATEST TECHNIQUES IN ASSET MANAGEMENT, CAPACITY ENHANCEMENT, REFURBISHMENT

ID: 278
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Overhead Line Insulators in Operating Constraints Under Severely Polluted Conditions: The Benefits of Silicone Coated Glass Insulators and their Application at the PG&E Diablo Canyon Nuclear Power Plant

Craig ESPINOSA[1], Sam WATERS[2], Jean-Marie GEORGE[3]
[1]Sediver, United States of America; [2]Pacific Gas & Electric, United States of America; [3]Sediver, France

ID: 302
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

A Novel Method for Pollution Detection of External Insulation

Guangning WU, Yujun GUO, Xueqin ZHANG, Guizao HUANG, Chengfeng YIN
Southwest Jiaotong University, China

ID: 303
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Experimental Study of Dynamic Bending Stiffness of Overhead Conductors with Formed Wires

Zhao ZHANG, Shengchun LIU, Yi QI, Jian ZHANG, Zhen LIU, Long LIU
China Electric Power Research Institute, China

ID: 360
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Methodology and Experience of Risk Management in order to Optimized Repair Overhead Transmission Line

A. KUCHERIAVENKOV
ANTRAKS R&D&M Co

ID: 363
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Application of a Fibre Bragg Grating-based Sensing System for Icing Detection and Structural Health Monitoring of Transmission Lines in Russia

A.V. VANYAKIN
«Souztechenergo», JSC

ID: 385
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment
Keywords: Artificial Intelligence, Climate Change, GIS, Remote Sensing, Resilience

Building Overhead Line resilience for climatic Adaptation in a vulnerable Caribbean Terrain

Hillol BISWAS[2], M Manoj KUMAR[2], Kareem THIMBREL[1]
[1]Belize Electricity Limited; [2]WAPCOS, India

ID: 450
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

New Concept & Methodology to Check the insulators Health to Enhance the Performance of Overhead lines by measurement of tower leakage current & ultrasound detection

Kuleshwar SAHU
Power Grid Corporation of India Ltd.

ID: 452
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Innovative Approach for Crisis and Disaster Management in Powergrid

Vivek SUNDARIYAL
Power Grid Corporation of India Ltd.

ID: 515
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Countermeasures for high and extreme ice loads typical for Norwegian environment based on concept of heatin

Andreas DERNFALK[1], Christian AHLHOLM[1], Igor GUTMAN[1], M RADOJCIC[2], A ADUM[2]
[1]Independent Insulation Group, Sweden; [2]Statnett, Norway

ID: 540
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

How to increase Resilience by assessment based on study case 400 kV Overhead Line Stevin – Horta in Belgium

P. SMET[1], B. RISSE[1], T.J. PLOEG[2], E. PLATENKAMP[2]
[1]ELIA Asset SA; [2]DNV Energy Systems

ID: 577
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Artificial Intelligence in the Diagnosis of Fault Causes in Transmission Lines

Oswaldo ARENAS
INTERCOLOMBIA

ID: 578
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Image Analytics Applied to the Maintenance of Transmission Lines

Maria GOMEZ
INTERCOLOMBIA

ID: 580
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Preparatory analysis to establish a reliable and efficient DLR system

Balint NEMETH, Gabor GOCSEI, Levente RACZ, David SZABO
Budapest University of Technology and Economics, Hungary

ID: 624
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment
Keywords: Transmission overhead lines monitoring, sag monitoring, strain monitoring, weather station

Corelation between tensile Force in Conductors and Stress loading of tensile Towers

Nenad GUBELJAK[1], Viktor LOVRENCIC[2], Kresimir BAKIC[3], Dusan KOZJEK[4]
[1]University of Maribor, faculty of Mechanical Engineering, Slovenia; [2]C&G d.o.o., Ljubljana, Slovenia; [3]ELES, d.o.o., Ljubljana, Slovenia; [4]ELES, d.o.o., Ljubljana, Slovenia

ID: 630
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Deterioration diagnosis imaging Technology and deterioration countermeasure Technology for power transmission Equipment

Kensei YAMAMOTO, Yoichi TSUCHIDA, Tomoaki OSONO, Hiroyuki MIYOSHI, Tomoaki KAWAMURA
TEPCO Power Grid, Inc

ID: 631
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Evaluation of long-term Reliability of the carbon fiber core Wire and Development of Technologies to expand its Application

Hiroaki SASA[1], Tomoyuki AOYAMA[1], Naohiko SUDO[1], Kiyonobu NARA[2], Takao KANEKO[3], Mami NAKAGAWA[4]
[1]Tohoku Electric Power Network Co., Inc.; [2]Kitanihon Electric Cable Co., Ltd.; [3]Fujikura Ltd.; [4]Furukawa Electric Power Systems Co., Ltd.

ID: 632
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Evaluation of residual Performance of melted electric Conductor

Keisuke SUGITA, Tomoki MIYOSHI, Tomoaki SEI, Satoru YOSHIDA
Chubu Electric Power Grid Co., Inc.

ID: 633
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Rationalization of maintenance Methods for zinc plating transmission Tower

Teruhisa TATSUOKA[1], Hiromitsu IJICHI[1], Keiichi YOSHINO[1], Tomoaki KAWAMURA[2], Motoyuki YAMAZAKI[2], Tomonori SHIRAISHI[2]
[1]Tokyo Electric Power Company Holdings, Inc.; [2]TEPCO Power Grid, Inc.

ID: 634
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Verifications of Effectiveness of Loose-Spacer on mitigating bundle conductor Galloping

Tomoki KITASHIMA[1], Takeshi FUJIMOTO[1], Hisato MATSUMIYA[2], Takuhiko OHASHI[3], Hirotaka HAJI[4], Takuya INOUE[4]
[1]Furukawa Electric Power Systems, Co. Ltd.; [2]Central Research Institute of Electric Power Industry; [3]TEPCO Power Grid, Inc.; [4]Tokyo Electric Power Company Holdings, Inc.

ID: 670
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment
Keywords: transmission capacity, upgrading HV lines, insulated suspension chain

Upgrading the transmission capacity of existing high voltage lines using insulated suspension chain ISC

Toni WUNDERLIN
AXPO GRID AG Switzerland

ID: 698
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

A Study on the Life-Time Assessment Ways and Various Failure Types of 154kV Porcelain Insulators Installed in South Korea

Inhyuk CHOI, Kuyong SHIN, Jabin KOO
KEPCO

ID: 718
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment
Keywords: inspection techniques;digital tools;overhead lines

Innovative inspection techniques and digital tools for condition follow-up of overhead lines in Belgium

Stephane GERMAIN, Emmeline VRANKEN, P. BUNGA, L. COLLIN, Bernard RISSE
ELIA

ID: 766
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment
Keywords: NG, Utilization, Silicon grass, RTV, NSDD

Operational Evaluation of RTV Coating Performance over 17 years on the Coastal Area at Jubail-SA

Jaafar ALTHAWAB, Musleh ALAMERI
Saudi Electricity Company- National Grid SA, Saudi Arabia

ID: 813
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Investigation, Simulation and Modelling of 400 kV Interphase Spacer by Using Iran's Experiences in HV Interphase Spacers (Design, Test, Installation)

Mohammad Reza GHASEMI[1], Masoud ABDOLHOSSEINPOUR[2]
[1]DK Electric Co.; [2]Monenco Iran Co.

ID: 887
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

OHL conductor' fatigue endurance evaluated using a hybrid-numerical/experimental approach

Julien SAID[1], F GRECIET[2], M GUEGUIN[2], E CIEREN[2], L COHEN[1], J.M. GHIDAGLIA[3], M COULANGEON[4], J BROCARD[4]
[1]RTE France; [2]EUROBIOS; [3]Centre Borelli-ENS Paris-Saclay-CNRS-Université Paris-Saclay; [4]DERVAUX

ID: 911
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Dynamic line rating in the Spanish transmission network

Antonio USEROS
Red Eléctrica de España

ID: 1074
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Probabilistic safety concept in overhead line construction

Stefan STEEVENS[1], Niklas WINKELMANN[2]
[1]Amprion GmbH, Germany; [2]Amprion GmbH, Germany

ID: 1075
B2 OVERHEAD LINES
Topics: PS2 - Latest Techniques in Asset Management, Capacity Enhancement, Refurbishment

Statistical based lifetime analysis of porcelain longrod insulators

Fabian LEHRETZ[1], Martin DOERR[2]
[1]TenneT TSO GmbH, Germany; [2]TenneT TSO GmbH, Germany

PS 3 ENVIRONMENTAL AND SAFETY ASPECTS FROM OHL (JOINT PS WITH C3)

ID: 135
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Development of Methodology for Insulator Replacement in ±800 kV DC Strings Using Live Line Procedures

R GARCIA[1], J CARDOSO[1], F SILVA[1], C MATT[1], P MARCONDES[2], L SENNA[2], D MACHADO[2], F FARIA[2], R COSTA[2], J GRAHAM[2], A NIGRI[3]
[1]CEPEL; [2]SGBH; [3]AINIGRI

ID: 137
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

A New Setup for Grounding Impedance and Resistance Measuring Using Short Reaction Lead Vertically Disposed in the Ground

M GUIMARÃES[1], J PAULINO[2], C CAETANO[2], C BARBOSA[2], W BOAVENTURA[2], I LOPES[2]
[1]CIA ENERGÉTICA DE MINAS GERAIS - CEMIG; [2]FEDERAL UNIVERSITY OF MINAS GERAIS - UFMG

ID: 138
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Wildfire Detection System Using Artificial Intelligence with the Collaboration of the Web Society

C NASCIMENTO[1], A LISBOA[2], H YEHIA[3], H MAGALHÃES[3], A NETO[4], A BARBOSA[3], P VENÂNCIO[2], T REZENDE[2], A MAGALHÃES[5], R CAMPOS[6], M MELO[3], G CABELO[3], D LIMA[7], M SOUZA[7]
[1]CEMIG D; [2]Gaia Solutions on Demand; [3]UFMG; [4]UFVJM; [5]PUC-MG; [6]UNIFEI; [7]Raro Labs

ID: 146
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Transmission System Reliability in the Face of Climate Change

Razib HASAN[1], Matthew VIELE[1], William WINTERS[1], John HAUFLER[1], David J. ALLEN[2]
[1]Con Edison, United States of America; [2]The Risk Research Group, United States of America

ID: 152
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Development of a Novel Conductive Garment for Protecting Linemen against Transmission Line Induction

Eduardo Ramirez BETTONI[1], Balint NEMETH[2], Richard CSELKO[2]
[1]Xcel Energy, United States of America; [2]High Voltage Laboratory Budapest (BME), Hungary

ID: 304
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

IMEdge: The Next-Generation Intelligent Maintenance for Electric Power Industry using Edge Cloud Collaboration

Hua WU[1], Xiaojing BAI[1], Zengguang OU[2], Qi ZHANG[2]
[1]North China Electric Power University, China; [2]Huawei Cloud, China

ID: 306
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Altitude correction method of electromagnetic environment for HVDC transmission line and its engineering application

L. ZHAO, J. LU, J. ZHAO, L. XIE, Y. JU
China Electric Power Research Institute, China

ID: 361
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Experience Use of Bird Protection Devices on Power Lines and Environmental Impacts

E.V. LIAPUNOV, Y.V. ZHILKINA
Federal Grid Company of Unified Energy System

ID: 389
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS3 - Environmental and Safety Aspects from OHL (Joint with B2)

Comparative inclined plane tests on silicone and porcelain under DC voltage

Mohamed A AFIFI[1], Salem M EL KHODARY[2], Ahdab EL MORSHEDY[3], Mohamed Z KAMH[4]
[1]El Sewedy Electric Egypt; [2]El Nahda University Egypt; [3]Egyptian National Committee of Cigre; [4]Faculty of Engineering, Ain Shams University,

ID: 448
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Powergrid Experience on Installation of Transmission Line Arresters in EHV Transmission line

Navin Kumar MAHATO
Power Grid Corporation of India Ltd.

ID: 489
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS3 - Environmental and Safety Aspects from OHL (Joint with B2)

Innovative engineering solutions to overcome environmental and safety challenges and use of helicopter in Construction of Transmission lines and substations in North East of India

Dr Deepak LAKHAPATI
STERLITE POWER TRANSMISSION LTD

ID: 531
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS3 - Environmental and Safety Aspects from OHL (Joint with B2)

Challenges in Solving Conflicts between Power Line Management and Bird Conservation in Japan

Masaki SHIRAI, Saki TARUISHI, Mikio SHIMIZU
CRIEPI

ID: 546
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Safe Management of Work in High-Voltage Overhead Lines in The Netherlands

J.R. MEIJERS[1], S.P. GELDERBLOM[2]
[1]QIRION; [2]SPIE

ID: 576
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Optimization of Vegetation Management with Lidar Inspection. Real Application Case

David Ernesto GOMEZ
INTERCOLOMBIA

ID: 590
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Environmental and Safety Aspects from OHL: Safety of workers in construction and maintenance of lines

Declan LAMMERS[1], John MCCORMACK[1], Rodney URBAN[2]
[1]ElectraNet, Australia; [2]Jacobs, New Zealand

ID: 695
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

2x400kV Composite Pylon ready for Use in 2021, Innovative and Compact – reducing the environmental Impact of OHTL considerable

H SKOUBOE, J H NIELSEN, J BROCARD, S MORICE, M DOMM
CIGRE Denmark, Denmark

ID: 719
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)
Keywords: Environmental impact;mitigation;110 kV

Environmental impact mitigation for new 110 kV line in natural protected area

Jean-François GOFFINET, N. BLANPAIN, R. MARCHAL, B. VAN ZEGBROECK
ELIA

ID: 775
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Design and protection criteria for passive loops on a 400 kV double circuit line

Luca BUONO
TERNA RETE ITALIA S.p.A

ID: 776
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Refurbishment of sectionalizing posts on 245 kV towers for a reduced visual impact and an increased line resilience

Roberto SPEZIE
TERNA S.p.A. Italy

ID: 888
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Overhead Towers specially designed to be lift by Helicopters.

Bruno BARONIAN
AIRTELIS

ID: 889
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

2x400kV Composite Pylon, tested and ready for use in 2021 – reducing the environmental impact of OHTL considerable!

Stéphane MORICE[1], H SKOUBOE[2], J.H. NIELSEN[3], Julien BROCARD[4], M DOMM[5]
[1]NEXANS; [2]BYSTRUP; [3]VALMONT; [4]DERVAUX; [5]REINHAUSEN POWER COMPOSITES

ID: 907
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Voltage analysis of unipolar opening of medium and high voltage overhead lines

Ivan HIGUERO
Instituto Tecnológico de la Energía

ID: 908
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Compliance analysis of exposure limit values of power frequency electromagnetic fields during live-line working on HV overhead lines

Ivan HIGUERO
Instituto Tecnológico de la Energía

ID: 910
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

Towards OHTL Compact Design through Tensegrity based spans

Guillermo GARCÍA
ANISOPTER

ID: 915
B2 OVERHEAD LINES
Topics: PS3 - Environmental and Safety Aspects from OHL (joint PS with C3)

A wearable system for Work at Height Safety Management

Pablo RODRÍGUEZ
Grupo Red Eléctrica

ID: 1008
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS3 - Environmental and Safety Aspects from OHL (Joint with B2)

Mitigating measures to prevent electrocution of Eurasian Eagle Owls from transmission lines in Norway

Frode B. JOHANSEN
Norwegian Water Resources and Energy Directorate, Norway

ID: 1086
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS3 - Environmental and Safety Aspects from OHL (Joint with B2)

Corona effect measurement in lines with innovation projects in rep

Darwin PADILLA
Red de Energia del Peru

B3 - SUBSTATIONS & ELECTRICAL INSTALLATIONS

PS 1 INCREASED IMPACT OF CLEAN ENERGY TRANSITION ON SUBSTATION DESIGN

D: 308
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design

Research on Topology of Medium Voltage DC Grid Suitable for Multifunctional Substation

Yuanzhi CAO
China Electric Power Research Institute Co.,Ltd, China

ID: 454
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design

Battery Energy Storage System at Low Voltage Electricity Distribution Network – A Case Study

Abhishek.R RANJAN
BSES Rajdhani Power Limited

ID: 671
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design
Keywords: data center, power supply, sustainable

An incremental approach to sustainable data center power supply

Alexandre OUDALOV[1], M. GIESE[2], K. LAINEZ AMAYA[3], S. TROLLE[3]
[1]Hitachi ABB Powergrids Switzerland; [2]Hitachi ABB Powergrids Germany; [3]Hitachi ABB Powergrids Sweden

ID: 890
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design

Distributed subsea substation for Offshore Renewable Energy collection architectures and compliance with metal-enclosed switchgear's normative references

Isabelle NAJARRE, F. JACQUIER, M HENRIKSEN, L DALMAR, Paul VINSON, M PRISER
Superdid Institute

ID: 891
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design

RTE compact substation industrial strategy due to clean energy transition

Bastien GUERINI, Antoine PETIT
RTE France

ID: 902
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design

PASS M00 Wind – A versatile and robust 66 kV switchgear solution for offshore wind tower

Ennio ERRICO
Hitachi ABB Power Grids Italy S.p.A. Italy

ID: 998
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design
Keywords: Substation, TPA, RE, STATCOM, Relocatable Containerized STATCOM (RC STATCOM), Relocation and Containerized solution

Design and Consideration for Relocatable Containerised STATCOM Installation to Provide Grid Flexibility and Stability

Nabhat CHAIYAPHAN
TNC-CIGRE, Thailand

ID: 1001
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design
Keywords: RE, BESS, Substation, RE smoothing, Safety in design, Lithium-ion battery, Grid Scale

Pilot Project Grid Scale BESS in EGAT system

Suriya PRUNGKHWUNMUANG, Jaruwan PIPHATMONGKOLPORN, Wasin APHICHATO
TNC-CIGRE, Thailand

ID: 1079
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS1 - Increased Impact of Clean Energy Transition on Substation Design

Feasibility Tests of a 320 kV Gas-insulated DC Switchgear with Clean Air

Karsten JUHRE[1], Moritz GESKE[2]
[1]Siemens Energy, Germany; [2]Technische Universität Berlin, Germany

PS 2 SUSTAINABILITY MANAGEMENT CHALLENGES IN SUBSTATIONS

ID: 107
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Health and Safety Assessment of an SF6-alternative Gas Technology

Fabrice PERROT[1], Yannick KIEFFEL[2], Bertrand PORTAL[2], Michael WALTER[3], Jason BONK[4], John OWENS[4], Rainer KURZ[5], Sal GIOLANDO[6], Jessica SPEARS[6]
[1]GE United Kingdom; [2]GE France; [3]GE Switzerland; [4]3M Company United States; [5]3M Deutschland GmbH Germany; [6]Ramboll US Consulting Inc United States

ID: 139
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

New Electrical Automation Engineer Profile and Curriculum

M MENDES
Itaipu Binacional

ID: 140
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Use of Additive Manufacturing in the Maintenance of Static Compensator

IonyA PINHEL
Furnas Centrais Elétricas S.A.

ID: 210
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations
Keywords: BIM

Using BIM Technology to Promote the Sustainability of Electrical Substation Projects

Paul SOMBOONYANON[1], Lyndsey COVERT[1], Brian PALMER[2]
[1]Burns & McDonnell, United States of America; [2]Burns & McDonnell, United Kingdom

ID: 258
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Short-circuit Currents Management at Hydro-Quebec Uprating Versus Limiting Solutions Study

Frédérick DUBÉ
Hydro-Québec

ID: 318
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations
Keywords: Reliability Management, Maintenance Free, Condition Monitoring, Quality improvement

Reliability Management Strategy for Power Systems Maintenance free

Jaejung KIM, Changhui KIM
HYOSUNG Corporation, Korea, Republic of (South Korea)

ID: 321
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations
Keywords: Mobile solution, Substation, Cost down

Mobile Solution for Substation Intervention

Minsoo LEE, Ilhoon MOON, Taesung RHO
HYOSUNG HEAVY INDUSTRIES, Korea, Republic of (South Korea)

ID: 334
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations
Keywords: Replacement Solution, Double-Bus, Line Redundancy, Reliability, Minimum No-Power

Optimum Replacement Solution With Double-Bus & Line Redundancy- High Reliability, Minimum No-Power Time & Cost Effect

Yemoon UM, Eunsik WON, Ahrim KIM
HYOSUNG HEAVY INDUSTRIES, Korea, Republic of (South Korea)

ID: 672
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations
Keywords: C4F7N

Return of experience on high voltage equipment in operation using C4F7N mixtures

Maxime PERRET[1], M.M. WALTER[1], Robert LUESCHER[1], Y. KIEFFEL[2], D. LEGUIZAMON-CABRA[2], T. BERTELOOT[2]
[1]GE Grid Solutions Switzerland; [2]GE Grid Solutions France

ID: 673
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations
Keywords: SF6, sealing switchgear compartments

Improved sealing of SF6 gas insulated switchgear compartments

Patrick C. STOLLER, Nathan MUEHLBERG, Loic FAVE, Patrick P. MEIER
Hitachi ABB Powergrids Switzerland

ID: 674
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations
Keywords: SF6, SF6 alternative, insulation gas, life cyle, high voltage

Life cycle comparison of different high voltage substation technologies using SF6 and alternative insulation gases

M. PERRET[1], L. TREIER[1], Y. KIEFFEL[2], E. LAURELLE[2], B. PORTAL[2], I. HUET[2] [1]GE
Grid Solutions Switzerland; [2]GE Grid Solutions France

ID: 699
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations
Keywords: maintenance, reliability, transformer

Economic Maintenance Planning of Power Transformer for Expected Cost

Joongwoo SHIN, Jaechul KIM, Kwanghoon YOON
Soongsil University, Korea, Republic of (South Korea)

ID: 734
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Knowledge Transfer of Substation Engineering and Experiences in Japan

Yuichiro YAMANE[1], Toshiyuki SAIDA[2], Akira IWATA[3], Koichi TAKETA[4], Ryo SAEKI[5]
[1]Hitachi, Ltd.; [2]Toshiba Energy Systems & Solutions Corp.; [3]Chubu Electric Power Grid Co., Inc.; [4]Kansai Transmission and Distribution, Inc.; [5]TEPCO Power Grid, Inc.

ID: 735
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Life Management and Improvement of Reliability, Maintainability and Operability of 500 kV Substations by Replacing Ageing Equipment

Koichi TAKETA[1], Yasuhito HASHIBA[1], Mitsuaki MIYAMOTO[1], Keita ITO[2], Mieko NAKANO[2], Hiroyuki HAMA[2]
[1]Kansai Transmission and Distribution, Inc.; [2]Mitsubishi Electric Corporation

ID: 736
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Management of SF6 Gas Leakage from Substation Equipment and Technical Guidelines on Application of Substation Equipment using SF6 Alternative Gases in Japan

Keisuke NAKAMURA[1], Shigeyuki TSUKAO[1], Takanori NISHIOKA[2], Koichi TAKETA[3], Toshiyuki UCHII[4], Hiroyuki HAMA[5]
[1]TEPCO Power Grid, Inc.; [2]Chubu Electric Power Grid Co., Inc.; [3]Kansai Transmission and Distribution, Inc.; [4]Toshiba Energy Systems & Solutions Co.; [5]Mitsubishi Electric Co.

ID: 737
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Resilience Reinforcement of Substations in Japan

Takanori NISHIOKA[1], Mitsunao IWATA[1], Takashi CHIBA[2], Koichi TAKETA[3], Satoshi ICHIHARA[4]
[1]Chubu Electric Power Grid Co., Inc.; [2]Tohoku Electric Power Network Co., Inc.; [3]Kansai Transmission and Distribution, Inc.; [4]TEPCO Power Grid, Inc.

ID: 892
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

The Ring Main Unit of the future for MV distribution networks: green, digital and designed with circular environmental perspectives

Christophe PREVE[1], Stéphane GADAY[1], Venanzio FERRARO[1], Thierry CORMENIER[1], Dominique SERVE[1], François TRICHON[1], Daniel PICCOZ[2]
[1]SCHNEIDER ELECTRIC; [2]Daniel PICCOZ SASU France

ID: 893
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Innovative “3D architecture” for an air-insulated Substation of nuclear power plant

Damien JOUAN[1], Christophe ELLEAU[2]
[1]EDF CNEPE; [2]EDF CIST

ID: 894
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Way to retrofit 420 kV GIL with fluoronitrile-based gas mix

Thibault MAUFFREY
GENERAL ELECTRIC France

ID: 946
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Virtual Design and Construction as an Innovation for Power Substation Projects: Pursuing Sustainability as a Quest for the Holy Grail ?

Antun FOSKULO
HRO CIGRE, Croatia

ID: 972
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Seismic Level Criteria for Electrical Substations in Colombia and Peru According to IEEE 693

Luis MUNOZ
ISA

ID: 977
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

Alternative to SF6 for 420 kV 5000 Amps, – 30°C pilot GIS project for passive components including busbar from a TSO perspective

Guilhem BLANCHET[1], T. FENNESFOSS[1], A. FICHEUX[2], B. PORTAL[2], L. LACROIX[2]
[1]Statnett SF, Norway; [2]General Electric, France

ID: 978
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

TSO perspectives on 40 years of GIS evolution, including SF6 issues, maintenance strategy and specifications recommendations.

Guilhem BLANCHET[1], C. LEPOSTEC[2], M. INVERSIN[3]
[1]Statnett SF, Norway; [2]Hydro Quebec, Canada; [3]RTe, France

ID: 1081
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

End-of-life procedures and gas reconditioning of SF6 alternative gas mixtures

Sebastian GLOMB[1], Peter PILZECKER[2]
[1]DILO Armaturen und Anlagen, Germany; [2]DILO Armaturen und Anlagen, Germany

ID: 1082
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS2 - Sustainability Management Challenges in Substations

First F-gas-free and climate neutral insulated 420 kV GIS busducts installation at TransnetBW

Kuschel KUSCHEL[1], Laurentiu Viorel BADICU[2]
[1]Siemens Energy AG, Germany; [2]TransnetBW GmbH, Germany

PS 3 INTEGRATION OF INTELLIGENCE ON SUBSTATIONS (JOINT PS WITH B5)

ID: 150
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Analysis of Network Monitoring in the Context of IEC 61850

P JUNIOR[1], R BERNADINO[2], G SALGE[1], C MARTINS[1], P PEREIRA[2], G LOURENÇO[2]
[1]Conprove Ind. e Comércio; [2]Conprove Engenharia

ID: 151
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

IEC 61850 Process Bus Solutions: Network Communication Topologies for Resilience, Maintenance and Substation Expansions Purposes

J OLIVEIRA, P KREUTZER
Hitachi ABB Power Grids

ID: 153
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Itaipu and ANDE preparation for the Paraguayan-Argentinian Interconnection

J PESENTE, R OLIVEIRA, A TOCHETTO, A SZOSTAK, J SANTOS, M RIOS, P GALASSI, J GODOY, E RODRIGUEZ, G AGUAYO
Itaipu Binacional

ID: 154
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Advantages of Full Digital Substations with architecture based on Process Interface Units (PIU)

A PIRES, H LEON, L PINTOS, P MONTANER
GE Grid Solutions

ID: 188
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Data Sources for Machine Learning Applications in IEC 61850-based Digital Substations

Alex APOSTOLOV
OMICRON electronics, United States of America

ID: 189
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)
Keywords: BIM

Lessons Learned from Early Adopters of BIM Technology for Substation Design

Arnold FRY
POWER Engineers, Inc., United States of America

ID: 190
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Practical Applications and Novel Commissioning Techniques for Advanced Power Transformer Insulation Life Monitoring

Ian HIGGINSON[1], Alexandre PIATNICZKA[2], Gustavo BISTAFFA[2]
[1]POWER Engineers, Inc., United States of America; [2]Hitachi ABB Power Grids, United States of America

ID: 192
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

ComEd's Experience with Sampled Values at a Digital Smart Substation

John BETTLER, Matthew ROSS
Commonwealth Edison, United States of America

ID: 193
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

ComEd Flood Resilience - Technology for Response

Dan MARRON[1], Greg WOLTERSTORFF[2]
[1]Commonwealth Edison, United States of America; [2]V3 Companies, Ltd., United States of America

ID: 194
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Semi-Autonomous Robot for Medium Voltage Switchgear

Sergo SAGARELI[1], Aalap SHAH[2]
[1]Con Edison of NY, Inc., United States of America; [2]ULC Technologies, United States of America

ID: 207
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Resilient Cyber Secure Centralized Substation Protection

Athanasios P. MELIOPOULOS[1], George J. COKKINIDES[1], Paul MYRDA[2], Evangelos FARANTATOS[2], Ramadan ELMOUDI[3], Bruce FARDANESH[3], George STEFOPOULOS[3], Clifton BLACK[4]
[1]Georgia Institute of Technology, United States of America; [2]Electric Power Research Institute, United States of America; [3]New York Power Authority, United States of America; [4]Southern Company, United States of America

ID: 208
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Substation-based Waveform Analytics Monitoring System for Improved Circuit Awareness

Jeff A. WISCHKAEMPER, Carl L. BENNER, B. Don RUSSELL, Karthick MANIVANNAN
Texas A&M University, United States of America

ID: 259
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Condition Assessment of Substation Apparatus - The Challenges of Turning Dreams into Reality

Claude RAJOTTE
Hydro-Québec

ID: 284
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Practical Machine Learning Applications

Tony MCGRAIL[1], Tom RHODES[3], Imene MITICHE[4], Falk WERNER[1], Philip BOREHAM[2]
[1]Doble Engineering, United States of America; [2]Doble Engineering, United Kingdom; [3]Duke Energy, United States of America; [4]Glasgow Caledonian University, United Kingdom

ID: 288
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Lessons from Action Planning Based on Transformer Condition Monitoring

Tony MCGRAIL[1], Phillip PROUT[2], Steve RHOADS[2], Jamie BEARDSALL[3], Mark ROWBOTTOM[3], Tommy SALMON[4], Philip BOREHAM[5]
[1]Doble Engineering, United States of America; [2]National Grid, United States of America; [3]Drax Power, United Kingdom; [4]GE Grid Solutions, United States of America; [5]Doble Engineering, United Kingdom

ID: 313
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Research and Judgement on Technical Development Trend of Substation Secondary System in China

Mingjie LI[1], Yu LIU[1], Zhihuai SHU[1], Zexin ZHOU[1], Zhongqing LI[2], Renhui DOU[2], Xuewei DOU[2]
[1]State Grid of China, China; [2]China Electric Power Research Institute China, China

ID: 315
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Panoramic perception of substation equipment and smart maintenance technology

Renhui DOU[1], Naichao CHANG[2], Yang SUN[2], Chen FAN[1], Zexin ZHOU[1]
[1]State Grid of China, China; [2]China Electric Power Research Institute China, China

ID: 319
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)
Keywords: AHMS(Asset Health Management System), Substation, Mozambique

Application of Substation Asset Health Management System(AHMS) for a Utility in Mozambique

Hwangdong SEO, Sungjik KIM, Jaeryong JUNG
HYOSUNG Corporation, Korea, Republic of (South Korea)

ID: 366
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Integrated Intellectual Automated System for Monitoring, Diagnostics and Condition Management of a Fleet of Power Transformers

D.A. VODENNIKOV[1], I.V. DAVIDENKO[2], A.V. SELIKHANOVICH[3], L.M. POSPEEV[3]
[1]Federal Grid Company of Unified Energy System; [2]Ural Federal University named after the first President of Russia B.N. Yeltsin; [3]"MTK Biznes.Optima" LLC

ID: 367
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Autonomous Software and Hardware Complex for Preventing Technological Defects of the Basic Substation's Equipment Based on Remote Monitoring Data

G.K. GLADKOVSKII[1], I.L. ARKHIPOV[1], D.S. KAPUSTIN[1], E.V. MAGADEEV[1], A.V. SELIKHANOVICH[2], O.G. SHAGIMURATOV[2]
[1]Federal Grid Company of Unified Energy System Russia; [2]«MTK Business.Optima» LLC

ID: 377
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Implementation of Protection Operation Analysis and Fault Management System Based on Fault Data Aggregation and Detailed Digital Simulation

Dmitry YASKO[1], Oleg FEDOROV[2]
[1]JSC «System Operator of the United Power System»; [2]JSC «RTSoft»

ID: 378
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Experience of an Intelligent System Development for Automatic Analysis of the Protection and Automation of Distribution Electrical Networks at the Design and Commissioning Stage

A. VOLOSHIN, A. LEBEDEV, S. NUKHULOV
NTI center at MPEI

ID: 379
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Digital Intelligent Ecosystem Architecture for Lifecycle Management of Digital Substations Based on IEC 61850 Requirements

A. LEBEDEV, A. VOLOSHIN, E. VOLOSHIN
NTI centre at MPEI

ID: 383
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)
Keywords: substation monitoring, substation protection, busbar protection, disconnector problems, GIS.

Enhancement EHV GIS Substations Performance in Cases of Disconnectors Problems

Mohamed Younes HENNA
1 EEHC, Ministry of Electricity & Renewable Energy,Egypt

ID: 453
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

In-house developed tool for automatic extraction of Disturbance Record Files from IEDs and transfer it to cloud storage using capabilities of IEC 61850 Standard & File Transfer Protocol

Sanjay JADAV
Gujarat Energy Transmission Corporation Limited (GETCO)

ID: 455
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Field Trial of IEC61850 compliant SAS IED's and Optical CTs in a Digital Substation

Atanu BISWAS
BHEL CORPORATE R&D,

ID: 456
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Utility experience of real time monitoring of 765kV Circuit breaker and Reactor using advanced sensors and cloud-based asset performance management

Nihar RAJ
Adani Transmission Ltd.

ID: 457
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

An Intelligent approach for Remote Asset monitoring of substation using Visual Monitoring System

Anoop KUMAR
Power Grid Corporation of India Ltd.

ID: 458
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Implementation Experience of India's First 400 kV Process bus based full digital substation

Ritesh KUMAR
Power Grid Corporation of India Ltd.

ID: 472
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Improvement in Asset Management of EHV Substations through remote operations – Case Studies.

Nitin SINGH
Power Grid Corporation of India Ltd.

ID: 473
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Testing in a process Bus based full digital substation-A Utility's Experience

Prakash CHANDRA
Power Grid Corporation of India Ltd.

ID: 639
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)
Keywords: Electrical Installations, Online Monitoring, Data Analytics, Low Voltage Network, Electrification of Transport

Online Monitoring and Data Analytics Enabling LV Network Investment Optimisation for a Low Carbon Future in Ireland

Jack HERRING, J FITZGERALD, F PIENAAR, C POWER, H CUNNINGHAM, Dan CANTANASE, EJ SILKE
Cigre Irish National Committee, Ireland

ID: 641
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)
Keywords: Digital Substation, IEC61850, top-down-engineering, testing

Large scale application of fully digital substations at Landsnet

Birkir HEIMISSON[1], Theodór JÓNSSON[1], Priyanka MOHAPATRA[2], Fred STEINHAUSER[2]
[1]Landsnet, Iceland; [2]OMICRON electronics GmbH, Austria

ID: 676
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)
Keywords: digital substation, IoT, sensor data, digital enterprise

Integration of Digital Substation IoT Sensor Data into a digital Entrprise

Peter KREUTZER[1], Julio OLIVEIRA[2]
[1]Hitachi ABB Powergrids Switzerland; [2]Hitachi ABB Powergrids Brazil

ID: 677
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)
Keywords: standard, intelligence, IEC 61850, digital substation

Reaping the benefits of new standards editions for better integration of intelligence in IEC 61850 digital substations

Stefan MEIER[1], Ivan GORIN[2], Krzysztof DRZYZDZYK[2]
[1]Hitachi ABB Powergrids Switzerland; [2]Hitachi ABB Powergrids Poland

ID: 738
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Development of Crawler-Type Robot for Substation Patrol Inspection

Tetsuya OKAZAKI[1], Ryousuke HATANO[1], Keita ITO[2], Takeshi MAEDA[2], Masashi KITAYAMA[2]
[1]Chubu Electric Power Grid Co., Inc.; [2]Mitsubishi Electric Corporation

ID: 739
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Development of sensing Tools for Construction of digital Substations and Enhancement of Reliability through early Identification of Facility Abnormalities

Masaaki NAKAHATA[1], Keisuke YOKOHATA[1], Kiyotaka BABA[1], Kensuke ODAJIMA[2], Ryuichi SUZUKI[3], Tsutomu TERADA[4]
[1]TEPCO Power Grid, Inc.; [2]Toshiba Energy Systems & Solutions Co.; [3]TAKAOKA TOKO CO., LTD.; [4]MEIDENSHA CORP.

ID: 777
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

A versatile and future-proof condition monitoring system for high voltage switchgear

Sebastiano SCARPACI
Hitachi ABB Power Grids Italy

ID: 804
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Novel approach to implementation of fully digital substation Expectations on pilot project Sigtuna 130/20 kV substatio

Anders JOHNSSON[1], Florin STELEA[2], Yiming WU[3], David EROL[4]
[1]Vattenfall Eldistribution AB, Sweden; [2]Sweco Energy AB, Sweden; [3]Vattenfall Services AB, Sweden; [4]Vattenfall AB

ID: 901
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Challenges and Trends rising on Switchgear Monitoring and Control Applications

Nicolas GADACZ, Marius CATALA, E STELLA, Jean-Luc RAYON
GENERAL ELECTRIC France

ID: 903
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Digital substation for EDF: Engineering approach, testing facilities, configuration tools

Sylvain AUPETIT, R BELTRANDO
EDF

ID: 904
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

IEC 61850 specification process applied to classic customer project

Camille BLOCH, Christoph BENNAUER, Navdeep AHUJA
SCHNEIDER ELECTRIC

ID: 905
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

New approach for the on-site calibration of a LPIT in GIS and lessons learned

Laurent-Didier ROUX[1], G CHARROT[2], W OLSZEWSKI[3], F.W. GATZEN[3]
[1]RTE France; [2]SIEMENS GERMANY; [3]SIEMENS FRANCE

ID: 906
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Engineering process and tools to support the specification, configuration, qualification and operation of substations based on IEC 61850 over their whole lifecycle

Thierry COSTE, Aurélie DEHOUCK, G AUDOUSSET, A GUERMONT, Q LEBOURG, B GEORGE, K KAMGA
EDF

ID: 917
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Application of IEC61850 – a DNO approach

Zigor OJINAGA
i-DE Redes Eléctricas Inteligentes

D: 922
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Process bus busbar distributed protection development

Rafael TOLEDO
Ingeteam Power Technology

ID: 980
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Engineering and Condition Monitoring in Digital Substations- an initiative to implement Digital Substations in the Norwegian Power Grid

Nargis HURZUK[1], Karl EIDE POLLESTAD[2], M. ISTAD[3], H. K. MEYER[3]
[1]Statnett, Norway; [2]Elvia, Norway; [3]SINTEF Energy Research, Norway

ID: 981
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Norwegian Digital Substation with optimized Process bus by using IEC 61869 and IEC 61850 Edition 2.1

Torstein STADHEIM[1], S. M. STRØMSNES[2], E. Y. ROJAS[3], S. FLEMMING[3]
[1]Siemens AS, Norway; [2]BKK Nett AS, Norway; [3]Siemens AG, Germany

ID: 1000
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)
Keywords: Digital Substation, IEC 61850, Smart Grid, Substation Renovation

Challenges and experiences on renovation of EGAT's conventional substation to IEC 61850 based digital substation

Kanathip SANTAYANON, Anek WUTHAYAVANICH
TNC-CIGRE, Thailand

ID: 1002
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)
Keywords: Digital Substation, IEC 61850, Smart Grid, Energy Storage, IEDs, BCU, SCADA

EGAT experience on integration between traditional and IEC 61850 control and protection system applied for grid scale energy storage

Anek WUTHAYAVANICH, Thanakrit KITTIWARARAT, Chindarha HANGSAJARA, Kanathip SANTAYANON
TNC-CIGRE, Thailand

ID: 1077
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

Test, Installation and Operational Experiences on World's First Substation Integrating Digital, Intelligent and Greenhouse-Gas Free T&D Equipment

Marcel ENGEL[1], Fred OECHSLE[2]
[1]Netze BW GmbH, Germany; [2]Netze BW GmbH, Germany

ID: 1078
B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS
Topics: PS3 - Integration of Intelligence on Substations (Joint PS with B5)

EHV and DC Substation Post Insulators with Integrated Monitoring System

Jens Seifert SEIFERT
Maschinenfabrik Reinhausen GmbH, Germany

ID: 1094
B5 PROTECTION AND AUTOMATION
Topics: PS3 - Integration of Intelligence on Substations (Joint PS With B3)

Reliability enhancement through machine learning combined with advanced digital methods for the performance evaluation of transformers and reactors

Karsten VIERECK[1], Anatoli SAVELIEV[2]
[1]Maschinenfabrik Reinhausen GmbH, Germany; [2]Maschinenfabrik Reinhausen GmbH, Germany

B4 - DC SYSTEMS & POWER ELECTRONICS

PS 1 HVDC SYSTEMS AND THEIR APPLICATIONS

ID: 108
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Lessons learnt from the COMPOSITE Project on compliance Testing of HVDC-connected Offshore Wind Farms

Oluwole ADEUYI[1], M H RAHMAN[1], B MARSHALL[1], S MARSHALL[1], H SAAD[2], S DENNETIERE[2], M VOR DEM BERGE[2]
[1]The National HVDC Centre United Kingdom; [2]RTE International France

ID: 109
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Modelling and stability Assessment of integrated offshore HVDC networks

Oluwole ADEUYI, M H RAHMAN, B MARSHALL, S MARSHALL
The National HVDC Centre, United Kingdom

ID: 110
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Test Systems and Models for DC/DC Converters intended for DC Transmission Grid Applications

D JOVCIC[1], A DARBANDI[2], P DWORAKOWSKI[3]
[1]University of Aberdeen United Kingdom; [2]Manitoba Hydro International Canada; [3]SuperGrid Institute France

ID: 111
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

HVDC Technology Advancements and Solutions for the connection of far offshore Windfarms and their integration in the Design of the Sofia offshore Wind Farm

Christian MERCHAN_TORRE[1], Kevin DYKE[1], Mathieu RAMET[1], John VODDEN[1], Raymond TIEU[2], Christopher SMITH[3]
[1]GE Grid Solutions United Kingdom; [2]Sembmarine Singapore; [3]SOWFL United Kingdom

ID: 112
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

The harmonic loci-based control Design: practical Methods in frequency and time Domain for a consistent Design of VSC HVDC harmonic active Solutions

Jose MONTEIRO[1], O JASIM[1], E LAVOPA[1], K CARVALHO[1], H SAAD[2], S WIJESINGHE[3]
[1]GE Renewable Energy United Kingdom; [2]RTE France; [3]RWE Renewables United Kingdom

ID: 113
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

A novel control Strategy of bipolar Balance for multi-terminal HVDC and its application on a three-terminal HVDC Project

Ziming SONG[3], Q GUO[1], L HUANG[1], M LIAO[2], L DENG[2], M SU[2]
[1]State Key Lab of HVDC EPRI China Southern Power Grid China; [2]CSG Key Lab for Power System Simulation EPRI China Southern Power Grid China; [3]Toshiba International (Europe) Limited United Kingdom

ID: 141
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

The Multi-terminal Hybrid HVDC Benchmark Model

P PORTUGAL[1], W CAO[2], Y ZHOU3[2], S XU[2]
[1]FURNAS; [2]CSG

ID: 143
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

LCC-HVDC and Hybrid LCC-MMC-HVDC Transmission: A Comparison in the Brazilian Power System

E WATANABE[1], R DIAS[1], L PROENÇA[1], A PEDROSO[1], A ALVES[1], J MOOR[2], B CHUCO[2], C VIZEU[3], J GRAHAM[4], P ESMERALDO[4], A TIETZ[4]
[1]Coppe/UFRJ; [2]CEFET-RJ; [3]PowerConsult; [4]State Grid Brazil Holding

ID: 211
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Novel HVDC MMC VSC Topology with DC Fault Current Limiting Capability

Ram ADAPA[1], Mojtaba MOHADDES[2], Shaahin FILIZADEH[3]
[1]Electric Power Research Institute, United States of America; [2]TransGrid Solutions, Canada; [3]University of Manitoba, Canada

ID: 212
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Clearance of Temporary Faults in MMC-HVDC Overhead Line Transmission

Neil M. KIRBY[1], Andrzej G. ADAMCZYK[2], John FRADLEY[2], Carl D. BARKER[2]
[1]GE Grid Solutions, United States of America; [2]GE Grid Solutions, United Kingdom

ID: 213
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Use of IEC 61850 in HVDC

Ajay KOLIWAD[1], Yu DU[2], Jonathan ALLCOCK[2]
[1]GE Grid Solutions, United States of America; [2]GE Grid Solutions, United Kingdom

ID: 219
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications
Keywords: AC/DC Studies, Pre-commissioning stage, Operating strategy

An Introduction of the Additional AC/DC Studies during the Pre-commissioning Stage to Compose the Operation Strategy for the Bukdangjin-Godeok 1st Project

H.J YOO[1], K.B LEE[1], P.Y SUNG[1], O CLEMENCON[1], J.H LEE[2]
[1]KAPES; [2]KEPCO

ID: 246
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications
Keywords: HVDC, thyristor valves, voltage stresses, PCAV, operating conditions, LCC HVDC, thyristor valve design

Study on the Converter Valve Peak Voltage of Bukdangjin-Godeok HVDC System under Various Operating Condition

Sunyoung LIM, Hyungbae MOON, Panyoung SUNG, Byungil AHN, Gyeongsu PARK
KAPES

ID: 260
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Mutual Electromagnetic Interaction Between VSC-HVDC Underground Cable Systems and HVAC Systems in Germany

Joanne HU
RBJ Engineering Corp.

ID: 261
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Business Case Analysis for the Songo Converter Station

Dan KELL
Hatch

ID: 262
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

GMPC Study Identifying Operational Requirements

Anupama KONARA
Hatch

ID: 263
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Chateauguay Back to Back HVDC Replacement Project: Integration of New Operating Modes for System Resiliency Improvement and Water Management Effectiveness Using VSC Converters

Amr ABDELLAOUI
Hydro-Québec

ID: 316
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

A New High-Frequency Resonance Suppression Strategy for VSC-HVDC System

Guiyuan LI, Weihuang HUANG, Hong RAO, Yan LI, Shukai XU, Changyue ZOU, Junjie FENG
Electric Power Research Institute of China Southern Power Grid, China

ID: 320
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Design and Development of Multi-terminal Hybrid UHVDC Control and Protection System

Jiang LU, Yunlong DONG, Yangzheng WANG, Yu LU, Jie TIAN, Haiying LI
NR Electric Co., Ltd., China

ID: 322
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Operation mode and post-fault recovery of bipole VSC-HVDC system with offshore wind farms connection

Jie YANG, Zhiyuan HE, Xiao ZHOU
Global Energy Interconnection Research Institute Co., Ltd, China

ID: 323
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications
Keywords: HVDC, Simulink, Xilinx System, HILS, Verification

HVDC Controller Model-Based Design and Implementation using Simulink and Xilinx System Generator and Verification through HILS

Hyojin KANG, Sungmin OH, Junchul LEE, Hyunho YOO, Hongju JUNG
HYOSUNG Corporation, Korea, Republic of (South Korea)

ID: 324
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Key Equipment and Technology of Zhangbei HVDC Grid Project

Kunpeng ZHA, Fan ZHANG, Xue BAI, Yushuo CHEN, Kefeng WANG
The State Grid C-EPRI Electric Power Engineering Co. Ltd. Nari Group Corporation, China

ID: 325
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Research on Reactive Power Compensation and Control Strategy Optimization of Back to Back DC Project

Ling WANG, Weimin MA, Fangzhe WU, Yiming YANG, Quanle ZHU
State Grid Economic and technological Research Institute Co., Ltd, China

ID: 326
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Closed-Loop Real-Time Simulation Test Research and Engineering Application of Multi-Terminal Hybrid UHVDC Control and Protection System

Qi GUO, Qinlei CHEN, Xuehua LIN, Shuyong LI, Libin HUANG, Deyang CHEN, Zhijiang LIU, Chao LUO, Guanming ZENG, Yuanhong LU
Electric Power Research Institute, China Southern Power Grid, China

ID: 327
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Review of the Electrical Topology of High-voltage High-capacity DC/DC Converters

Qiang LI, Guangfu TANG, Xiaoguang WEI, Xinying WANG
Global Energy Interconnection Research Institute Co., Ltd, China

ID: 328
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Design and Research of DC Filter for LCC-MMC Multi-terminal HVDC Transmission System

Qingming XIN, Ying HUANG, Xiaobin ZHAO, Shukai XU, Yuxin LU, Dizhen XU
China Southern Power Grid, China

ID: 329
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

System Commissioning Test of the UHV LCC-VSC MTDC Project

Shukai XU[1], Yuebin ZHOU[1], Hong RAO[1], Jun CHEN[1], Changyue ZOU[1], Wei WEI[1], Yu YANG[1], Wanyu CAO[1], Chenglin REN[1], Yulong HU[2]
[1]Electric Power Research Institute (State Key Laboratory of HVDC), CSG, China; [2]Ultrahigh Voltage Transmission Company, CSG, China

ID: 330
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Research on key points of Kunliulong muti-terminal hybrid HVDC project interconnection to the system

Yang SONG, Hongtao LIU, Huifan XIE, Yong MEI, Maolan PENG, Shukai XU, Weisi DENG
China Southern Power Grid, China

ID: 332
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Research on Fault Current Test Technology of Converter Valve Using Full-Bridge MMC Technology

Z. XU, Z. HU, T. ZHANG, G. TONG, B. WANG, X. HUANG, X. YU, W. QIN
Xi'an High Voltage Apparatus Research Institute Co., Ltd., China

ID: 368
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Evaluation of Operating Conditions of Filter Capacitors Banks Protections and Filter Circuits Switch at the Vyborg Converter Substation

N.G. LOZINOVA, E.P. SAFONOV, O.V. SUSLOVA, E.U. ZMAZNOV
JSC «NIIPT»

ID: 403
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications
Keywords: SSTI (Sub-Synchronous Torsional Interaction), UIF (Unit Interaction Factor), HVDC, MATLAB, PSCAD

A Study on SSTI Analysis for 200MW VSC based BTB HVDC at 154kV Yangju Substation in South Korea

Jooyong JUNG[1], Namkyu KIM[1], Jaesun HUH[1], Youngjin KWON[1], Wooyoung SHIN[2], Kyeon HUR[2]
[1]HYOSUNG Corporation, Korea, Republic of (South Korea); [2]YONSEI University, Korea, Republic of (South Korea)

ID: 429
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

HVDC System Operation Performance Analysis Via Statistical Analysis on O&M Data with RAM Basis

D.H LEE, M.H LEE
KEPCO, Korea, Republic of (South Korea)

ID: 459
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Refurbishment of India's Oldest HVDC Link, 500 MW Vindhyachal HVDC backto- back system - Refurbishment Concept Planning and Strategies

Anurag SAPRA
Siemens

ID: 460
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Unique challenges and remedies during operation of world's first ±800 kV Multi Terminal HVDC System – North East Agra Project

M J BAISHYA
Power Grid Corporation of India Ltd.

ID: 461
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Validation of Simulator Studies during Commissioning of +/- 800 kV, 6000 MW Raigarh – Pugalur LCC HVDC Link and +/- 320 kV, 2000 MW Pugalur – Trichur VSC HVDC Link

Mahesh VARDIKAR
Power Grid Corporation of India Ltd.

ID: 462
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Refurbishment of HVDC System in India: Philosophy

Pradeep KUMAR
Power Grid Corporation of India Ltd.

ID: 463
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Pugalur- North Trichur HVDC Transmission System- Underground Land Cable Aspects

Pritam CHAKRABORTY
Power Grid Corporation of India Ltd.

ID: 464
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Special considerations for Overhead line and Underground cable Transmission System of Pugalur-North Trichur VSC HVDC link

Pritam CHAKRABORTY
Power Grid Corporation of India Ltd.

ID: 465
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Feasibility study of adding a third full bridge VSC-based HVDC terminal on an existing LCC-based HVDC transmission system

V Rakesh REDDY
ABB Power Technology Services Pvt. Ltd,

ID: 466
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

DC Fault Recovery Capability of the Pugalur-Thrissur HVDC Project

Thomas WESTERWELLER
Siemens Energy

ID: 467
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Fault ride through investigations in a VSC bipole HVDC system connected to renewables using an AC chopper

Teja BANDAR
ABB Power Technology Services Private Limited

ID: 516
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Harmonic and transient interaction due to electromagnetic interference between parallel HVDC and HVAC underground power cables

Kai YANG
Hitachi ABB Power Grids, Sweden

ID: 519
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

HVDC remote support during the pandemic and beyond

Nils ENGLUND, Erik JANSSON, Magnus BERG-KOLSMYR, Sarala Mohan NAIDU, Jeton ALIU, Urban ELGQVIST
Hitachi ABB Power Grids, Sweden

ID: 520
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

DC Interconnection of Adjacent Point-to-Point HVDC Links as an Enabling Step towards Multiterminal HVDC Systems

Staffan NORRGA[1], Ilkha JAHN[1], C A PLET[2], Niklas SVENSSON[3], P RUFFING[4], G CHAFFEY[5], J N M MOORE[6]
[1]KTH Royal Institite, Sweden; [2]DNV, Netherlands; [3]Svenska kraftnät; [4]RWTH Aachen University, Germany; [5]KU Leuven, Belgium; [6]Consultant, Netherlands

ID: 570
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

HVDC Link Benefits for the AC Transmission System Operation. Technical and Economic Aspects

Leonardo CASTERÁS, Raúl VILLAR, Federico MUIÑO, Pablo STEMBERG, Gustavo MOLERO
UTN (Universidad Tecnológica Nacional)

ID: 584
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

±180kV, 300MW KEPCO BP1 Haenam–Jeju HVDC Scheme Refurbishment – Key Features and Execution Experiences

Byungil AHN[1], Panyoung SUNG[1], Amit KUMAR[2], Nicolas MOLINIER[2], Manoj KUMAR[3], Kyoungsoo SONG[4]
[1]KAPES, Korea, Republic of (South Korea); [2]General Electric, United Kingdom; [3]General Electric, India; [4]KEPCO, Korea, Republic of (South Korea)

ID: 729
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Standard Specifications and Simulation Analysis on Control and Protection Scheme for Multivendor Offshore Multi-Terminal HVDC System

Tatsuhito NAKAJIMA[1], Fumihiko OHTA[2], Masaki MIDORIKAWA[3], Rina KUME[4], Tohru YOSHIHARA[5], Tsunehisa WACHI[6]
[1]Tokyo City University; [2]Tokyo Electric Power Company Holdings, Incorporated; [3]TEPCO Power Grid, Incorporated; [4]Toshiba Energy Systems & Solutions Corporation; [5]Hitachi, Ltd.; [6]J-POWER Business Service Corporation

ID: 730
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Results of Ground Fault Test and Response to actual Ground Fault of New Hokkaido-Honshu HVDC Link

Tatsuya NAGAI[1], Masanori MORI[1], Takanori UCHIUMI[1], Hirokazu MATSUMOTO[2], Yuki CHIBA[3]
[1]Hokkaido Electric Power Network, Inc.; [2]CRIEPI; [3]Toshiba Energy Systems & Solutions Corp.

ID: 731
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

System Study and Commissioning Test of the Hida-Shinano HVDC Link

Masanori TAKECHI[1], Masahito KANEKO[1], Taizou MATSUDA[2], Ryuutarou HAJIRI[2], Takeru MURAO[3], Naoki KAWAMURA[4]
[1]TEPCO Power Grid, Inc.; [2]Chubu Electric Power Grid Co., Inc.; [3]Toshiba Energy Systems& Solutions Corporation; [4]Hitachi, Ltd.

ID: 778
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Tyrrhenian Link – a paramount project to achieve the decarbonization of the Italian power system

Ennio LUCIANO
TERNA Rete Elettrica Nazionale Italy

ID: 779
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

High performance HVDC – LCC converters for the new SaCoI 3 link: Preliminary analysis and simulations

Francesco PALONE
TERNA S.p.A. Italy

ID: 780
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications
Keywords: Real-Time Multi-Infeed Analysis of the Italian System Regarding Mixed Inverter/Rectifier HVDC Converters

Real-Time Multi-Infeed Analysis of the Italian System Regarding Mixed Inverter/Rectifier HVDC Converters

Cosimo PISANI
TERNA S.p.A. Italy

ID: 795
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications
Keywords: LCC HVDC, Design

±500kV, 3000MW Bipole LCC HVDC Transmission Bukdangjin - Godeok Project– Key Design Aspects

Panyoung SUNG[1], Hyunjun LEE[1], Amit KUMAR[2], Gearoid OHEIDHIN[2], Mark POWELL[2], Junhang LEE[3]
[1]KAPES, Korea, Republic of (South Korea); [2]GE, United Kingdom; [3]KEPCO, Korea, Republic of (South Korea)

ID: 847
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Superconducting Power Filter for HVDC grids

Loic QUEVAL[1], B DOUINE[2], I SCHWENKER[2], D HUCHET[1], Olivier DESPOUYS[3], F TRILLAUD[4]
[1]Université Paris-SACLAY-Sorbonne université; [2]GREE université de Lorraine Nancy; [3]RTE; [4]Instituto de Ingeniería, National Autonomous University of Mexico

ID: 896
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Integration of power flow controllers in HVDC grids

Florent MOREL, J SAU BASSOLS, S TOURE, S POULLAIN, F JACQUIER
SUPERGRID INSTITUTE

ID: 897
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Parallel operation of a multi-vendor HVDC scheme between France and UK – IFA2000 and Eleclink interaction studies

Marco SCHUDEL, J MICHEL, Sébastien DENNETIERE
RTE France

ID: 898
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

EMT Simulation of an HVDC Link based on Extended Overlap-Alternate Arm Converter

Pierre VERMEERSCH[1], François GRUSON[1], Philippe EGROT[2], Xavier GUILLAUD[1], Frédéric COLAS[1]
[1]Univ. Lille,-Arts et Metiers Institute of Technology -Centrale Lille - L2EP; [2]EDF

ID: 899
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Severity adapted fault clearing strategy for MTDC grids including cables and overhead lines

Alberto BERTINATO[1], P TORWELLE[1], B RAISON[2], T.D. LE[3], M PETIT[3]
[1]SUPERGRID INSTITUTE; [2]G2Elab-Université Grenoble; [3]GeePS, CentraleSupelec

ID: 940
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications
Keywords: HVDC performance, Data collection, Data sharing, Data classification, Data utilization

Improving HVDC Performance Data Collection and Sharing

Patrik LINDBLAD
Fingrid Oyj

ID: 979
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Transmission System testing of a VSC based HVDC System

Magne MEISINGSET[1], C. G. A. KOREMAN[2], A. VINOTH[3], H. S. ANDERSSON[3]
[1]Statnett, Norway; [2]TenneT, Netherlands; [3]Hitachi, Sweden

ID: 1085
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

A transparent process to ensure appropriate and compliant grid-forming behaviour for HVDC systems and FACTS - A TSO perspective

Max GOERTZ
TransnetBW, Germany

ID: 1087
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

European offshore grid: On protection system design for radial bipolar multi-terminal HVDC networks

Patrick DUELLMANN
RWTH Aachen University

ID: 1088
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Methods and requirements for the upgrade of HVDC and STATCOM solutions with Grid Forming functions for Multi-level converter topologies

S M Iftekharul HUQ
Siemens Energy, Germany

ID: 1089
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications

Online Estimation of Dynamic Capacity of VSC-HVDC Systems - Proof of Concept in NordLink

Kevin SCHOENLEBER
Hitachi ABB Power Grids, Germany

ID: 1135
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS1 - HVDC Systems and their Applications
Survey of the Reliability of HVDC Systems throughout World during 2019 – 2020
Murray BENNETT
Stantec, Canada, On behalf of Study Committee B4

PS 2 DC FOR DISTRIBUTION SYSTEMS

ID: 115
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS2 - DC for Distribution Systems
Laboratory Demonstration of a cascaded three-level neutral-point-clamped Converter for Medium-Voltage DC Transmission
Carlos UGALDE_LOO, J CHEN, W MING, S WANG
Cardiff University, United Kingdom

ID: 333
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS2 - DC for Distribution Systems
A Method for Planning and Assessment of LVDC System in Civil Buildings
Guowei LIU[1], Yuming ZHAO[1], Yangxin QIU[2], Longjun WANG[2], Lili MO[2], Qing ZHONG[2]
[1]Shenzhen Power Supply Bureau Co., Ltd., China; [2]School of Electric Power, South China University of Technology, China

ID: 483
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS2 - DC for Distribution Systems
Experience of Modelling Converter Based Devices in Indian Power System
Priyam JAIN
Power System Operation Corporation Limited

ID: 697
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS2 - DC for Distribution Systems
Physical Model based Monte Carlo for Early Failure Analysis of a Switching Mode Power Supply used in HVDC Transmissions
Yi ZHANG, Hui Dong HWANG, Young Mo GU, Jaejung KIM, Frede BLAABJERG, Huai WANG
CIGRE Denmark, Denmark

ID: 900
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS2 - DC for Distribution Systems
Unidirectional step-up isolated DC-DC converter for MVDC electrical networks
Piotr DWORAKOWSKI[1], P LE METAYER[1], D DUJIC[2], C BUTTAY[3]
[1]SUPERGRID INSTITUTE; [2]EPFL; [3]CNRS-ECL-INSA Lyon

ID: 1129
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS2 - DC for Distribution Systems
Wind-Turbine Controlled Demagnetization for Overvoltage in Multi-Terminal Direct Current System (MTDC) with Modular Multilevel Voltage Source Converter (VSC/MMC) under AC faults
DI MULASHE
University Of KwaZulu-Natal

ID: 116
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Real Time dynamic Performance, control interaction and protection Studies of modular static synchronous series compensation Technology in the Great Britain Transmission System

David BARRON[1], A PASHAEI[1], M OSBORNE[1], D STAMATIADIS[2], S BABAEI[3], P XANOS[2], C MARMARAS[2], C KOCH-CIOBOTARU[4], D SCHWEER[5], F MADIA-MELE[5], C WINNING[5], T NUDELL[3]
[1]National Grid, United Kingdom; [2]Smart Wires Inc Greece; [3]Smart Wires Inc United States; [4]Smart Wires Inc Spain; [5]Smart Wires Inc United Kingdom

ID: 144
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

SVC Applications in Brazil - Basic Design Evaluation, Modeling, and Integration Studies

A TENORIO, H PESSOA, R ANTUNES, M SILVA
ONS – Operador Nacional do Sistema Elétrico

ID: 264
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

AC-AC Solid-State Distribution Transformer

Hang LI
Electranix Corp.

ID: 265
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Application of Power Electronics to Enhance Synchronous Condenser Performance

Mojtaba MOHADDES
TransGrid Solutions

ID: 335
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Improvement of Dynamic Control Performance of Hybrid STATCOM

Hui WANG, Lei ZHANG, Xiaodong SHENG, Xingchen YANG, X. HUANG
NR Electric Co., Ltd, China

ID: 336
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Research on Application Technology of UHV Controlled Shunt Reactor in Complete Clean Energy Transmission Channel

Lanfang LI, Menggan REN, Yang LIU, Hongen LIU
China Epri Science & Technology Co., LTD., China

ID: 337
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

A synthetic test system for operational tests of SVC valves

T. ZHANG, Z. HU, Z. XU, C. TONG, X. HUANG, B. WANG, X. YU, W. QIN
Xi'an High Voltage Apparatus Research Institute Co., Ltd., China

ID: 338
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Research on key technology of the UHVAC controllable MOA using power electronic valve

Xiujuan CHEN[1], Weijiang CHEN[2], Weidong SHI[1], Guangyao QIAO[3]
[1]China Electric Power Research Institute, China; [2]State Grid Corporation of China, China; [3]State Grid Smart Grid Research Institute, China

ID: 382
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)
Keywords: Maximum Loadability Point (MLP), Continuation Power Flow (CPF), Improved Moth Flame Optimization (IMFO), FACTS devices, Static Synchronous Compensator (STATCOM).

Optimal Location of STATCOM to Maximize Loadability for the Egyptian network

Mahrous Ahmed TAHER[1], Salah KAMEL[2], Fransisco JURADO[3]
[1]1 Egyptian Electricity Holding Company; [2]2 Faculty of Engineering, Aswan University Egypt; [3]3 Faculty of Engineering, Linares, Jaén Spain

ID: 517
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

STATCOM Refurbishment and Lifecycle Considerations in a Steelmaking Application

Andrew J OWENS[1], Tobias BALSNER[1], J NILSSON[2], Daniel FAHLGREN[3]
[1]Hitachi ABB Power Grids, Sweden; [2]Uddeholm AB; [3]Ellevio AB

ID: 518
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Energy Storage Enhanced STATCOM for Secure and Stable Power Grids

Lexuan MENG, Jean-Philppe HASLER, Gunnar INGESTRÖM, Jan KHEIR, Andrew J OWENS, H BAI, J R SVENSSON
Hitachi ABB Power Grids, Sweden

ID: 662
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

First Modular Static Synchronous Series Compensation Installation in Latin America – From Planning to Operation

Giovanni MARIN
Empresas Publicas de Medellin S.A E.S.P

ID: 704
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Delivery of Modular Static Synchronous Series Compensators on the Greek Transmission System to Provide Substantial Increase in Cross-Border Interconnection Capacity

Konstantinos PLAKAS[1], Christos-Spyridon KARAVAS[1], Konstantinos KROMMYDAS[1], Andreas KURASHVILI[1], George PAPAIOANNOU[1], Panagiotis XENOS[2]
[1]IPTO, Greece; [2]Smart Wires Inc., Greece

ID: 732
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Grid-forming FACTS Systems for Increased Renewable Generation Penetration

Frederick PAGE, Kazuyori TAHATA, Ryosuke UDA, Hiroki ISHIHARA, Kota HAMANAKA
Mitsubishi Electric Corp.

ID: 733
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)
Keywords: STATCOM, Modular Multilevel Converter, HVDC, Transient Fault Recorder, Power System

A Study on the Verification of STATCOM Performance According to the Changes in the Operating Conditions of the Adjacent HVDC

Hyeokjin NOH, Gumtae SON, Chulkyun LEE
LS ELECTRIC, Korea, Republic of (South Korea)

ID: 781
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

125 Mvar STATCOM systems for oscillation damping and supporting HVDC-LCC reactive power unbalance

Francesco PALONE
TERNA S.p.A. Italy

ID: 871
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)
Keywords: Prototype Phase-Locked Loop (PLL), converter-based resources, frequency estimation, frequency regulation.

Assessment of the Frequency Estimations provided by a Prototype PLL

Georgios TZOUNAS, Federico MILANO
Cigre Irish National Committee, Ireland

ID: 954
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Technical, Regulatory and Economic Development for Distributed Flexible AC Transmission Systems – D-FACTS

Jorge GONZALEZ
UPB

ID: 1041
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Improvement of Voltage Profile and Reliability of Power System with Renewable Generation Using Static VAr Compensator (SVC)

Ibrahim QURESHI
Saudi Electricity Company, KSA

ID: 1120
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)
Keywords: FACTS, BESS, VRE integration, FACTS with BESS, Weak power system

FACTS with energy storage for renewable integration in Georgia power system

Giorgi ARZIANI, Teona ELIZARASHVILI
Parvus Consulting, Georgia

ID: 1123
B4 DC SYSTEMS AND POWER ELECTRONICS
Topics: PS3 - FACTS and Power Electronic (PE)

Actual Devices for reactive Power Compensation

Bogdan FILIP
Romanian NC Cigre, Romania

B5 - PROTECTION & AUTOMATION

PS 1 ADDRESSING PROTECTION RELATED CHALLENGES IN NETWORK WITH LOW-INERTIA AND LOW FAULT-CURRENT LEVELS

ID: 117
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Evaluation of the Impact of converter's fault current injection Strategy on distance protection Performance based on hardware-in-the-loop Testing

Q HONG[1], D LIU[1], A DYSKO[1], L XU[1], C BOOTH[1], I COWAN[2]
[1]University of Strathclyde, United Kingdom; [2]The National HVDC Centre United Kingdom

ID: 118
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Protection testing Approaches for low fault level Areas dominated by power electronic Converters

Bharath PONNALAGAN[1], I L COWAN[1], M H RAHMAN[1], B MARSHALL[1], O D ADEUYI[1], S JOSHI[2]
[1]The National HVDC Centre, United Kingdom; [2]SSEN Transmission United Kingdom

ID: 119
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Impact of renewable generation Resource on the distance Protection and Solutions

C VENKATESH[1], Ilia VOLOH[2]
[1]GE Grid Solutions, United Kingdom; [2]GE Grid Solutions, Canada

ID: 120
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Wide area protection Scheme for prevention of islanding of South Australia

Douglas WILSON[1], S NORRIS[1], D PERERA[2], L TORRELLI[3]
[1]GE Digital, United Kingdom; [2]Electranet Australia; [3]CSE Uniserve Australia

ID: 145
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Influence of Inverters Based Sources on Protections Devices

C AVIZ[1], F REIS[2], G GUENZI[3], G FABRIS[4], F COSTA[4], R FERNANDES[5]
[1]Aviz Consultoria; [2]Universidade E. Rio de Janeiro; [3]Energoconsult; [4]Eletrobras; [5]Unicamp

ID: 147
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

From Hertz to Megahertz: Lessons Learned About the Impact of Inverter-Based Wind Turbine Generators on the Protection of Interconnecting Lines

L LOPES[1], K SILVA[2], R FILHO[3], A NETO[4], M DAVI[5], F VASQUÉZ[2], T HONORATO[2], R REIS[6], P JUNIOR[7]
[1]Federal University of Paraíba (UFPB); [2]University of Brasilia (UnB); [3]ESC Engineering; [4]National Electric Systems Operator (ONS); [5]Federal University of Triangulo Mineiro (UFTM); [6]Federal Rural University of Pernambuco (UFRPE); [7]Conprove Industry and Commerce

ID: 214
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Reducing the Fault Clearing Times in Networks with Inverter-based DERs

Alex APOSTOLOV
OMICRON electronics, United States of America

ID: 340
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Research on Influence and Test Technology of VFTO on On-site Protection Device

Ye XIA, Huihai LIU, Delong YANG, Peng GUO, Jun ZHAO, Xiaoli ZHANG
China Electric Power Research Institute, China

ID: 341
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Thinking and practice of relay protection strategy for power system with high proportion of renewable energy and power electronics

ZeXin ZHOU, Yarong GUO, Hong CAO, Xingguo WANG
China Electric Power Research Institute Co., Ltd., China

ID: 369
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Development of an Automatic Adaptive System for Calculating the Protection Settings to Ensure Selectivity and Sensitivity in Network with Low Fault Current Levels

A. KOVALENKO, A. VOLOSHIN
NTI center at MPEI

ID: 370
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Electric Grid Reliability Under High Penetration of Power Electronics: Stability Challenges and New Control and Protection Strategies

P. VOROBEV, V. TERZIJA
Skolkovo Institute of Science and Technology

ID: 471
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Renewable Energy Protection challenges & Overview of Pre-synchronization study for RE (Wind & Solar) Generation in Southern Regional Grid in India

T.Muthu KUMAR
Power System Operation Corporation Limited

ID: 552
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Testing and Analyzing of Distance Protection of a Realistic Offshore Wind Farm Transmission System

Kasper DE KORTE[1], Gerwin VAN DIJK[1], Yilmaz YELGIN[2], Jose CHAVEZ[3], Marjan POPOV[3]
[1]Siemens Nederland N.V.; [2]Siemens A.G.; [3]Delft University of Technology

ID: 611
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Experimental Validation of Emergency Frequency Control by considering the Self-disconnection Characteristics of Renewable Energy Sources to enhance the Resilience and Decarbonization Aspects of Power Systems

Hayato SATOH, Noriyuki UEDA, Muneki MASUDA, Hideo KOSEKI, Hiroyuki AMANO
Central Research Institute of Electric Power Industry

ID: 622
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Impact of low Network Inertia on System transient Stability

Urban RUDEZ[1], Adrian KELLY[2], Koji YAMASHITA[3], Yoav SHARON[4], Ray ZHANG[5]
[1]University of Ljubljana, Faculty of Electrical Engineering, Slovenia; [2]Electric Power Research Institute (EPRI) international, Ireland; [3]University of California Riverside, California, USA; [4]S&C Electric Company, Chicago, Illinois, USA; [5]National Grid, United Kingdom

ID: 709
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Protection in Island Systems Operating with High RES Penetration : Case Study Astypalea

Dimitrios LAGOS[1], Alkistis KONTOU[1], Panos KOTSAMPOPOULOS[1], George KORRES[1], Nikos HATZIARGYRIOU[1], Vasilis PAPASPILIOTOPOULOS[2], Vasilis KLEFTAKIS[2]
[1]NTUA, Greece; [2]Protasis, Greece

ID: 796
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Simulation of Wind-park Effects on Distance Protection using Fault Records

Jongkee CHOI
KEPCO, Korea, Republic of (South Korea)

ID: 1091
B5 PROTECTION AND AUTOMATION
Topics: PS1 - Addressing Protection Related Challenges in Network with Low-Inertia and Low Fault-Current Level

Advanced transformer protection to secure discriminating internal faults from inrush currents in inverter-based generation networks

Frank MIESKE
Siemens AG, Germany

PS 2 APPLICATIONS OF EMERGING TECHNOLOGY FOR PROTECTION, AUTOMATION AND CONTROL

ID: 121
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Specification and Testing of new centralised protection and control Architectures

Ibrahim ABDULHADI[1], C SCOBLE[2]
[1]Power Networks Demonstration Centre, United Kingdom; [2]UK Power Networks United Kingdom

ID: 148
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Requirements and Technological Trends on Stand Alone Merging Units

A PIRES[1], H LEON[1], L GROPOSO[1], R MAO[2]
[1]GE Grid Solutions; [2]CAN

ID: 191
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Use of Machine Learning on PMU Data for Transmission System Fault Analysis

Mladen KEZUNOVIC[1], Zoran OBRADOVIC[2], Yi HU[3]
[1]Texas A&M University, United States of America; [2]Temple University, United States of America; [3]Quanta Technology, United States of America

ID: 217
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Functional Testing of Centralized Protection Systems

Alex APOSTOLOV
OMICRON electronics, United States of America

ID: 218
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Common Substation Platform: Utility Requirements Assessment

Paul MYRDA[1], Herb FALK[2]
[1]Electric Power Research Institute, United States of America; [2]OTB Consulting, United States of America

ID: 220
B5 PROTECTION AND AUTOMATION

Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control
Keywords: Merging Unit, Process Bus, Electronic Transformer, Digital Substation

The Development of Merging Unit based on Process Bus for Electronic Transformer in the Digital Substation

J. H. LEE, J. J. KONG
KEPCO KDN

ID: 266
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

CPC Architectures for Small Distribution Substations

José MENDEZ
GE Grid Solutions Canada

ID: 305
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Optimizing Underfrequency Load Shedding Strategies to Improve System Reliability

Ce ZHENG[1], Ashok GOPALAKRISHNAN[1], Sandro G. AQILES-PEREZ[1], Kevin W. JONES[2], Reza GANJAVI[3]
[1]Siemens Industry, Inc., United States of America; [2]Xcel Energy, United States of America; [3]Siemens AG, Germany

ID: 342
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Fault Identification and Location Scheme Based on MMC Type Pseudo-bipolar DC Distribution Network

Yongsheng LIU, Jun CHEN, Wei HOU, C. WANG, W. WANG
NR Electric Co., Ltd., China

ID: 371
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Development of Automatic Emergency Control Technologies in the Russian Power System

A. ZHUKOV[1], E. SATSUK[1], A.A. LISITSYN[2], B. ANDRONOVICH[2]
[1]JSC “System Operator of the Unified Power System”; [2]JSC «STC UPS»

ID: 372
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Experience in the Development and Implementation of an Intelligent PAC System with a Flexible Functional Architecture

A. ZHUKOV[1], A. LEBEDEV[2], A. VOLOSHIN[2], E. VOLOSHIN[3]
[1]JSC «SO UPS»; [2]NTI center at MPEI; [3]LLC «SmartEPS»

ID: 373
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Development of Stability Monitoring, Emergency Control and Relay Protection Issues Based on Online Analysis of Dynamic Properties of Power Systems

A. ZHUKOV[1], E. SATSUK[1], D. DUBININ[1], V. VASILEV[1], A. MOKEEV[2], A. POPOV[3]
[1]JSC “System Operator of the Unified Power System”; [2]NARFU; [3]Energoservice

ID: 374
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Practical Investigation of the Operation of Optical Current Transformers and Electronic Voltage Transformers Under Transient Conditions at 500 kV Substation

N.A. IVANOV, R.I. KANAFEEV, M.A. YANIN
PROFOTECH JSC

ID: 375
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Cable Section Fault Identification System for Mixed 110 kV and Higher Overhead-cable Lines Application Experience

G.S. NUDELMAN[1], S.V. BALASHOV[1], E.Y. EROKHIN[1], A.V. SDOBIN[1], A.A. SHAPEEV[1], V.G. ALEKSEEV[2], V.V. SMEKALOV[2], S.A. ARUTYUNOV[3]
[1]JSC «VNIIR»; [2]JSC «RDC FGC UES»; [3]PJSC «FGC UES»

ID: 376
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Automation of Step-down Substations Using New Technologies

D. ULYANOV[1], V. BOVYKIN[1], S. PISKUNOV[1], A. MOKEEV[2], E. KHROMTSOV[2]
[1]ENERGOSERVICE; [2]NARFU

ID: 491
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Study of Impact of Exclusion of line reactor curent on distance protection function and fault locator for an IEC 61850 process bus compliant IED using Hardware-in-Loop simulation

Pradeep Tanaji PATIL
Power Grid Corporation of India Ltd.

ID: 551
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

System accuracy evaluation of metering application based on optical current Low Power Instrument Transformers (LPIT) and IEC 61850 SV static energy meters

I. TANNEMAAT[1], E. SCHENKEL[1], G. RIETVELD[2], A. GALLASTEGI[3], M. ACHTERKAMP[4]
[1]TSO TenneT; [2]VSL; [3]ARTECHE; [4]KEMA

ID: 612
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Line Protection Relay with IP Network

Takayuki INUI[1], Takahiro MORI[2], Yoshinobu UEDA[3]
[1]Kansai Transmission & Distribution Co., Inc.; [2]Toshiba Energy Systems & Solutions Corporation; [3]Meidensha Corporation

ID: 614
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Verification of a New Protection Relay System based on High Reliable Process Bus with Oversampling

Takuya ITO[1], Yujiro FURUSAWA[2], Yotaro NOSE[3], Toshinori SHIMIZU[4]
[1]Chubu Electric Power Grid Co., Inc.; [2]Fuji Electric Corp.; [3]Toshiba Energy Systems & Solutions Corp.; [4]Mitsubishi Electric Corp.

ID: 675
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control
Keywords: virtual, digital substation

Virtualization as an enabler for digital substation deployment

Peter KREUTZER[1], Julio OLIVEIRA[2]
[1]Hitachi ABB Powergrids Switzerland; [2]Hitachi ABB Powergrids Brazil

ID: 751
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control
Keywords: MV, DSOs, ICT, WAPS, 5G

Defining a Wide Area Protection System Using 5G Communication Technology

Mohand BELAID, V. AUDEBERT, B. DENEUVILLE
EDF R&D, France

ID: 769
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Advanced optimisation tool for reliability improvement of MV distribution systems through feeder automation

Stinislav YORDANOV[1], Mohsin AL BALKHI[2], Talal AL-RASHDAN[2]
[1]ENGIE Impact, Belgium; [2]Saudi Electricity Company,KSA

ID: 802
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Experiences with the deployment of centralized protection systems using virtual protection relays for substations with large power electronic converters

Hans BJÖRKLUND
Hitachi ABB Power Grids, Sweden

ID: 872
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control
Keywords: Compensated neutral; Continuity of supply; Earth fault protection; Faulted phase earthing; Neutral injection systems; Quantitative risk assessment

Hybrid neutral treatment solutions to support post-pandemic changes in work practices, economic recovery and de-carbonisation efforts

Hugh BORLAND, L FICKERT
Cigre Irish National Committee, Ireland

ID: 968
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Automated Hardware in the Loop Test Bed For Protection Relays Using a Decision Three Algorithm

Hernan SANCHEZ
XM E.S.P. S.A

ID: 1054
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Algorithms for automatic detection of faults/harmful events on 132-150 kV overhead lines

Chiara VERGINE
TERNA, Italy

ID: 1092
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

The Rise of the Digital Twin Applications from a single Protection Device to full Digital Substations

Christian ROMEIS
Siemens AG, Germany

ID: 1093
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Experiences with Fault Location in Different Networks Applying Travelling Wave Technology

Cezary DZIENIS
Siemens AG, Germany

ID: 1127
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Using Machine Learning to Detect High Impedance Faults

I PHAFULA
Eskom Holdings Limited

ID: 1134
B5 PROTECTION AND AUTOMATION
Topics: PS2 - Applications of Emerging Technology for Protection, Automation and Control

Modernizing Power Plant : moving towards situational Awareness

Jean RAYMOND
HYDRO QUEBEC

PS 3 INTEGRATION OF INTELLIGENCE ON SUBSTATIONS (JOINT PS WITH B3)

See B3 PS3

C1 - POWER SYSTEM DEVELOPMENT & ECONOMICS

PS 1 SYSTEM TRANSITION RESILIENCE & ASSET MANAGEMENT RESPONSE

ID: 156
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Sectionalizing Transmission Lines, an Expansion Planning Challenge, Amplified by Unexpected Emerging Variable Renewable Generation and Environmental Restrictions

D CARVALHO, D SOUZA, M CURY, M FARINHA, R FERREIRA, T MELLO, F LIMA
EPE - Empresa de Pesquisa Energética

ID: 195
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Global Experience on Solutions to low inertia Conditions

Chris KIMMETT, B BERRY
Reactive Technologies, United Kingdom

ID: 221
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Risk Modelling in the Decarbonization of Electric Systems

Alberto J. LAMADRID L.[1], Tim D. MOUNT[2], Wooyoung JEON[3]
[1]Lehigh University, United States of America; [2]Cornell University, United States of America; [3]Chonnam National University, South Korea

ID: 409
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Research on Transmission Expansion Planning Considering Resilience Enhancement of Power Grid

Tao LIN[1], Hui DU[1], Qingyan LI[1], Ruyu BI[2], Xialing XU[3]
[1]Wuhan University, China; [2]State Grid Hubei Electric Power Co., Ltd, China; [3]Central China Branch of State Grid Corporation of China, China

ID: 560
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Control Principles for Black Start and Island Operation of Offshore Wind Farms integrating Batteries

D. PAGNANI, L. H. KOCEWIAK, J. HJERRILD, F. BLAABJERG, C. L. BAK
CIGRE Denmark, Denmark

ID: 564
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Application of a Deterministic Chaos Theory and Artificial Intelligence Methods for Predicting Accidents in Electric Grids of European Russia

I.M. GALIASKAROV, M.Sh. MISRIKHANOV, V.N. RYABCHENKO, Yu.V. SHAROV, A.V. SHUNTOV
NRU “MPEI”

ID: 597
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Development of Asset Management Method for Power Distribution Equipment

Keita FUKUGAWA, Fumiaki MORISHIGE, Junpei YOSHIKAWA, Hidehiro YAMAMOTO, Takaya SHIGETOU
Chubu Electric Power Grid Co.,Inc.

ID: 706
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response
Keywords: Asset management, power utilities, energy transition, decarbonisation, key performance indicators

Asset Management as a Framework for Energy Transition of Power Utilities in Developing Countries

Anes KAZAGIC[1], Dragan KOMLJENOVIC[2], Emira KOZAREVIC[3], Hasan AVDIC[3], Nedim SULJIC[3], Admir SOFTIC[4], Ognjen MARKOVIC[5], Dinko MARIC[6]

[1]EPBiH Power Utility, Bosnia and Herzegovina; [2]Hydro-Quebec's Research Institute, Canada; [3]University of Tuzla , Bosnia and Herzegovina; [4]Ministry of Foreign Trade and Economic Relations - MOFTER, Bosnia and Herzegovina; [5]Center for Sustainable Energy Transition - ReSET, Bosnia and Herzegovina; [6]EPHZHB Power Utility, Bosnia and Herzegovina

ID: 783
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

How the industrial internet of things is driving the asset management digitalization: the implementation of an interconnected asset performance management system in the electrical power distribution sector

Alessandro PEDRETTI
Hitachi ABB Power Grids Italy

ID: 821
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Concepts for considering environmental needs and personal safety for substation design and increase the resilience of the grid

Martin STÖSSL[1], Ewald SCHWEIGER[2], Dirk HELBIG[2], Oliver DOHNKE[2]
[1]Siemens Energy Austria GmbH; [2]Siemens Energy AG

ID: 1003
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Foundational data layer and data model for Transformer, Cable and GIS specific asset health application

Alexander GLEIM[1], G. ODDEN[2], Tony LUGINANO[2], J. F. LANDGRAF[2], A. WILLERSRUD[2], Arne SMISETHJELL[2], H. GRØNSETH[2]
[1]Cognite, Norway; [2]Statnett, Norway

ID: 1004
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Availability of data for asset management and automated condition monitoring

Arne SMISETHJELL, H. GRØNSETH
Statnett, Norway

ID: 1030
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS1 - System Transition Resilience & Asset Management Response

Energy transition system prospective and operability studies in Spain

Agustín DÍAZ
Red Eléctrica de España

PS 2 ENERGY SECTOR INTEGRATION AND TACKLING THE COMPLEXITY OF MULTI-FACETED NETWORK PROJECTS

ID: 196
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Ancillary Services provision from local thermal Systems to the electrical power System

Carlos UGALDE-LOO, Da MORALES SANDOVAL, I DE LA CRUZ, H BASTIDA, M ABEYSEKERA, Y ZHOU
Cardiff University, United Kingdom

ID: 222
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Storage Planning - Textbook or Secret Sauce?

Aaron F. SNYDER, Michele PASTORE, Vadim ZHEGLOV
EnerNex, United States of America

ID: 223
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects
Keywords: Renewable Portfolio Standard, 100% zero emission electricity, Greenhouse Gas (GHG), Electric Vehicle, Hydrogen

A 100% Zero Emission Electricity Market in New York

Jinxiang ZHU[1], Hongyan LI[1], Michael KINTNER-MEYER[2], Nader SAMAAN[2]
[1]Hitachi ABB Power Grids, United States of America; [2]Pacific Northwest National Laboratory, United States of America

ID: 343
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Research on the regulation mechanism and comprehensive evaluation technology of power/gas conversion for clean energy consumption

Ling CHENG[1], Chang LIU[1], Xinghua ZHANG[2]
[1]China Electric Power Research Institute, China; [2]State Grid Corporation of China, China

ID: 344
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Research on the Planning and Configuration Method of Municipal Heating Electricity Supplementary Heating for Grid-heating Network Coupling

Sirui ZHANG, Chang LIU, Limin JIANG, Hao LI
China Electric Power Research Institute Co., Ltd., China

ID: 351
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Compatibility & interoperability framework to facilitate the step-wise organic development of multi-terminal HVDC grids

C.A. PLET[1], D. VAN HERTEM[2], C. BRANTL[3], M. WANG[2], H. EVANS[4], J.N. MOORE[7], C.T. NIEUWENHOUT[5], A ARMENI[6]
[1]DNV; [2]KU Leuven; [3]RWTH Aachen; [4]CarbonTrust; [5]RU Groningen; [6]TenneT; [7]

ID: 380
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Mid-term Electricity Storage Needs of the Power System of Cyprus

Pantelis DRATSAS[1], George PSARROS[1], Stavros PAPATHANASIOU[1], Dimitrios EVAGOROU[2], Andreas FRIXOU[2], Andreas POULLIKKAS[2]
[1]NTUA, Greece; [2]CERA, Cyprus

ID: 556
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Implementation and Application of the Demand Response Mechanism and the Concept of Active Energy Complexes for the Development and Improvement of the Efficiency of UPS of Russia

M.A. KULESHOV[1], K.A. DATSKO[2], S.A. UTTS[1]
[1]JSC SO UPS; [2]JSC NTC UPS

ID: 557
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Technical Feasibility Study of Bornholm Energy Island Transmission System

L. ZENI, L. DALL, B. ISMAIL, M. SEMENYUK, T. HAASE, S. POULLAIN, A. BERTINATO, C.A. PLET
CIGRE Denmark, Denmark

ID: 586
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects
Keywords: Energy Storage System, System Planning, Renewable Energy, solar photovoltaic, Grid Connection

Energy Storage Planning and Grid Connection Analysis for Renewable Energy in Kinmen

Ping-Heng HO[1], Shen-Jen HSIAO[1], Tsun-Yu HSIAO[1], Peter Yuinhong LIU[2], Chen-Han WU[1], Yung-Fu WANG[1]
[1]Taiwan Power Company (Taipower); [2]Taiwan Electric Research & Testing Center

ID: 747
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Actions for the implementation of Energy Communities in Colombia

Jaime ZAPATA
XM S.A E.S.P.

ID: 782
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Cost of green hydrogen production The influence of electrolyser technology, res characteristics and regulation

Alessandro CLERICI
WEC Italy, IEEE

ID: 784
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Optimising Italian Electricity and Gas Sectors Coupling in a 2030 Decarbonized Energy System

Dario SIFACE
RSE, Italy

ID: 785
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects
Keywords: Dispatching – Flexibility - Storage - Operation - Operating Reserve – Interconnections – Renewables – Planning - Transmission Systems - Mixed Integer – KSA

KAIROS, An Innovative Tool for Planning Renewable Energies and Flexibility Options in the MENA Region: A case study on the KSA Power System

Marco STABILE
CESI S.p.A. Italy

ID: 811
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Combined HVDC system approach for offshore wind power integration and interconnection

Ying-Jiang HÄFNER, Sasitharan SUBRAMANIANS, S. R. CHOUDHURY
Hitachi ABB Power Grids, Sweden

ID: 909
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Interconnection of South Asia for exchanging Renewable Energy

Philippe LIENHART, Nicolas CHAMOLLET
EDF CIST

ID: 1029
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Storage and Demand Response inclusion in the network extension planning process

Raúl RODRÍGUEZ-SÁNCHEZ
TECNALIA

ID: 1095
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Methods to identify the optimal operating area of a grid booster

Markus GÖDDE[1], Michael DÖRING[2]
[1]UMLAUT ENERGY GMBH, Germany; [2]UMLAUT ENERGY GMBH, Germany

ID: 1096
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

Voltage Stability Risks Caused by Dynamic Interactions in Integrated Energy Systems

Jan-Peter HECKEL
Hamburg University of Technology

ID: 1097
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS2 - Energy Sector Integration and Tackling the Complexity of Multi-Faceted Network Projects

German HVDC corridors as starting points for a pan-European HVDC overlay grid

Matthias MUELLER-MIENACK
Energy Advisory & DNV GL Energy Advisory GmbH, Germany

PS 3 PLANNING UNDER UNCERTAINTY AND WITH CHANGING EXTERNAL CONSTRAINTS

ID: 197
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

A probabilistic Approach to stability Analysis for boundary transfer capability Assessment

Diptargha CHAKRAVORTY[1], G MCFADZEAN[1], G EDWARDS[1], M MCFARLANE[1], D GUTSCHOW[1], S ABDELRAHMAN[2], R AZIZIPANAH-ABARGHOOEE[2]
[1]TNEI Services, United Kingdom; [2]National Grid ESO, United Kingdom

ID: 226
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Unlocking the Queue with Grid-Enhancing Technologies

Jay CASPARY[1], Jesse SCHNEIDER[1], Bruce TSUCHIDA[2], Ted BLOCH-RUBIN[3], Jon MARMILLO[4], Pablo RUIZ[5]
[1]Grid Strategies LLC, United States of America; [2]The Brattle Group, United States of America; [3]Smart Wires, United States of America; [4]LineVision, United States of America; [5]NewGrid, United States of America

ID: 254
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints
Keywords: Adequacy, Operational Reserve, Flexibility, Uncertainty, Renewable sources

Long-term operational reserves evaluation of multi-area systems – Portuguese case study

Helena AZEVEDO[1], Nuno MARTINS[1], Rui PINTO[1], Ricardo PEREIRA[1], Sónia VILELA[1], Pedro CAROLA[1], Fernando BATISTA[1], Mário Bruno FERREIRA[1], Manuel MATOS[2,3], Leonel CARVALHO[2], Armando LEITE DA SILVA[2,4], Mauro ROSA[2,5], Pedro VIEIRA[2,5], Erika PEQUENO[2,5]
[1]REN, Portugal; [2]INESC TEC, Portugal; [3]Faculdade de Engenharia, Universidade do Porto, Portugal; [4]Pontifícia Universidade Católica do Rio de Janeiro, Brasil; [5]Universidade Federal de Santa Catarina, Brasil

ID: 345
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Load Forecast Modeling Based on Power Grid Dynamics under Covid-19 Impact

Hanyang XU, Kun JI, Shang GAO, Huihui LI, Sen LI, Xinjian HUANG, Xuechun JI
NARI Group Corporation, China

ID: 346
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

A resilient improvement planning method of AC/DC hybrid urban receiver-end power grid

Jianing JIAO, Lu LIU
Key Laboratory of Control of Power Transmission and Conversion of Ministry of Education (Shanghai Jiao Tong University), China

ID: 384
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints
Keywords: Short term load forecast, LSTM, Mean Absolute Percentage Error, MAPE, Support Vector Machine, SVM

LSTM Short Term Load Forecasting Networks under the COVID-19 influence

Mohamed ZAKARIA, Rania SWEIF
1 Ain Shams University, Egypt

ID: 392
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Effects of the COVID-19 Pandemic on Distribution Feeder Load Profiles

Vincent WESTFALLEN, Marina MONDELLO
Commonwealth Edison, United States of America

ID: 424
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Energy Planning considering Citizen Participation: Optimization Models at the Service of a Better Electrical Infrastructure Expansion for Chilean Society

Alex SANTANDER[1], Juan Carlos ARANEDA[2]
[1]Ministry of Energy; [2]Coordinador Electrico Nacional

ID: 425
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

BESS Parinas–Polpaico: Capacity Uprating of a 500 kV Transmission Line using Energy Storage

Alex ALEGRIA[1], Nicolas TURTURICI[2]
[1]Transelec; [2]Estudios Electricos

ID: 475
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Experience of Covid-19 Pandemic along with other extreme events in Indian Electricity Market and Progress of Market Reforms

K V N Pawan KUMAR
Power System Operation Corporation Limited

ID: 476
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

05- Minute Optimal scheduling of hydro stations in Northern Region in India

Rajesh KUMAR
Power System Operation Corporation Limited

ID: 555
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

The Gridmaster-toolbox, a step towards a new infrastructure investment paradigm

J. VAN DINTHER[1], M.G. VALIES[1], T. WURTH[1], R. CALON[2], M. VAN BLIJSWIJK[2], S.P. COUWENBERG[3], J.J. STERINGA[3], J. KWAKKEL[4], I. NIKOLIC[4]
[1]Siemens; [2]TenneT; [3]Gasunie; [4]TU Delft

ID: 598
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Introduction of Non-Firm Type Connection to Expand Introduction of Renewable Energy

Koichiro YAMAKI, Ryuji MIYAHARA, Nobuyuki KANEKO
TEPCO Power Grid, Inc.

ID: 678
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints
Keywords: network planning

Strategic planning of network expansion by considering different constraints and factors

Stefano GRASSI
Gilytics AG Switzerland

ID: 708
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Advanced IT Tools for Distribution Network Resilience Improvement: The X-FLEX Project Demo in Xanthi

Georgios TSIROPOULOS[1], Dimitrios STRATOGIANNIS[1], Stamatia GKIALA – FIKARI[1], Markos CHAMPAKIS[1], Dimitris TRAKAS[2], Efstratios PAPOUTSIS[2], Vasilis BANOS[2], Angeliki Lydia Antonia SYRRI[2], Nikos HATZIARGYRIOU[2]
[1]HEDNO, Greece; [2]NTUA, Greece

ID: 786
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

The innovative FlexPlan methodology to reap the benefits of including storage and load flexibility in grid planning: methodology and regional study cases

Gianluigi MIGLIAVACCA
RSE, Italy

ID: 801
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Calculation and application of actual capacity credit through analysis of the output pattern of renewable energy considering various environmental factors

Seunghee KIM, Hoyong LEE, Taeyoung YOON, Chongho RHIM
KEPCO, Korea, Republic of (South Korea)

ID: 807
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Determining optimal technical solutions for new transmission lines (OHL/UGC) in an early project stage to assess environmental impact and stakeholder involvement

Klemens REICH[1], Anita MACHL[1], Marc BAILLEUL[2], Rickard LUNDHOLM[3], Vaishally BHARDWAJ[3], Dirk VAN HERTEM[3]
[1]APG System Operator; [2]Borealis; [3]KU Leuven

ID: 812
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Active Network Management solutions and their financial implications on distribution grid development

Sofia NYSTRÖM[1], M EDVALL[1], E HILLBERG[1], M CSŐRE[2], B BOROVICS[2], I TÁCZI[2]
[1]RISE, Sweden; [2]E.ON Észak-dunántúli Áramhálózati Zrt

ID: 856
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Electricity Demand Forecasts Carried Out in Turkey and Their Relationship to Electricity Investments

Ertan TAŞKIRAN
Turkish Electricity Transmission Company (TEIAS) Turkey

ID: 1033
C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS
Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints
Keywords: methodology, macro-economic

Long-Term Demand Forecast For Oman Electricity Transmission System Master Plan (2020-2040)

Hisham AL RIYAMI[1], Aiman AL NAAMANI[1], Musabah AL SIYABI[1], Abdullah ALHABSI[1], Mohamed AL HASNI[2], M TARDIO[2], P VICINI[2]
[1]OETC Oman Electricity Transmission Company, Oman; [2]CESI Centro Elettrotecnico Sperimentale Italiano, Italy

ID: 1055

C1 POWER SYSTEM DEVELOPMENT AND ECONOMICS

Topics: PS3 - Planning Under Uncertainty and with Changing External Constraints

Estimating the relationship between electricity consumption and economic growth in Jordan 1990-2020: Forecasts for demand on electricity and economic growth.

Saif ALBAJALI

National Electric Power Company, Jordan, Hashemite Kingdom of

C2 - POWER SYSTEM OPERATION AND CONTROL

PS 1 SYSTEM CONTROL ROOM PREPAREDNESS: TODAY AND IN THE FUTURE

ID: 198
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Operational Metering, forecast & validation of effective Area Inertia

Stuart W A CLARK[1], D H WILSON[1], K HAY[1], A BLACKWELL[2]
[1]GE, United Kingdom; [2]National Grid ESO, United Kingdom

ID: 199
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Development and validation of new organisational Models and Systems for DER led Restoration

Christopher SALTER[1], M KENNY[1], D NNABUIFE[1], P CHANDLER[1], D GUTSCHOW[2], D CHAKRAVORTY[2]
[1]National Grid ESO, United Kingdom; [2]TNEI Services, United Kingdom

ID: 224
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Automated System-wide Event Detection and Classification Using Machine Learning on Synchrophasor Data

Mladen KEZUNOVIC[1], Zoran OBRADOVIC[2], Yi HU[3]
[1]Texas A&M University, United States of America; [2]Temple University, United States of America; [3]Quanta Technology, United States of America

ID: 230
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

A KDE-based Methodology for PMU Data Management and Real-time Event Detection

Yidan LU, Yuan KONG, Feng TU
American Electric Power Service Corporation, United States of America

ID: 352
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Potential and challenges of AI-powered decision support for short-term system operations

J.P. VIEBAHN[1], M. NAGLIC[1], A. MAROT[2], B. DONNOT[2], S.H. TINDEMANS[3]
[1]TenneT; [2]RTE; [3]TU Delft

ID: 387
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future
Keywords: Phasor measurement unit, synchro-phasors, power system operation, Smart grid, Hybrid State Estimation, observability, supervisory control and data acquisition system

Enhanced Performance of Developed Two-Step (Hybrid/PMU) Linear State Estimator Model

Shaymaa Mohamed KHAMIS
Egyptian Electricity Transmission Company (EETC)

ID: 402
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Wide-Frequency Measurement Technology for Power Electronics- dominated based Power Systems

Chen FAN, Jianguo YAO, Yijun YU, Yimin NI, Renhui DOU, Yanping WU, Haidong ZHANG, Guoqing ZHAO, Qing YANG
China Electrical Power Research Institute, China

ID: 426
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future
Keywords: renewable, low inertia, automatic generation control, WAMS/PMU, forecast

Challenges And Responding To The Booming Of Renewables In Vietnam's Power System

The Van NGUYEN, Duc Ninh NGUYEN, Xuan Duc DINH, Minh Quang NGUYEN, Anh Tuan NGUYEN, Thanh Trang NGUYEN
National Load Dispatch Center of Vietnam, Vietnam

ID: 479
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Experience of development and implementation of SOMS (System Operation Management Software)

M M HASSAN
Power System Operation Corporation Limited

ID: 481
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Reactive Power Management and Other Challenges with High Renewable Penetration: Case study of Indian grid

M VENKATESHAN[1], Suruchi JAIN[2]
[1]Power System Operation Corporation Limited; [2]Power System Operation Corporation Limited

ID: 482
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Impact of Silt on Hydro Stations of Northern part of Indian Power System and Enhancing the Resilience in Grid Operation through near Real Time Silt Monitoring

Nitin YADAV
Power System Operation Corporation Limited

ID: 484
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

A tool to detect Low frequency power system oscillations in real time using PMU data

Shashank TYAGI
Power System Operation Corporation Limited

ID: 550
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Synchrophasor-based Applications to Enhance Electrical System Performance in the Netherlands

M. POPOV[1], N. KUMAR[1], A. BORICIC[1], J. RUEDA[1], M. TEALANE[7], I TYURYUKANOV[1], M. NAGLIC[1], A. JONGEPIER[2], E. WIERENGA[3], M. VAN RIET[4], O. BAGLAYBTER[5], D. KLAAR[6]
[1]Delft University of Technology; [2]Enduris B.V.; [3]Stedin; [4]Qirion; [5]General Electric; [6]TSO TenneT; [7]

ID: 559
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Development of Dispatching Monitoring and Control Technology in Russia Based on PMU Data

M. GOVORUN, A. ZHUKOV, E. SATSUK, D. DUBININ
JSC "System Operator of the Unified Power System"

ID: 565
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Nonparametric Identification of Events in the Western Siberia Power System Based on Big Data Processing of PMU

I.M. GALIASKAROV, N.E. VASILENKO, M.Sh. MISRIKHANOV, V.N. RYABCHENKO, Yu.V. SHAROV, A.V. SHUNTOV
Russian National Committee of CIGRE, Russian Federation

ID: 579
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Re-establishing Functional Observability in a Control Center under Total Loss of Normal Communications using Time-Series Clustering

Mahendra PATEL[1], Papiya DATTARAY[2], Lakshmi SUNDARESH[1], Sujit TRIPATHY[1], Vikas SINGHVI[1]
[1]Electric Power Research Institute, United States of America; [2]Electric Power Research Institute, Ireland

ID: 635
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Applying Big Data Analytics to Demand Forecast in Island Power Systems towards Large Installation of Renewable Energy

Takayuki HIGO[1], Yuji HANAI[1], Kiyoshi TANAKA[2]
[1]Central Research Institute of Electric Power Industry; [2]Kyushu Electric Power Transmission and Distribution Co., Inc.

ID: 636
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Development of New Integrated Stability Control System for Photovoltaics Introduction Expanding Grid Utilizing Artificial Intelligence

Yuuki KAWAURA[1], Nobutoshi SAITO[1], Daichi KATO[2], Ryo YAMAGUCHI[2], Masaru TAKEISHI[2]
[1]Chubu Electric Power Grid Co., Inc.; [2]Hitachi, Ltd.

ID: 743
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Implementation of a Substation Restoration System based on a Knowledge Base linked to a SCADA Platform

Byungtae JANG
KEPCO, Korea, Republic of (South Korea)

ID: 745
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Cloud-Native Platform for Automation of Real-Time Operation & Control

Juan NORENA
XM S.A E.S.P.

ID: 787
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future
Keywords: Wide Area Monitoring Protection and System, interarea oscillations, Phasor measurement units, Dynamic Mode Decomposition

Wide Area Monitoring and Protection System for interarea oscillations suppression in the Italian power system

Cosimo PISANI
TERNA S.p.A. Italy

ID: 873
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future
Keywords: RTCA, PFC, Decision support tools, control room operation

Development of Innovative Power Flow Controller-compatible RTCA Decision Support Tools for Enhancing Control Centre Operations

Medha SUBRAMANIAN, Marie HAYDEN, Marta VAL ESCUDERO, Mark RAFFERTY, Eoin KENNEDY, Adrian KELLY
Cigre Irish National Committee, Ireland

ID: 913
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Transient Stability Enhancement through the control of embedded HVDC transmission systems. Grid2030 RITSE project

Juan Carlos GONZALEZ-TORRES, A BENCHAIB, H BEKKOURI, A GHYSELINCK, L FILLIOT, A CORDON, L CORONADO, S MARTINEZ
SUPERGRID INSTITUTE

ID: 985
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Resilience Enhancement Applications in Operational Planning and Control for the TSO of Serbia

Ninel CUKALEVSKI[1], Goran JAKUPOVIC[1], Nikola OBRADOVIC[2]
[1]Institute Mihajlo Pupin, Serbia; [2]JSC Elektromreza Srbije, Serbia

ID: 987
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Demonstration Project of Low Carbonization and Advancement by Online Optimized Control of Transmission System Voltage and Reactive Power utilizing ICT

Jittipath TRIYANGKULSRI, Nawanat EUA-ANANT
TNC-CIGRE, Thailand

ID: 1005
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Handling intra-zonal constraints in the upcoming European balancing Markets

Gerard DOORMAN, M. HÅBERG, A. STRØMSNES ØVERJORDET, L. WARLAND, H. MÆLAND, Å. TVEITE
Statnett SF, Norway

ID: 1032
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

New voltage control service and VOLTAIREE project

Juan PEIRÓ
Red Eléctrica de España

ID: 1034
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Testing of Power Oscillation detection algorithm using a Real-Time PMU laboratory

Aníbal PRADA
Fundación CIRCE

ID: 1098
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Training platform for proof of future dispatcher tools

Matthias MUELLER-MIENACK[1], André LEHMANN[2]
[1]Energy Advisory & DNV GL Energy Advisory GmbH, Germany; [2]DNV GL Energy Advisory GmbH, Germany

ID: 1100
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Ad-Hoc Determination and Activation of Remedial Actions in Electro-Thermal System Operations

Andreas KUBIS[1], Jan KEMPER[2]
[1]PSI Software AG, Germany; [2]PSI Software AG, Germany

ID: 1128
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS1 - System Control Room Preparedness: Today and in The Future

Machine Learning Using PMU Data to Predict Small Signal Disturbances

Teboho MACHABE
Eskom Holdings Limited

PS 2 OPERATIONAL PLANNING STRATEGIES, METHODOLOGIES AND SUPPORTING TOOLS

ID: 159
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Brazilian Power System Operation Under Extreme Operating Conditions - Recent Examples and Proposals to Face Future Challenges

P GOMES[1], M SANTOS[2]
[1]UERJ/PSQ; [2]Independent Consultant

ID: 160
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Brazilian Interconnected Power System - Implementation of Wind Power Farm in Restoration Process: Practices and Experience

A GUARANI[1], N MACIEL[2], L DUDA[2]
[1]Independent Consultant; [2]ONS

ID: 161
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Brazil's Embedded HVDC Systems – Operation Planning Challenges

M NOLI, B SESSA, J CAMELO, V GUALTER
ONS – Operador Nacional do Sistema Elétrico

ID: 200
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Inertia Measurements in the UK Power System used for operations and planning Improvements

Brian BERRY[1], J ERNST[1], A BLACKWELL[2], S REID[3]
[1]Reactive Technologies, United Kingdom; [2]National Grid ESO, United Kingdom; [3]Scottish and Southern EN, United Kingdom

ID: 228
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Approach to Distribution PMU Placement and Observability Analysis

Shikhar PANDEY[1], Heng CHEN[1], Esa Aleksi PAASO[1], Farnoosh RAHMATIAN[2]
[1]Commonwealth Edison, United States of America; [2]NuGrid Power Corp, United States of America

ID: 386
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools
Keywords: Blackout- power system restoration - electrical degree centrality

Power System Restoration Based on Electrical Degree Centrality

Azmi FARID[1], Omar ABDALLAH.[2], Alaa NOORELDIN[2], Adel EMARY[3]
[1]1 Kureimat Power Station; [2]2 Helwan University; [3]3 National Control Center

ID: 405
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Challenges and Countermeasures on Operational Planning with High Penetration of Renewable Energy Sources: Chinese Experience and Prospect

Qinyong ZHOU, Shanshan ZHAO, Libo ZHANG, Hailei HE, Dan HUANG, Haoyue GONG
State Key Laboratory of Power Grid Safety and Energy Conservation (China Electric Power Research Institute), China

ID: 408
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Influence of the Fault Ride-Through Control Strategy of Wind Turbines on the Transmission Power of UHVAC/DC

Shiyun XU, Huadong SUN, Wei QIU, Deyang GUO, Bing ZHAO, Gongwei XI, Yingkun ZHOU, Chen LV
China Electric Power Research Institute, China

ID: 427
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Low Demand Operation of a Grid with High Share of Inverter-Based Resources - South Australian Case Study

Nilesh MODI, A JALALI
AEMO

ID: 487
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Implementation of New Dispatch Formulation and Software for Tertiary Frequency Control Reserves in Indian Power System

Saif REHMAN
Power System Operation Corporation Limited

ID: 488
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Evolution of Renewable Energy Monitoring Centre in Southern Regional Grid: Experience through Data, Forecasting and Challenges

P Sarath BABU
Power System Operation Corporation Limited

ID: 548
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

State Estimation in Medium Voltage Distribution Networks using Pseudo-Measurements

N. SAI SUPRABHATH[1], Anton ISCHENKO[2], Simon TINDERMAND[1], Peter PALENSKY[1]
[1]Delft University of Technology; [2]Phase to Phase

ID: 554
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Transition to a new regional coordination framework

D. WEIß[7], U. ZIMMERMANN[1], J.-F GAHUNGU[7], J. VAN ROOST[2], J. MØLLER BIRKEBÆK[3], T. KAPETANOVIC[4], R. PAPROCKI[5], D. KLAAR[6]
[1]TSCNET Services; [2]Coreso; [3]Nordic RSC; [4]APG; [5]PSE; [6]TenneT TSO; [7]No Organisation

ID: 637
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

V2G Demonstration Using Business-use Electric Vehicles -Verification of Simultaneous Control of the Peak Shift and the Frequency Adjustment Considering the Daily Vehicles Operation-

Yukio NEZU[1], Takahiro SUGA[1], Yuj HOSOKAWA[1], Naoshi WATANABE[2]
[1]TOYOTA TSUSHO CORPORATION; [2]Chubu Electric Power Grid Co., Inc

ID: 640
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Developing a configurable Inverter Based FFR solution and field testing on a grid-connected storage asset

V.N. SEWDIEN[1], J. KLUNDER[2], D. BECKER HOFF[2]
[1]TenneT TSO; [2]S4 Energy

ID: 680
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools
Keywords: power system, blackout, machine learning, algorithm

Prediction of possible power system blackout risk with machine learning algorithms

Mert KARACELEBI[1,2], Alexandre OUDALOV[1], Yi WANG[2], Panagiotis PAPADOPOULOS[3]
[1]Hitachi ABB Powergrids Switzerland; [2]ETH Zurich Switzerland; [3]University of Strathclyde UK

ID: 711
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Smart Grid Flexibility Solutions for Transmission Networks with Increased RES Penetration

Ioannis GONOS[1], Christos CHRISTODOULOU[1], Christos DIKAIAKOS[2], Christos VITA[1], Elias ZAFIROPOULOS[1]
[1]ICCS/NTUA, Greece; [2]IPTO, Greece

ID: 721
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools
Keywords: support tool;advances analytics;topology

Application of a decision support tool using advanced analytics for the day ahead topology optimisation process

Guillaume ROVAI[1], Oskar GRABARCZYK[2], Florian SASS[2], Pierre ARTOISENET[3], Wolf BERWOUTS[3]
[1]ELIA; [2]50hertz; [3]N-Side

ID: 770
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

The Changes and Challenges of the Operation of Korea Power System in the Transition to Green Energy

Byoungyoon SHIN, Sung-Moo LEE
Korea Power Exchange, Korea, Republic of (South Korea)

ID: 790
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

France-Italy Link: an outlook foreseen for the real-time operation of the HVDC interconnection

Matteo CONTU
TERNA S.p.A. Italy

ID: 791
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Islanded Operation of the HV/MV network: a Dynamic Study based on a Real-Life Experiment Data

Chiara VERGINE
TERNA S.p.A. Italy

ID: 798
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Quantifying the impact of Synchronous Inertial Response and Fast Frequency Response to Frequency Stability for high share of Renewables in HVDC interconnected Jeju system

Seunghyuk IM[1], Jaeyeop JUNG[1], Namki CHOI[1], Byongjun LEE[1], Hongseok CHOI[2], Jeonghoon SHIN[3]
[1]Korea University, Korea, Republic of (South Korea); [2]Korea Power Exchange, Korea, Republic of (South Korea); [3]Korea Electric Power Research Institute, Korea, Republic of (South Korea)

ID: 916
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Year-ahead operational planning in an evolving system through Multi-Situation

Jonathan BAUDIER, N CATRIX, M COUAILLIER, R DELACHAUX, A DUPRE, A GOURMELON
RTE France

ID: 927
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools
Keywords: CONGESTION MANAGEMENT, CONSTRAINT, GENERATION SHIFT FACTOR, RENEWABLE GENERATION, AUTOMATED ANALYSIS

Automated Approach to Congestion Management for System with High Penetration Renewable Energy

Dairine FRAWLEY, John GING, Diarmaid GILLESPIE
Cigre Irish National Committee, Ireland

ID: 942
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Practical experience of using fully automated centralized voltage regulation in transmission system

Renata RUBEŠA
HRO CIGRE, Croatia

ID: 986
C2 POWER SYSTEM OPERATION AND CONTROL
Topics: PS2 - Operational Planning Strategies, Methodologies and Supporting Tools

Deep Learning Application for Power Generation Forecasting of VRE in Thailand

Jarudate VORASEE, Somphop ASADAMONGKOL, Somruedee TIPMABUTR
TNC-CIGRE, Thailand

C3 - POWER SYSTEM ENVIRONMENTAL PERFORMANCE

PS 1 SETTING AMBITIOUS CLIMATE STRATEGIES IN THE ENERGY SECTOR

ID: 162
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Inserting Crucial Environmental Issues into Energy Planning: Paths for Carbon Reduction

R FURTADO, M FURTADO, E FLORISSI, M FURTADO, M SILVA
Diversa Consultancy on Sustainability

ID: 163
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Indigenous Vulnerability and Corporate Climate Change Strategy for the Electricity Companies in Brazil

K GARCIA, L PAZ, W SILVA, I RAUPP, D MATOS, C VASCONCELLOS
Electrical Energy Research Center (CEPEL)

ID: 231
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Strategies for Decarbonizing Energy Utilities

Jaydeep DESHPANDE
Eversource Energy, United States of America

ID: 413
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

The Future Landscape of China's Power System and Its Contribution to the 2060 Carbon Neutrality Target

Baoguo SHAN, Jiangtao LI, Yuzhuo ZHANG
State Grid Energy Research Institute Co., Ltd., China

ID: 561
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Business Diversification of Coal Mining Enterprises Based on the Development of CMM Utilization Infrastructure

Kirill VARNAVSKIY[1,2], Fedor NEPSHA[3,4], Roman KOSTOMAROV[4]
[1]"KFR Energy", LLC; [2]Shandong University of Science and Technology (PRC); [3]"INTELAB", LLC; [4]T.F. Gorbachev Kuzbass State Technical University

ID: 681
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector
Keywords: climate, switzerland

Climate indicators for Switzerland

Valentin CRASTAN
Bern University of Applied Sciences Switzerland

ID: 710
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector
Keywords: energy transition, decarbonization, sustainable development, large scale PVPP, abandoned coal mines

Photovoltaic Power Plants on degraded Mining, Slag and Ash dump Areas – a Contribution to Coal Region Transition Processes

Ajla MERZIC, Nedzad HASANSPAHIC, Elma REDZIC, Elvisa BECIROVIC, Nedim TURKOVIC, Almin REDZIC, Anes KAZAGIC, Mustafa MUSIC
JP Elektroprivreda BiH, Sarajevo, Bosnia and Herzegovina

ID: 722
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector
Keywords: carbon assessment;climate strategy;Elia

From a carbon assessment to an ambitious climate strategy for the Elia Group

Vincent DU FOUR, R. SEGETH, Igor LEFEBVRE
ELIA

ID: 765
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Techno-economic impact of large-scale RES integration in Saudi Arabia

J YASIN[1], M ALGHAMDI[1], A ALI[1], M HUSSAIN[1], M FARHAN[1], M ALZAID[1], B DUPONT[2], B NERINCX[2], C DUBOIS[2], P HENNEAUX[2], R FAHMI2[2], J DUBOIS[2], K KAROUI[2]
[1]SAUDI ELECTRICTY COMPANY,KSA; [2]ENGIE IMPACT

ID: 846
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector
Keywords: guarantees of origin, energy certification, renewable energy sources, transportation

Expanding energy certification through guarantees of origin and energy tracking scheme in transportation sector - Lessons learned from the adaptation in the Czech Republic

Igor CHEMISINEC, Michal PUCHEL, Martin STANDERA
OTE, a.s., Czech Republic

ID: 918
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Electric solidarity: how to preserve solidarity in a context of intensive innovation?

Antoine GOUTALAND[1], Nathalie DEVULDER[2], Vincent RINGEISSEN[2], Blanche SEGRESTIN[1], Kevin LEVILLAIN[1]
[1]MINES ParisTech; [2]RTE France

ID: 921
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Biomimicry and energy, a systemic eco-design approach to address the challenges of the energy and ecological transition

Pierre MEYER[1], Eliot GRAEFF[2], F GUEGUEN[2], L.M. PETIT[2], Nathalie DEVULDER[1], Kalina RASKIN[2]
[1]RTE France; [2]CEEBIOS

ID: 923
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

The TSO contributions to the decarbonization of the European economy

Amélie LAFRAGETTE[1], C LELONG[1], M GRESSET BOURGEOIS[1], A PRADA[1], M SISINNI[2], A.M. FIORELLA[2]
[1]RTE France; [2]TERNA SpA

ID: 1006
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Statnett's challenges and response to commit to an ambitious climate and environmental strategy

Line ØSTHAGEN
Statnett SF, Norway

ID: 1037
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Science based targets, emission reduction and carbon neutrality strategies for TSO companies. Experience in Spain

Mercedes VÁZQUEZ
Grupo Red Eléctrica

ID: 1101
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Regional Sustainability Assessment of Energy Systems: Integrating Stakeholder Perspectives and Conditions on a Regional Scale

Britta BUCHHOLZ[1], Witold POGANIETZ[2]
[1]Hitachi ABB Power Grids, Germany; [2]Karlsruhe Institute of Technology, Germany)

ID: 1102
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS1 - Setting Ambitious Climate Strategies in the Energy Sector

Transition to Climate Neutral, Safe and Sustainable Power Grids - Benefits for Society, Grid Operators and Manufacturers

Dirk HELBIG[1], Shibani BOSE[2]
[1]Siemens Energy, Germany; [2]Siemens Energy, Germany

PS 2 BIODIVERSITY AND THE SUPPLY OF ELECTRICITY, RENEWABLES-BASED OR NOT: RISKS, CHALLENGES, SOLUTIONS AND OPPORTUNITIES

ID: 164
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS2 - Biodiversity and the Supply of Electricity, Renewables-Based or Not: Risks, Challenges, Solutions and Opportunities

Peixe Vivo Program: Long-Term Actions for Fish Conservation in Dammed Brazilian Rivers

R FONTES, M CASTRO, R FIORINE
Cemig Geração e Transmissão SA

ID: 390
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS2 - Biodiversity and the Supply of Electricity, Renewables-Based or Not: Risks, Challenges, Solutions and Opportunities
Keywords: Egyptian Electricity Holding Company (EEHC) - Burullus Power Plant (BPP) – Critical Habitat Assessment (CHA) – Critical Habitat (CH) – Biodiversity Action Plan (BAP), Egyptian Environmental Affairs Agency (EEAA), International Finance Corporation (IFC)

Biodiversity Accommodation in the Burullus Power Plant Project Selection and Preservation of a Potential Protected Offset Area

Marwa Mansour HUSSEIN, Maher Aziz BEDROUS, Ismail Yehya ELSAWY
Egyptian Electricity Holding Company

ID: 530
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS2 - Biodiversity and the Supply of Electricity, Renewables-Based or Not: Risks, Challenges, Solutions and Opportunities

The Characteristics of Mitigation Measures in Japan for the Impact of the Power Transmission Line on the Biodiversity

Soh KOBAYASHI, Masaki SHIRAI
CRIEPI

ID: 723
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS2 - Biodiversity and the Supply of Electricity, Renewables-Based or Not: Risks, Challenges, Solutions and Opportunities
Keywords: biodiversity;ecological corridor;areas

Largely biodiversity improved after 10 years from ecological corridor management in forested and Natura 2000 areas

Johan MORTIER, J.-F. GODEAU
ELIA

ID: 924
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS2 - Biodiversity and the Supply of Electricity, Renewables-Based or Not: Risks, Challenges, Solutions and Opportunities

Exploring Submarine power cables from offshore wind farms Environmental Impacts

Lisa GARNIER[1], B TAORMINA[2], A CARLIER[3], M LEJART[2], D SAFFROY[1]
[1]RTE France; [2]France Energies Marine; [3]IFREMER - DYNECO-LEBCO

ID: 988
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS2 - Biodiversity and the Supply of Electricity, Renewables-Based or Not: Risks, Challenges, Solutions and Opportunities

A study of Hydro-floating Solar Hybrid Project impact on aquatic biodiversity : Case study for the Thailand's largest Hydro-floating Solar Hybrid Project at Sirindhorn Dam, Ubon Ratchathani Province

Kamolkarn KIJAWATWORAWET
TNC-CIGRE, Thailand

ID: 1007
C3 POWER SYSTEM ENVIRONMENTAL PERFORMANCE
Topics: PS2 - Biodiversity and the Supply of Electricity, Renewables-Based or Not: Risks, Challenges, Solutions and Opportunities

Employing Remote Controlled Goats for Vegetation Management in Transmission Line ROW

Ellen TORSÆTER
Statnett SF, Norway

PS3 ENVIRONMENTAL AND SAFETY ASPECTS FROM OHL (JOINT PS WITH B2)

See B2 PS3

C4 - POWER SYSTEM TECHNICAL PERFORMANCE

PS 1 CHALLENGES AND ADVANCES IN POWER QUALITY (PQ) AND ELECTROMAGNETIC COMPATIBILITY (EMC)

ID: 165
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Comparison of Harmonic Study Results with Long Term Measurements to Propose a more Realistic Way to Represent the System Impedance in Harmonic Performance Studies

M CARLI, B MEYER
CGT Eletrosul

ID: 166
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Analysis of Harmonic Propagation and Line Asymmetry Effect in Transmission Systems

R SALLES, P RIBEIRO
Federal University of Itajubá

ID: 167
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Application of a Methodology for Determining Voltage Harmonic Contributions in a Low-Voltage Busbar

I SANTOS, B GIANESINI, G TRONCHA, R GREGORY., C AZEVEDO, V BRITO
Federal University of Uberlândia

ID: 168
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

A Comparative Study of Different Strategies for Reactive Power Control to Mitigate Overvoltage Caused by PV Connection

M TEXEIRA[1], P BLOCK[2], P AMEIDA[3], F GARCIA[3]
[1]Federal University of Paraná; [2]Institute of Technology for Development; [3]Bree Energy Efficiency

ID: 169
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

A Hosting Capacity Methodology for Brazilian Distribution Networks

I VISCONTI, M ROSADO
Eletrobras Cepel

ID: 215
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Transformer Configuration Impacts on Transient Phenomena in Inverter-Based Resource Dominated Distribution System - a Case Study

Fnu MAIGHA, Sean CARR, Andreas BRANDT, Mohit SINGH
Commonwealth Edison, United States of America

ID: 232
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Frequency-Domain Modelling and Validation of DFIG Wind Turbines Considering Frequency Cross-Coupling

Amir {Reza} KAZEMI, Ignacio VIETO, Min LWIN
GE Energy Consulting, United States of America

ID: 293
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

High-Density Distributed Sensor Network for Monitoring Grid Events

Theo LAUGHNER[1], Robert KING[2], Bob MARSHALL[4], Jon WELLINGHOFF[3]

[1]Lifescale Analytics, United States of America; [2]Good Company, United States of America; [3]Grid Policy, United States of America; [4]Whisker Labs, United States of America

ID: 415
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Assessing the Risk of Geomagnetic Disturbance on Power System from the Perspective of Steady-State Security Region

Chunming LIU, Xiyan GUAN, Yiqiao HU
North China Electric Power University, China

ID: 428
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Critical Review of Harmonic Assessment Procedures for Transmission Customers

Tim BROWNE[1], Vic GOSBELL[2], R A BARR[3]
[1]Qualis Power; [2]University of Wollongong; [3]Electric Power Consulting Australia

ID: 490
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Impact of Distributed Generation & Renewable Energy Generation on Grid - study experiences of Sub-Transmission and Distribution Grid of Western Region in India

Pravinchandra MEHT
Persotech Solutions

ID: 522
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Theory and Application of Multi-Frequency Interaction Screening Method

Kaitlyn BABIARZ, David ROOP, Samantha MORELLO
Mitsubishi Electric Power Products, Inc., United States of America

ID: 526
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Countermeasures against Voltage Flicker by Photovoltaic Inverters with Islanding Detection Function occurred in Wide Area Network

Satoru AKAGI[1], Jun YOSHINAGA[1], Naoki HAYASHI[2], Satoshi UEMURA[3], Tomoaki SHOJI[3], Takayuki NAKAJIMA[4]
[1]TEPCO Power Grid, Inc.; [2]TEPCO Holdings, Inc..; [3]Central Research Institute of Electric Power Industry; [4]Denryoku Computing Center, Ltd.

ID: 527
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Review of Harmonic Characteristics in Japanese Electric Power System

Naotaka OKADA
CRIEPI

ID: 541
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Impacts of Energy Transition on Voltage Dips in Future Networks: An Analysis for the Dutch Grid

R. TORKZADEH[1], J.B.M. VAN WAES[2], G. MULDER[1], V. CUK[1], J.F.G. COBBEN[1]
[1]Eindhoven University of Technology; [2]TenneT TSO BV

ID: 542
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Integration of Photovoltaic (PV) plants into the railway electricity network of the Netherlands: Impact on the operation of the railway network and grid code compliance assessment.

M. POIKILIDIS[1], R. HEUCKELBACH[1], T. PLOEG[1], F. TEN HARVE[2], G. OLDE MONNIKHOF[2]
[1]DNV; [2]ProRail

ID: 563
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Tendencies in Harmonic Distortion in Meshed Transmission Systems with High Amount of Underground Cables

B.S. BUKH, C.L. BAK, F.F. DA SILVA, C.S. HANSEN, V. AKHMATOV
CIGRE Denmark, Denmark

ID: 816
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

EMC Simulation Method for Multi-Level VSC HVDC Converters

Gustaf SANDBERG[1], Thomas WEISSL[1], D COTTET[2], A SCHRÖDER[2], G ERIKSSON[1]
[1]Hitachi ABB Power Grids, HVDC, Sweden; [2]Hitachi ABB Power Grids Power Grids Research, Switzerland

ID: 818
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Swedish voltage quality regulation development for the challenges imposed by the energy transition

Johanna ROSENLIND[1], Herlita BOBADILLA ROBLES[1], Susanne ACKEBY[2], Daniel KARLSSON[2], M BOLLEN[3]
[1]Energy Markets Inspectorate (Ei), Sweden; [2]DNV, Sweden; [3]Luleå University of Technology, Sweden

ID: 925
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Harmonic studies performed by RTE for wind farm connection

Quentin PIRAUD, Xavier-Marie VIEL, Julien MICHEL
RTE France

ID: 926
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

DC Power Quality assessment on real MVDC and LVDC power systems

Xavier YANG[1], J FEI[2], H MIAO[2], Xavier NIU[3]
[1]EDF R&D France; [2]JS EPRI; [3]EDF R&D China

ID: 928
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Guide for Defining Harmonic Impedance of Wind and Solar Power Plants for AC Harmonic Performance Assessment of VSC-HVDC Systems

Philippe TREMOUILLE[1], Karolina CARVALHO[2], Juan-Carlos URREGO[1]
[1]GE France; [2]GE UK

ID: 944
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Impacts of Transmission System Design Principles on geomagnetically induced Currents in the Finnish Transmission Grid

Lauri ALA-MUTKA[1], Antti HARJULA[1], Liisa HAARLA[1], Krishnat PATIL[2]
[1]Fingrid Oyj; [2]Siemens

ID: 1013
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Evaluation of voltage harmonics trends based on field measurements on the Irish transmission network

Kahraman YUMAK, Roberto ZUELLI, Daphne SCHWANZ, Alan ROGERS
Cigre Irish National Committee, Ireland

ID: 1103
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS1 - Challenges and Advances in Power Quality (PQ) and Electromagnetic Compatibility (EMC)

Measurement and Simulation of Harmonic Propagation in Transmission Systems

Robert STIEGLER[1], Jan MEYER[2]
[1]Technische Universität Dresden, Germany; [2]Technische Universität Dresden, Germany

PS 2 CHALLENGES AND ADVANCES IN INSULATION COORDINATION AND LIGHTNING RESEARCH

ID: 170
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Guidelines for Selecting Underground Cable Models for Transient Studies with Focus on the Ground Representation

R ALIPIO[1], A CONTI[2], N DUARTE[2]
[1]Federal Centre of Technological Education (CEFET-MG); [2]Federal University of Minas Gerais (UFMG)

ID: 312
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Influence of arrester volt-ampere characteristics and system switching mode on traditional lightning protection safety assessment method of UHVAC substation and a new assessment method

Xiujuan CHEN, Tiantian LU, Ting LEI, Weidong SHI
China Electric Power Research Institute, China

ID: 349
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Analysis of measurements and calculations on tower footing impedances in transmission lines

I. TANNEMAAT[1], C.S. ENGELBRECHT[2], B. KÜCHLER[3]
[1]TenneT TSO; [2]EPRI; [3]University of Applied Sciences Zittau/Görlitz

ID: 528
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Lightning Performance Assessment of Japanese Medium-Voltage Overhead Distribution Lines considering Regional Characteristics

Kazuyuki ISHIMOTO[1], Koji MICHISHITA[2], Takashi EGUCHI[3], Tomoyuki SATO[4], Hitoshi SUGIMOTO[5], Yuusuke KOKUBO[6]
[1]CRIEPI; [2]Shizuoka University; [3]TEPCO HD; [4]Tohoku Electric Power NW; [5]Hokuriku Electric Power; [6]Kansai Electric Power NW

ID: 549
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Sympathetic Interaction Phenomena in an AC Offshore Grid: An Investigation Analysis of a C-Type Harmonic Filter Trip Incident & Lessons Learned

K. VELITSIKAKIS[1], M. LIMPENS[1], M. KRANSSE[2], C. ENGELBRECHT[3]
[1]TenneT TSO; [2]Eurovolt Consultancy; [3]Engelbrecht Consulting

ID: 569
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Evaluation of the Effectiveness of the External Protection System Against Lightning

Raúl BIANCHI LASTRA, Carlos WALL, Beatriz BARBIERI, Patricia ARNERA
IITREE-FI-UNLP

ID: 749
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Transmission Line Failure Forecast due to Lightning based on Historical Data

Leonardo PORRAS
INTERCOLOMBIA

ID: 809
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Analysis of Transient Measurements in Transmission Systems Correlation with Network Protocol Data and Lightning Location System Data

Lukas SCHWALT, Matthias MAURER, Stephan PACK
Graz University of Technology

ID: 823
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Semi-probabilistic insulation coordination procedure for HVDC converter stations

Liliana AREVALO, Alexander BILOCK, S SATHISH, A HERMANSSON
Hitachi Power Grids, HVDC, Sweden

ID: 850
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research
Keywords: Lightning events, automatic system, automatic evaluation, lightning evaluation.

System for Automatic Evaluation of Lightning Effects on Transmission Line and Substation Equipment

Martin SVANCAR[1], Martin KNENICKY[1], Lubomir KOCIS[1], Radek OVESNY[2], Petr SPURNY[2], Radek PROCHAZKA[3]
[1]EGU - HV Laboratory a.s., Czech Republic; [2]CEPS a.s., Czech Republic; [3]Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic

ID: 1012
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research
Keywords: Series compensation, transient overvoltages, transient recovery voltage, EMT simulations, insulation coordination

Overvoltage Simulation Studies for a series compensated Transmission Line in a meshed series compensated Network

Olli-Pekka JANHUNEN, Minna LUOJUS, Pauli PARTINEN, Liisa HAARLA
Fingrid Oyj

ID: 1038
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS2 - Challenges and Advances in Insulation Coordination and Lightning Research

Harmonic Filters Characteristics Effects in the Switching Manoeuvre Transient

Juan CHACÓN
Arteche Smart Grid

PS 3 CHALLENGES AND ADVANCES IN POWER SYSTEM DYNAMICS

ID: 202
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Converter driven Oscillation in Power Systems with high penetration of Renewables

Xiaolin DING[1], C LI[2], J LIANG[2], X WU[3]
[1]National Grid, United Kingdom; [2]Cardiff University, United Kingdom; [3]Global Energy Interconnection Research Institute, China

ID: 203
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Intricacies of Thevenin equivalent Measurements in Power Systems, what they measure and how they work.

Daniel GHEORGHE, B BERRY
Reactive Technologies, United Kingdom

ID: 204
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Review and assessment of system strength Requirements in Scotland

Samuel GORDON, K BELL, Q HONG
University of Strathclyde, United Kingdom

ID: 205
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Real Time simulation and demonstration of Black Start on Transmission Networks using Distributed Energy Resources (DER)

Bharath PONNALAGAN[1], I L COWAN[1], M H RAHMAN[1], B MARSHALL[1], O D ADEUYI[1], N MILLER[2]
[1]The National HVDC Centre, United Kingdom; [2]Scottish Power Energy Networks, United Kingdom

ID: 233
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Frequency Response Improvements Case Study of the Dominican Republic (DR) Electric Grid - Reliability Assessment due to Expected 1000 MW Increase in Inverter-Based Resources (IBR's) in the Island Electrical System

Luis POLANCO[1], Jerry MARTINEZ[2], Franklyn OLIVO[3], Ivan VERAS[4]
[1]Power Systems Engineering LLC, United States of America; [2]Resonancia Ingenieria y Consultoria SRL, Dominican Republic; [3]Folivo Power Consulting SRL, Dominican Republic; [4]Organismo Coordinador del Sistema Electrico Nacional Interconectado, Dominican Republic

ID: 234
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

System Stability with Synchronous Condensers for Power Export from Inverter Dominant Generation Regions

Matthew RICHWINE[1], Nicholas MILLER[2]
[1]Telos Energy, United States of America; [2]HickoryLedge, United States of America

ID: 267
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Development of a Dynamic Equivalent for GMPC Testing

Anupama KONARA
Hatch

ID: 273
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Evaluation of the power system impact of retrofitted-power generation facilities based on the flexibility evaluation procedure

Heesung MOON, Sehwan CHUNG, Gilsoo JANG
Korea University

ID: 381
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Active and Reactive Power Control in an Island System Operated on Inverter-Based Resources

Apostolos PAPAKONSTANTINOU, Spyridon BOSMIS, Stavros PAPATHANASIOU
NTUA, Greece

ID: 492
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Investigation of dynamic behaviour of distance IEDs for weak infeed source & remedial solution

Umesh SEN
Power Grid Corporation of India Ltd.

ID: 529
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

New Concept of Next Generation Type Power System Reliability Control System based on RSDT (Real-time Smart Digital Twin)

Yoshihiro KITAUCHI, Tomoki KAWAMURA
Central Research Institute of Electric Power Industry, CRIEPI

ID: 571
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Coordinated Tuning of Power System Controllers using Multi-Objective Metaheuristic Algorithm for Dynamic and Voltage Stability

Enrique CHAPARRO VIVEROS[1], Yessica MONGES VILLASBOA[2]
[1]ITAIPU Binacional, Paraguay; [2]Parque Tecnológico de ITAIPU, Paraguay

ID: 581
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Transient Stability Analysis of Power Systems with High Penetration of Non-synchronous Generation

Istvan TACZI, Istvan VOKONY
Budapest University of Technology and Economics, Hungary

ID: 583
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Rethinking the system non-synchronous penetration (SNSP) metric

Pierluigi MANCARELLA[1], Julian EGGLESTON[2], Andrew HALLEY[3], Sebastian PUSCHEL[1]
[1]University of Melbourne; [2]Australian Energy Market Commission; [3]Tasmanian Networks

ID: 585
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

System strength support using grid forming energy storage to enable high penetrations of inverter-based resources to operate on weak networks

Stephen SPROUL[1], S CHEREVATSKIY[1], S ZABIHI[1], J ZIMMERMANN[1], A OUDALOV[2]
[1]Hitachi ABB Power Grids Australia; [2]Hitachi ABB Power Grids Switzerland

ID: 682
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics
Keywords: aggregated assets, power system, malfunction

Impact of aggregated assets in the power system

Walter SATTINGER[1], M. RAMIREZ[2], E. HILLBERG[3], R. SEGUNDO[2], A. OBUSEVS[2], A. CHACKO[4], D. CLAUSS[4], P. KORBA[2]
[1]Swissgrid Ltd; [2]ZHAW Switzerland; [3]RISE Sweden; [4]TIKO Switzerland

ID: 696
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Experimental Validation of a grid-following Wind Turbine connected to weak Grids

Hamid SOLTANI, Gert Karmisholt ANDERSEN, Torsten LUND, John Godsk NIELSEN
CIGRE Denmark, Denmark

ID: 724
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics
Keywords: Magnetic;simulations;risk assessment;live black start;test

Electro Magnetic Transient Simulations for risks assessment of a live black start test of an HVDC VSC

Fortunato VILLELLA, Nils CHARELS, Johan RIMEZ, Peter VAN MEIRAEGHE
ELIA

ID: 746
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

HIL testing of a Wide Area Voltage Control for the Colombian Power System

E. BERRIO
XM S.A E.S.P.

ID: 748
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Islanding Detection Evaluation Considering Different Load Models in a Distribution System with Inverter Based Generation

David SANCHEZ
Universidad Nacional de Colombia

ID: 761
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Flexibility requirements of the KSA Power System in presence of a massive development of renewable energies

Jamal YASIN[1], Mohannad ALGHAMDI[1], Pierluigi VICINI[2], Floris SCHULZE[2], Dario PROVENZANO[2]
[1]SEC , KSA; [2]CESI, Italy

ID: 764
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics
Keywords: FACTS, PV, CSP, RES, RoCoF, SCR

The Impact of Large Scale RES on the Saudi Electricity Transmission System

Jamal YASIN, M. ALGHAMDI, A. ALI
1SAUDI ELECTRICTY COMPANY, KSA

ID: 793
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Validation and application of the methodology to compute resilience indicators for the Italian Transmission System

Emanuele CIAPESSONI
RSE, Italy

ID: 814
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Assessment of the impact of simulation model complexity on frequency stability studies – case Nordic Power System

Niklas MODIG[1], Mikko KUIVANIEMI[2], Robert ERIKSSON[1]
[1]Svenska kraftnät, Sweden; [2]Fingrid Oyj, Finland

ID: 817
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Non-invasive testing of performance and stability of frequency containment reserves though machine-learning classification

Henrik EKESTAM
Energiforsk AB, Sweden

ID: 819
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Virtual MACH – A powerful simulation platform for HVDC and FACTS in present and future grids

J HERNANDEZ, S AUDDY, E KILANDER
SwedenHitachi Power Grids Sweden AB, Sweden

ID: 822
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Grid-Forming Control for STATCOMs – a Robust Solution for Networks with a High Share of Inverter-Based Resources

R HEYDARI[1], Luca BESSEGATO[1], T SOONG[1], J-P HASLER[1], A GRONDONA[1], T NEUMANN[2], K VENNEMANN[2], T HENNING[2]
[1]Hitachi ABB Power Grids, Sweden; [2]Amprion, Germany

ID: 857
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Cycle life assessment of battery energy storage systems for primary frequency control by rainflow counting algorithm

Mehmet CECECİ[1], Ercüment ÖZDEMİRCİ[2]
[1]The University of Firat, Turkey; [2]TEIAS (Turkish Electricity Transmission Coorp.),Turkey

ID: 929
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Ancillary services supervision with HIL and emonitoring new methods

Laurent CHATONNET[1], Thomas LESCARRET[2], Marc FLORES[1]
[1]EDF Hydro/DTG; [2]EDF/DPN/UNIE

ID: 930
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Inertia need and cost related to system splits for the future Continental Europe power system

Gregoire PRIME, N BOUSSONIIERE, M DESMARTIN, Xavier YANG
EDF

ID: 931
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Taking advantage of grid-forming BESS behaviour during major outages: contribution to improve the share of renewable energy in French isolated power systems

Guilherme SANTOS-PEREIRA, F BENAVENT, J WITKOWSKI, Gregoire PRIME
EDF

ID: 992
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Blackout and major disturbance events in Thai power system: Stability assessment, investigation, and prevention

Atsawin NUNTHACHAI
TNC-CIGRE, Thailand

ID: 1014
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Large network EMT modelling using cloud computing, including batch.

Geoff LOVE, P HOFBAUER
Cigre Irish National Committee, Ireland

ID: 1015
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Identifying regional inertia issues using graph theory and spectral clustering

Papiya DATTARAY, B GRAHAM, V SINGHVI, E FARANTATOS, A TUOHY
Cigre Irish National Committee, Ireland

ID: 1016
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics
Keywords: High Share of Inverter Based Resources, Transient Stability, Voltage Stability, Fast Frequency Response, Voltage Dip Induced Frequency Dip, System Non-Synchronous Penetration, Data Clustering.

Stability Analysis on the Power System of Ireland and Northern Ireland for Operation of 75% Non-Synchronous Renewable Generation.

Ismail IBRAHIM, M BAKHTVAR, D NEDIC, Emma FAGAN, Eoin KENNEDY
Cigre Irish National Committee, Ireland

ID: 1017
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics
Keywords: Phase Locked Loop, RMS Model, Near-Converter Control, Transient Stability Analysis, Voltage Dip, Voltage Oscillation, Renewables Penetration.

PLL controller's impact on the transient stability analysis for Ireland and Northern Ireland power system

Mostafa BAKHTVAR, DP NEDIC, I IBRAHIM, Emma FAGAN, Eoin KENNEDY
Cigre Irish National Committee, Ireland

ID: 1025
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Representation of renewable energy sources in dynamic stability analysis on large-scale power system model

Andrzej KĄKOL, Jan SMOTER, Maciej WILK
Institute of Power Engineering

ID: 1056
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Frequency Regulation for Low Inertia Power System with High Penetration of Photovoltaic System

Khaled AL-MAITAH[1], Abdullah AL-ODIENAT[2]
[1]Electricity Distribution Company, Jordan; [2]Al-Ahliay Amman University, Jordan

ID: 1057
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

The Transient Simulation of Battery Storage Connection to Utility Scale Solar Power Plant under low inertia Scenarios in the Jordanian System.

Ahmad TAHSEEN[1], Suad ALMATTAR[2]
[1]National Electric Power Company, Jordan, Jordan; [2]National Electric Power Company, Jordan, Jordan

ID: 1084
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Sub-synchronous resonance monitoring based on real time data

Jorge CABRERA, Manfred BENDRIÑANA
COES SINAC

ID: 1104
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Challenges for grid analysis in modern electrical energy systems

Carsten HEISING
Avasition GmbH, Germany

ID: 1117
C4 POWER SYSTEM TECHNICAL PERFORMANCE
Topics: PS3 - Challenges and Advances in Power System Dynamics

Argentina's Power System Stability Assessment for Itaipú – Yacyretá Interconnection

Félix GALLEGO, Víctor SINAGRA, Roberto MOLINA, Nicolás DE SAN JUAN
CAMMESA (Compañía Administradora del Mercado Mayorista Eléctrico SA)

C5 - ELECTRICITY MARKETS & REGULATION

PS 1 THE EVOLUTION OF MARKET DESIGN AND REGULATION TO INTEGRATE DISTRIBUTED ENERGY RESOURCES

ID: 171
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

Evolution and Changes of the Electricity Market to Integrate DER in the Brazilian Power System

S CISNEIROS
SJNC Consultoria

ID: 295
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

A Methodology to Determine the Locational & Temporal Value of DER

Kayla RUPPE, Nick BURICA
Commonwealth Edison, United States of America

ID: 391
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

Electricity Market and Cross-Border Interconnection: the Egyptian Prospective

Dalal HELMI, Hamada HAGGAG, Mohamed IBRAHIM, Yasser EL GAMMAL
Egyptian Electricity Holding Company (EEHC) EGYPT

ID: 493
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

Experience of Pilot Project on Five-Minute Metering and Settlement in Indian Electricity Market

Anupam KUMAR
Power System Operation Corporation Limited

ID: 599
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

The Uplift Payment Elimination Through Lagrangian Relaxation of the Redundant Constraints

Vadim BOROKHOV
LLC “En+development”

ID: 600
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

Consideration of Impact of Market Constraints on Integrated Energy Businesses

D.G. SHUVALOVA, D.A. SMIRNOVA
Nation Research University «Moscow Power Engineering Institute»

ID: 628
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

The role of Blockchain Technologies in Power Markets

David BOWKER[1], V BEREZOVSKY[2], M VUKOBRATOVIC[3], S JAIN[4], C LIMA[5], S MUKHERJEE[4]
[1]Independent, Australia; [2]NP Market Council, Russia; [3]Base58, Croatia; [4]POSOCO, India; [5]BEC, USA

ID: 725
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources
Keywords: decarbonizing;power markets;grids

Decarbonizing the electricity system – some implications for power markets and grids

Gerd KUPPER, Pierre HENNEAUX
ENGIE

ID: 726
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

The Overview of the Rule Design and Studies for Non-firm Access in Japan - Connect & Manage of Renewable Energy -

Hideki KIBATA[1], Takeshi YAMASHITA[1], Hiroshi IRIE[2], Akihisa SETTAI[2], Kazuhiko OGIMOTO[3]
[1]Tokyo Electric Power Company Holdings, Inc.; [2]Mitsubishi Research Institute, Inc.; [3]The University of Tokyo

ID: 824
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

Possible wind farm earnings from frequency regulation markets in Nordic power system – Issues, examples, and policies

Mattias PERSSON, Camille HAMON
RISE, Sweden

ID: 964
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

New Intraday Market Schemes and Binding Dispatch

Diana PEREZ
XM E.S.P. S.A

ID: 965
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

Opportunities and Challenges of Mainstreaming Distributed Energy Resources Towards the Transition to More Efficient and Resilient Energy Markets

Diana LOPEZ
XM E.S.P. S.A

ID: 993
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources
Keywords: Cross-border Electricity Trading, Renewable Energy Generations (REGs), Power System Security, Ancillary Services

Benefits of Cross-border Electricity Trading in Thailand Renewable Energy Integration

Worrapong WONGLIMAMORNLERT
TNC-CIGRE, Thailand

ID: 1009
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS1 - The Evolution of Market Design and Regulation to Integrate Distributed Energy Resources

The Nordic Balancing Model: Redefining balancing for a renewable future

Gerard DOORMAN, E. LINDBERG, G. NILSSEN, O. I. MOLSTAD STEINSHOLT, E. A. JANSSON, H. SVARE LORENTZEN
Statnett SF, Norway

PS 2 CHANGES TO MARKETS AND REGULATION TO ENHANCE RELIABILITY AND RESILIENCE

ID: 149
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Integration, Automation and Control - Energy and Fuel - Thermal Plant

D CAPETTA
CHAMBER OF ELECTRICITY ENERGY COMMERCIALIZATION - CCEE

ID: 172
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Application of Capacity Market Mechanisms – Security & Resilience for Brazilian Power Markets

X FILHO[1], J MELLO[2], H CHIPP[3]
[1]ABRAGET; [2]Thymos Energia; [3]Chipp Consulting

ID: 173
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Compensation for Curtailments of Renewable Generation in Brazil – Regulation Approved in MARCH 2021

S NETO, C SILVA, F CALABRIA, L MOREIRA, R RIBEIRO
National Electricity Regulatory Agency - ANEEL

ID: 174
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Innovative Markets for Mutual Sharing Assets of Electric Distribution Power and Data Transmission in Fiber Optic Infrastructure

IonyC NASCIMENTO[1], C SOUSA[1], A BONINI[1], H DINIZ[1], E SILVA[2], B AIRES[2], E COSTA[2], M MEDRANO[2]
[1]CEMIG D; [2]CPQD

ID: 240
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Beyond Expected Values: New Methods to Measure Resource Adequacy for Modern Power Systems

Derek STENCLIK[1], Aaron BLOOM[2], Gord STEPHEN[3], Wesley COLE[4], Armando FIGUEROA ACEVEDO[5], Aidan TUOHY[6]
[1]Telos Energy, United States of America; [2]NextEra Analytics, United States of America; [3]University of Washington, United States of America; [4]National Renewable Energy Laboratory, United States of America; [5]Black & Veatch, United States of America; [6]Electric Power Research Institute, United States of America

ID: 350
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Are imbalance price incentives to Balance Responsible Parties effective in a system with higher volatile RES integration?

F. NOBEL[1], M. FRANSEN[2]
[1]TenneT TSO; [2]ACER

ID: 416
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Multi-provincial joint security correction method based on provincial power markets

Zhi CAI, Yijun YU, Qiang DING, Wei HAN
China Electric Power Research Institute, China

ID: 601
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Development of Market Monitoring System with Regard of Unexpected Market Disturbances

N. ZAIKINA, D. KOZLOVSKIY, M. DOLMATOVA, S. KOGOTKOVA
Association “NP Market Council”

ID: 625
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Market design principles for reliability and resilience in the Australian NEM with high penetration of asynchronous generation and low inertia

Ian ROSE, D PRICE, D YEOWART, B VANDERWAAL, B JOSEPH
EY Australia

ID: 627
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Evolving system strength frameworks in the NEM

Julian EGGLESTON[1], David BONES[2], Christian ZUUR[1], James HYATT[1], Ed HAWKINS[1], David REYNOLDS[1], Jack O'BRIEN[2]
[1]Australian Energy Market Commission; [2]GHD Advisory Australia

ID: 705
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

A Methodology to Estimate the Reserve Capacity Needs in Balancing Markets- Application to the Greek Balancing Market

John KAMPOURIS, Panagiotis MANDOULIDIS, George PRIONISTIS, Vassilis ZIOGAS
IPTO, Greece

ID: 727
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Dealing with a severe Power Shortage due to Fuel Shortage

Takeshi IMAI, Norihiro SHIMIZU, Yuki KOMATSU
Kansai Transmission and Distribution, Inc.

ID: 728
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Evolution of Japanese Market Design and Regulation to secure appropriate Reliability and Price Rationalization

Yu TAKAMIZAWA[1], Kenichi SUGAHARA[1], Takao SHINJI[2], Akihiko YOKOYAMA[3]
[1]Chubu Electric Power Co., Inc.; [2]Organization for Cross-regional Coordination of Transmission Operators, Japan; [3]The University of Tokyo

ID: 750
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Challenges for the Colombian Electricity Market during COVID-19

Lizeth TAMAYO
XM S.A E.S.P.

ID: 755
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience
Keywords: RPI-X

Transmission Regulation: The Economic Regulation Applied for Oman Electricity Transmission Network

Alaa ALKIYAMI[1], Zahra ALRAWAHI[2]
[1]Muscat Electricity Distribution Company, Oman; [2]Oman Electricity Transmission Company, Oman

ID: 759
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

Synergies of Renewables Development and Grid Interconnection in the Middle East

Kaifeng YU, Lei HUANG, Tao YAN, Yi GAO, Chao GAO
GEIDCO, China

ID: 995
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience

The Challenge for Hybrid Firm “Hydro-Floating Solar: Case Study for the Largest Hydro-Floating Solar Hybrid Project at Sirindhorn Dam

Patpinit USAH
TNC-CIGRE, Thailand

ID: 1018
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience
Keywords: Reliability Options; Capacity Auctions; Mixed-Integer Programming; Net Social Welfare optimisation

Ensuring Efficiency in Capacity Markets - a Mixed Integer Programming approach

Mark CURRAN, Aodhagan DOWNEY, Varun SINGH, Dylan WALSH
Cigre Irish National Committee, Ireland

ID: 1019
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS2 - Changes to Markets and Regulation to Enhance Reliability and Resilience
Keywords: Electricity trading, market decoupling, interconnector trading, volatility, efficiency

A Post-Brexit Analysis of the Altered Market Conditions in the Single Electricity Market for Ireland and Northern Ireland.

Sam DALY
Cigre Irish National Committee, Ireland

PS 3 WORKING WITH INNOVATION AND DISRUPTION — PREPARING FOR THE FUTURE

ID: 235
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Carbon Pricing and Wholesale Electricity Markets - Key Impacts and Trends from Around the World

Anthony GIACOMONI
PJM Interconnection, United States of America

ID: 236
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Market Structure for a Decarbonized New York Electricity Market

Rana MUKERJI
New York Independent System Operator (NYISO), United States of America

ID: 494
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Reforms in Indian Electricity Market through Pan India Implementation of Real Time Market for Electricity

Gaurav VERMA
Power System Operation Corporation Limited

ID: 495
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

International Practices for Reactive Power, Short Circuit Power and Synchronous Inertia Compensation and Tariff Model Proposal for Pilot Synchronous condenser Implementation

Suneet MEHTA
NTPC Ltd.

ID: 602
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Vehicle-to-Grid as a Tool for Ensuring the Flexibility of Demand for Electric Energy when Reorienting Transport to Electric Vehicles

T.S. REMIZOVA[1], D.B. KOSHELEV[2]
[1]JSC "Administrator of the wholesale Electricity market trading system"; [2]JSC "Yantarenergo"

ID: 603
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Policy and Regulation for Energy Storage Systems in Energy Markets. A Case Study of Russia

V. BEREZOVSKY, A. SVIRIDOV, S. GAFAROV, A. PAVLYCHEVA
Association "NP Market Council"

ID: 604
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Spatiotemporal Effects of Nodal Marginal Pricing

T.A. VASKOVSKAYA
National Research University “Moscow Power Engineering Institute“

ID: 707
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Deployment and Evaluation of TSO-DSO-Consumer Coordination in a Market Environment

Nikolaos SAVVOPOULOS[1], Dimitris TRAKAS[1], Aris DIMEAS[1], Nikos HATZIARGYRIOU[1], Emmanouil VOUMVOULAKIS[2], Eirini LEONIDAKI[2], Markos CHAMPAKIS[2]
[1]NTUA, Greece; [2]HEDNO, Greece

ID: 932
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Implementation of a wholesale electricity market based on bilevel programming algorithm in Cyprus

Amritbir Singh GILL[1], Wan-Ying HUAN[1], Ioannis YIANNAKI[2], Nikos KANELAKIS[2], Konstantina MENTESIDI[2], Konstantinos PERRAKIS[2]
[1]GE Digital Services; [2]TSOC

ID: 947
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Development of Guarantees of Origin trading in Croatia within the European context

Mario KELAVA
HRO CIGRE, Croatia

ID: 1011
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Risk Evaluation for Ancillary Service

Omer HADZIC[1], Zijad BAJRAMOVIC[2], Irfan TURKOVIC[2], Adnan MUJEZINOVIC[2]
[1]Independent system operator in Bosnia and Herzegovina, Bosnia and Heregovina; [2]Faculty of Electrical Engineering, University of Sarajevo, Bosnia and Heregovina

ID: 1035
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Progressive Shift From PPA To Wholesale Competitive Power Industry : Framing The Transition For Saudi Arabia

Korsakaite DIANA
Elia Grid International, Belgium

ID: 1040
C5 ELECTRICITY MARKETS AND REGULATION
Topics: PS3 - Working With Innovation and Disruption — Preparing For the Future

Spanish Technical Standard (NTS) for grid connection of generation

Sergio MARTÍNEZ
Red Eléctrica de España

C6 - ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES

PS 1 DER SOLUTIONS AND EXPERIENCES FOR ENERGY TRANSITION AND DECARBONISATION

ID: 237
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation

A Microgrid Platform for V2G: Lessons Learned from the Arlington Microgrid

John GLASSMIRE[1], Hamideh BITARAF[1], Ryan SMITH[1], Scott GIBSON[2]
[1]Hitachi ABB Power Grids, United States of America; [2]Snohomish Public Utility District, United States of America

ID: 238
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation

Utility Energy Storage Use Cases, Health Monitoring, Data Analysis and Learnings (BESS)

Shikhar PANDEY, Will NATION, Aleksandar VUKOJEVIC
Commonwealth Edison, United States of America

ID: 311
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation
Keywords: Conservation Voltage Reduction, Energy saving, Hardware in the Loop

Control Strategy of Conservation Voltage Reduction for Energy Saving in Low Voltage Distributed Network

Saehwan LIM, Hyeong-Jun YOO, Gyeong-Hun KIM, Jihui HWANG, Jin-Oh LEE
KOREA ELECTROTECHNOLOGY RESEARCH INSTITUTE, Korea, Republic of (South Korea)

ID: 652
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation
Keywords: Operation Method, Protection Devices, MVDC, Microgrid System, Distributed Generators

Operation Method of Protection Devices in 5kV MVDC Microgrid System Interconnected with Distributed Generators

Daeseok RHO[1], Byungki KIM[2], Hosung JIN[3]
[1]Korea University of Technology & Education; [2]Korea Research of Energy Research; [3]Gana Engineering Institute

ID: 653
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation

Transient Operation Algorithm of CVCF Inverter-based Micro-grid System

Byungki KIM[1], Daeseok RHO[2], Hudong LEE[2], Donghyun TAE[2]
[1]Korea Research of Energy Research; [2]Korea University of Technology & Education

ID: 683
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation
Keywords: high speed, railway, power supply, power electronics, case studies

Improvement of high speed railway power supply utilizing power electronic solutions - case studies

Philippe MAIBACH
Hitachi ABB Powergrids Switzerland

ID: 712
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation

Two Years of Operation of the S4S Tilos Hybrid Power Station, Experiences and Lessons Learned

George PECHLIVANOGLOU[1], Vasilis KALAVROUZIOTIS[1], Evaggelos TSOUMAS[1], Vasilis TSIMARAS[1], Antonis MOUSTAKIS[1], Konstantinos KAOUSIAS[2], Haris KOURELIS[2]
[1]EUNICE ENERGY GROUP, Greece; [2]HEDNO, Greece

ID: 768
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation
Keywords: AHP model, PV technology, power generation, renewable, technologies

Sustainable Generation Expansion Planning (GEP) with renewables: A case study of Bahrain

Abdulla ALABBASI[2], Matthew LEACHA[1], Jhuma SADHUKHAN[1], Mohammed SANDUK[3]
[1]Centre for Environment and Sustainability, University of Surrey, United Kingdom; [2]Bahrain Center for Strategic, International and Energy Studies, Kingdom of Bahrain; [3]Chemical Engineering Department, University of Surrey, United Kingdom

ID: 920
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation

Fault Diagnosis Algorithm for Low Voltage Grids with Fast Charging Stations

Paschalia STEFANIDOU-VOZIKI
IREC

ID: 933
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation

Enablement program for large industrial electricity consumers to leverage their power demand flexibility: existing energy markets, reserve contracts, positive externalities. Use-case study of an aluminium smelter in the Netherlands.

Edouard PERROY, Romain SAINT-LEGER
ENERGY-POOL

ID: 1046
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation

Vehicles Smart Charging Management System in a Local Energy Community

Pascual MULLOR
Instituto Tecnológico de la Energía

ID: 1083
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS1 - DER Solutions and Experiences for Energy Transition and Decarbonisation
Keywords: v2g, electric vehicles, daily charge curve, pyomo

V2g technology and its impact on the daily load diagram: case se0062 - huancayo – peru

Leonidas SAYAS[1], Fidel MEDINA[2]
[1]OSINERGMIN; [2]Universidad Nacional del Centro del Peru

PS 2 INNOVATIVE PLANNING AND OPERATION OF ACTIVE DISTRIBUTION SYSTEMS

ID: 175
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Distributed Energy Resource Management System – Challenges and Opportunities

L LEITE[1], D ALVES[2], M NASCIMENTO[3], N TRIVED[4], B MARTINS[5]
[1]FITec, Brazil; [2]CEMIG, Brazil; [3]CONCERT, Brazil; [4]VRINDA, EUA; [5]SCHNEIDER, Brazil

ID: 206
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Directional power flow Monitoring in overhead line distribution Networks with high Penetrations of DER

Samuel C E JUPE[1], B O BREWIN[1], S R HODA[1], S PINKERTON-CLARK[2], S J HODGSON[3]
[1]Nortech Management Limited, United Kingdom; [2]Western Power Distribution, United Kingdom; [3]Nortech Management Limited, Norway

ID: 227
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Assessment and Mitigation of Temporary Overvoltages on Distribution Feeders with High Penetration of Distributed Energy Resources

Alex B. NASSIF
LUMA Energy, United States of America

ID: 239
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Investigating the Control Device Coordination in CVR and Solar PV Integrated Feeders using Geo-Spatial Solar Irradiance

Wen FAN, Md Shakawat HOSSAN, Sepideh FARD, Esa Aleksi PAASO
Commonwealth Edison, United States of America

ID: 268
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

A Power Hardware-in-the-Loop Infrastructure for DER Integration

Olivier TREMBLAY
Hydro-Québec

ID: 280
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems
Keywords: Distribution Network Reconfiguration, Hosting Capacity, Non-wire alternatives, Advanced distribution management system

Demonstration of Distribution Network Reconfiguration for increasing Hosting Capacity of Renewable Energy considering Multiple Constraints

Sung-Min CHO[1], Hyeong-Jin LEE[1], Won-Wook JUNG[1], Chang-hoon SHIN[1], Ja-Yoon KOO[2]
[1]Korea Electric Power Corporation Research Institute, Republic of Korea; [2]Hanyang University, Republic of Korea

ID: 281
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems
Keywords: High renewable, Distribution system, Self sufficient, Flexibility, Operation strategy

A Study on the Self-sufficient and Flexible Operation Strategies of Distribution System with High Levels of Renewable Energy

G. S. BYEON, H. C. JO, S. H. LIM, G. H. KIM, W. B. SON, K. H. CHO, J. Y. KIM, S. K. KIM
Korea Electrotechnology Research Institute, Korea, Republic of (South Korea)

ID: 298
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Utilizing DERMS & Utility Owned Weather Stations for High DER Penetration on the Distribution System

Nick BURICA, Beata OKRUTA, Imran RAHMAN, Heng {Kevin} CHEN, Marina MONDELLO
Commonwealth Edison, United States of America

ID: 393
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Power Grid Digital Twin EPRI's SPIDER Testbed Simulation and Benefits

Aditie GARG, Jithendar ANANDAN, Ahm JAKARIA, Rayhan MITHU, Ajit RENJIT
Electric Power Research Institute, United States of America

ID: 394
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Behind-the-Meter PV Estimation for Grid Operation

Aditie GARG, Sai Gautham NARLA
Electric Power Research Institute, United States of America

ID: 396
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Coordinated Solar PV-BESS Control in BCM: Algorithm, HIL Testing and Learnings with Different Solar Profiles

Niroj GURUNG, Honghao ZHENG, Heng CHEN, Aleksandar VUKOJEVIC
Commonwealth Edison, United States of America

ID: 421
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Voltage Management In Distribution Network

Won NAM KOONG, Won-wook JUNG, Chang Hoon SHIN
KEPCO, Korea, Republic of (South Korea)

ID: 496
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Analytic and Heuristic Optimal Reactive Power Management with Shunt Capacitors in Distribution System of Southern Regional Grid of India

Arthi Sahaya RONES V
Power System Operation Corporation Limited

ID: 508
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Analysis and a Conceptual Framework of Short-Term Planning Operation of South American Active Distribution Systems

Mauricio SAMPER, Mauro JURADO, Rodolfo ROSÉS
Institute of Electric Energy (IEE) - UNSJ - CONICET

ID: 523
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Volt-VAR Optimization and Benchmarking in a Pilot Project

Tanuj KHANDELWAL[1], Ahmed Y. SABER[1], Lo Chin KIM[2], Calvin Ku Shong CHING[2]
[1]ETAP, United States of America; [2]TNBR, Malaysia

ID: 524
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Smart Inverter Functions to Increase PV Hosting Capacity - A Case Study of New York Distribution Circuits

Jouni PEPPANEN, Huijuan LI, Devin VAN ZANDT
Electric Power Research Institute, United States of America

ID: 525
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Distributed Energy Resource Benchmark Models for Distribution Impact Assessment Developed by CIGRE Working Group C6.36

Jouni PEPPANEN[1], Jason TAYLOR[1], Daniel FONSECA[2], Josh SNODGRASS[3], Shengen CHEN[4]
[1]Electric Power Research Institute, United States of America; [2]Sinapsis – Inovação em Energia, Brazil; [3]POWER Engineers Inc., United States of America; [4]RLC Engineering PLLC, United States of America

ID: 593
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Development of Voltage and Power Flow Control Method for Distribution System Using Distributed Energy Resources

Satoshi UEMURA[1], Hiroyuki HATTA[1], Yasuhiro HAYASHI[2], Atsushi ISHIGAME[3], Jun YOSHINAGA[4], Kenjiro MORI[5]
[1]Central Research Institute of Electric Power Industry (CRIEPI); [2]Waseda University; [3]Osaka Prefecture University; [4]TEPCO Power Grid, Inc.; [5]Tokyo Electric Power Company Holdings, Inc.

ID: 594
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Economical and Technical Evaluation of Transformation from Existing Distribution System to Off-grid

Masato SHIRO[1], Tetsuya HIRAYAMA[1], Hideyasu HOKAZONO[1], Kazuyoshi HASHIKAWA[1], Tomonosuke MORI[2], Junichi KUMANO[2]
[1]Kansai Transmission and Distribution, Inc.; [2]Mitsubishi Electric Corp.

ID: 595
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Examination of NF-type Connection Power Supply for Interconnection to the Power Distribution System

Jun YOSHINAGA[1], Kazunari ISHIBASHI[1], Kazuki TAKAHASHI[1], Nozomi ANDO[2], Hiroaki OTAKE[2], Hiroshi IRIE[2]
[1]TEPCO Power Grid, Inc.; [2]Mitsubishi Research Institute, Inc.

ID: 596
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Voltage and Current Control of Transmission and Distribution Systems Utilizing Demand-side DERs

Shunsuke KAWANO, Keisuke YAMANE, Tomihiro TAKANO, Keishi MATSUDA
Mitsubishi Electric Corporation

ID: 605
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Medium Voltage Distribution Grid Future Planning Under Uncertainty Conditions

V.O. SAMOYLENKO[1], A.A. FIRSOV[1], P.V. ILYUSHIN[2]
[1]Ural Federal University; [2]Energy Research Institute of the Russian Academy of Sciences Russia

ID: 700
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

A Hybrid Heuristic Optimization Algorithm for the Rolling Day-Ahead Scheduling of Non-Interconnected Islands in Greece

Charalampos PAPPAS, Despina KOUKOULA, Stefanos KOKKINELIS, Argiro MAGANIOTI, Christos VITELLAS, Andreas REPPAS, Theodora PATSAKA
HEDNO, Greece

ID: 767
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

A method for Accurate Balanced Radial Distribution System Parameters Estimation

Mahmoud ALY, Mohamed NAYEL, Mansour MOHAMED, Mostafa MERAZY
Assiut University, Egypt

ID: 826
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Congestion Management in Distribution Systems with Large Presence of Renewable Energy Sources

Martin LUNDBERG[1], Olof SAMUELSSON[1], Markus MIRZ[2], Emil HILLBERG[3], Niel HANCOCK[4]
[1]Lund University, Sweden; [2]RWTH Aachen, Germany; [3]RISE Research Institutes of Sweden, Sweden; [4]E.ON Energidistribution, Sweden

ID: 827
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Power quality issues due to PV integration in distribution systems – Two Swedish case studies

Mattias PERSSON, Emil HILLBERG
RISE Research Institutes of Sweden, Sweden

ID: 858
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Analysis Of The Effect Of Solar Power Plants On Technical Losses In The Grid; Case Study: Kahramanmaras Region in Turkey

Fatma Avli FİRİŞ
AKEDAS Electricity Distribution Corporation Kahramanmaras, Turkey

ID: 859
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Economic Analysis of Stand Alone and Grid Connected Microgrid by Using HOMER

Mikail PURLU[1], Belgin Emre TURKAY[2], Sezen BEYARSLAN[3]
[1]Istanbul Technical University Turkey; [2]Istanbul Technical University Turkey; [3]Istanbul Technical University Turkey

ID: 934
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

An Adaptive Multi-Agent System for Grid Stability and Commitment Mismatch in Active Distribution Networks with Distributed Energy Resources and Electric Vehicles

Sharyal ZAFAR[1], H BEN AHMED[1], A BLAVETTE[2], G CAMILLERI[3], M.P. GLEIZES[3]
[1]ENS RENNES; [2]CNRS ENS RENNES; [3]Université de Toulouse

ID: 967
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

An Optimization-Based Approach for Real-Time Operation: The Colombian Experience

Jorge TOBON
XM E.S.P. S.A

ID: 971
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems
Keywords: Control in A.C Microgrids: Hierarchical Control, Technologies and Regulations

Control in AC Microgrids: Hierarchical Control, Technologies and Regulations

Jose RAMIREZ
Universidad del Valle

ID: 1044
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Active Network Management (ANM) Experiences in i-DE Networks

Cristina VILÁ
i-DE Redes Eléctricas Inteligentes

ID: 1058
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

The impact of voltage reduction on the energy demand in Jordan national grid

Hamzeh GHANEM
National Electric Power Company, Jordan

ID: 1105
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

ZellNetz2050 - A Concept for the Efficient and Effective Operation of Multi-Sector Cellular Energy Systems

Felix FLATTER[1], Sara MOHAMMADI[2]
[1]University of Kaiserslautern, Germany; [2]University of Kaiserslautern, Germany

ID: 1106
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Scenarios and field trials on active distribution grids in the German Kopernikus projects SynErgie and ENSURE

Peter NOGLIK[1], Tobias PLETZER[2]
[1]Hitachi ABB Power Grids, Germany; [2]Schleswig-Holstein Netz AG, Germany

ID: 1107
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Transitioning Industrial Grids to Renewable Energy - a Lighthouse Project

Sebastian WECK[1], Susanne SCHMITT[2]
[1]Hitachi ABB Power Grids, Germany; [2]Hitachi ABB Power Grids, Germany

ID: 1108
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Determination of Real-Time Interdependent Flexibility on multiple Grid Connection Points in an Active Distribution Network

Andreas KUBIS[1], Ankit SINGH[2]
[1]PSI Software AG, Germany; [2]PSI Software AG, Germany

ID: 1130
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Devising Models for the Integration of DER in Designated Zones in South Africa

Preshaan JAGLAL
Eskom Holdings Limited

ID: 1131
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS2 - Innovative Planning and Operation of Active Distribution Systems

Technological Interventions to maximise Benefits in Electrification Programme

MH XIVAMBU
Eskom Holdings Limited

PS 3 AGGREGATED DER FOR ENHANCING RESILIENCE, RELIABILITY AND ENERGY SECURITY OF DISTRIBUTION SYSTEMS

ID: 271
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems
Keywords: BESS, Flexibility, Islanded Systems, Laboratorial Testing

Laboratorial testing of island integration of BESS at 5% scale

Catarina JESUS[1], Luís Miguel ROCHA[2], Rui MARTINS[2], Isabel CATARINO[1]
[1]Faculdade de Ciências e Tecnologia – NOVA Lisboa, Portugal; [2]EDP Labelec, Portugal

ID: 331
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems
Keywords: VPP(Virtual Power Plant), DER(Distributed Energy Resources), DSO(Distribution System Operator), Cloud, Management

Demonstration of Cloud Based Management and Control System for in Korea

Seowoo LEE, Jinho LEE, Beomryeol CHOI, Hyeonjeong JO, Bogun JIN
HYOSUNG Corporation, Korea, Republic of (South Korea)

ID: 417
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems

Research on Operation Control Strategy of Low-voltage DC Microgrid Based on Improved Droop Method

Xiangbiao LENG[1], K. CHEN[2], Fei PENG[1], Haixiang YU[1], Junxin NIU[1], W. ZENG[1], Q. HONG[1]
[1]China Southern Power Grid Energy Development Research Institute Co., Ltd., China; [2]Rizhao Power Supply Company, State Grid Shandong Electric Power Company, China

ID: 497
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems

Case Study for Greening Island in Andaman

Dhirendra JOSHI[1], Subir KARMAKAR[2]
[1]NTPC Ltd.; [2]NTPC Ltd.

ID: 568
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems

Levelized Cost of Storage (LCOS) Analysis for Different Applications, Considering Degradation Models and the Residual Value of Lithium-ion Batteries

Jonathan LAYEDRA, Maximiliano MARTÍNEZ, Pedro MERCADO
Instituto de Energía Eléctrica, UNSJ - CONICET

ID: 806
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems

A Testbed-based Approach for the Resiliency Assessment of Multi-Microgrids

Michael SPIEGEL, Thomas STRASSER
AIT Austrian Institute of Technology GmbH

ID: 825
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems

Enhancing grid resilience and flexibility with sustainable data centers

Sten TROLLE[1], M GIESE[2], K LAINEZ AMAYA[1], A OUDALOV[3]
[1]Hitachi ABB Power Grids, Sweden; [2]Hitachi ABB Power Grids, Germany; [3]Hitachi ABB Power Grids, Switzerland

ID: 855
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems

A Research on Power Quality of Storage System in Photovoltaic Energy Generation Systems in Distribution Networks

Halil İbrahim AYDINÖZ
Turkish Electricity Transmision Corporation Turkey

ID: 1026
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems

Experimental comparative analysis of photovoltaic inverters profiles in relation to the European network code NC RfG, the technical standards and the requirements of distribution system operators

Zbigniew HANZELKA, Krzysztof CHMIELOWIEC, Łukasz TOPOLSKI, Aleks PISZCZEK
AGH University of Science and Technology

ID: 1047
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems

Evaluation and selection of key monitoring variables for estimating operational limits of the BESS in the grid connection through modelling approach

Juan GILABERT
Instituto Tecnológico de la Energía

ID: 1119
C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES
Topics: PS3 - Aggregated DER for Enhancing Resilience, Reliability and Energy Security of Distribution Systems
Keywords: Hybrid RES, mini-grid, rural electrification, energy storage, mini-grid control

Renewable Energy Hybrid Mini-Grid Concept for Rural Electrification in Georgia

Giorgi ARZIANI, Teona ELIZARASHVILI, Baia KVATADZE
Parvus Consulting, Georgia

D1 - MATERIALS AND EMERGING TEST TECHNIQUES

PS 1 TESTING, MONITORING AND DIAGNOSTICS

ID: 176
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Experience with Electrical Tests in UHVDC System for Safety Quantities Definition for Live Line Working

J CARDOSO[1], R GARCIA[1], F SILVA[1], A NIGRI[2], J GRAHAM[3], R COSTA[3], F ZUO[3]
[1]CEPEL; [2]Independent Consultant; [3]SGBH

ID: 177
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Integrity Evaluation of Thermal Power Plant based on Carbide Precipitation Sequence

H FURTDO, T SANTOS, R SANTANA, B CARDOSO, L ALMEIDA
CEPEL, UFRJ

ID: 178
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Methodologies Development for Power Transformers Incipient Faults Prediction Related to Particles Contamination and Bubble Formation

H WILHELM[1], P FERNANDES[1], L DILL[1], K MOSCON[1], C STEFFENS[1], S PERES[1], V BENDER[2], T MARCHESAN[2], J NETO[3]
[1]Vegoor Tecnologia Aplicada, Brasil; [2]Universidade Federal de Santa Maria, Brasil; [3]Santo Antônio Energia, Brasil

ID: 229
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics
Keywords: H2 Gas-Led, Stray, Catalytic and Chemical Reaction

The Analysis for the Diagnosis Method about H2 Gas-Led Issue according to Stray, Catalytic and Chemical Reaction for transformers in Service

J.K LEE, K.H LEE, D.H KIM
HYUNDAI ELECTRIC & ENERGY SYSTEMS CO., LTD., Korea, Republic of (South Korea)

ID: 309
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Novel Functional Graded Spacers for HVDC Compact Offshore GIS

Jin LI, Yufan WANG, Hucheng LIANG, Hang YAO, Boxue DU
Tianjin University, China

ID: 397
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Machine Learning Algorithm Trained by the Duval Pentagons - A Simplified DGA Approach

Luiz CHEIM
Hitachi ABB Power Grids, United States of America

ID: 398
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics
Keywords: high voltage bushing, dielectric frequency response, insulation assessment, temperature, leakage current

Effective Insulation Condition Assessment of HV and EHV Bushings under Critical Environmental and Operational Conditions

Diego ROBALINO[1], Peter WERELIUS[2], Ismail GUNER[3]
[1]Megger Group, United States of America; [2]Megger, Sweden; [3]Hydro Quebec, Canada

ID: 399
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Aging Assessment of High Accuracy Low Power Voltage Transformer

Mattewos TEFFERI[1], Elisa SCALA[2], Andrea NALLI[2], Nick NAKAMURA[1], Blair KERR[1], Laura MAZZOCCHETTI[3], Lorenzo PARETTO[3], Nenad UZELAC[1]
[1]G&W Electric Co., United States of America; [2]G&W Altea, Italy; [3]University of Bologna, Italy

ID: 418
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Study on the Linearity of UHV Lightning Impulse Voltage Measurement System

Wei ZHAO[1], Wei YAN[2], Haiming SHAO[1], Yi LI[2]
[1]National Institute of Metrology China, China; [2]National Measurement Institute Australia,Australia

ID: 587
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Determination of uncertainty contributions of voltage non-linearity of lightning impulse voltage measurement systems

Yi LI, W YAN
High Voltage Laboratory, National Measurement Institute, Australia

ID: 606
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Research on the Causes of Damage to High-Voltage Oil-Filled Equipment with a “Gas Blanket”

L.A. DARIAN[1], S.M. KOROBEINIKOV[2], V.A. LOGUNOV[3], R.M. OBRAZTSOV[1]
[1]JSC “Technical Inspection UES”; [2]Novosibirsk State Technical University (NSTU); [3]Federal State Unitary Enterprise «Russian Federal Nuclear Center – Zababakhin All– Russia Research Institute of technical Physics»

ID: 610
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

The Application of Artificial Neural Networks in the Diagnosis of High-Voltage Circuit Breaker

A.R. ROTBLYUT, D.A. PALFEROV, O.P. BUKRIN
OOO Elmash (UETM)

ID: 646
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Nondestructive Terahertz and Millimeter Wave Imaging for Underfilm Corrosion

Norikazu FUSE[1], Yasuhiko HORI[1], Tsuguhiro TAKAHASHI[1], Maya MIZUNO[2]
[1]Central Research Institute of Electric Power Industry; [2]National Institute of Information and Communications Technology

ID: 647
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

The Evaluation Method of Static Electrification in Aged Power Transformers Using Cellulose Fibers Suspended in Insulating Oil

Masanobu YOSHIDA[1], Hiroko ISAJI[1], Gaku SATO[2], Yoshinori KONISHI[2], Takayuki GOTOH[2]
[1]Chubu Electric Power Co., Inc.; [2]YUKA Industries. Co., Ltd.

ID: 684
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics
Keywords: HVDC, GIS, voltage dividers, diagnostic, testing

Diagnostic and testing on GIS voltage dividers for HVDC applications

Uwe RIECHERT[1], Erik SPERLING[2], Andreas DOWBYSCH[3]
[1]Hitachi ABB Powergrids Switzerland; [2]Omicron electronics GmbH Switzerland; [3]TU Dresden Germany

ID: 760
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics
Keywords: KAHRAMAA, Qatar, QTS, 220 kV, TBM to CBM

Partial Discharge V/s Noise in Online GIS Partial Discharge Monitoring Systems - Expérience of KAHRAMAA

Zuhair Al Shaiba AL SHAIBA, Yagneshkumar DAVE, Karimbanackal JABIR
KAHRAMAA , QATAR

ID: 830
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

On-load tap changer monitoring and protection by extra power loss and circulating current analysis

Nilanga ABEYWICKRAMA, Tord BENGTSSON
Hitachi ABB Power Grids Research, Sweden

ID: 831
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

On-load tap changer switching sequence monitoring – comparison of methods

Joachim SCHIESSLING[1], Cecilia FORSSÉN[1], Niklas GUSTAVSSON[2], L LIDÉN[2], B-O STENESTAM[2], Nilanga ABEYWICKRAMA[1]
[1]Hitachi ABB Power Grids Research Sweden, Sweden; [2]Hitachi ABB Power Grids Sweden, Sweden

ID: 861
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Design and verification of composite voltage calibrator applying the superimposed DC+LI and DC+SI voltages for the characterization of impulse recorder

Ahmet MEREV[1], Serkan DEDEOGLU DEDEOGLU[2]
[1]TUBITAK National Metrology Institute (UME) Turkey; [2]TUBITAK National Metrology Institute (UME) Turkey

ID: 883
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Requirements for Ultra High Frequency Partial Discharge Monitoring Systems for Gas Insulated Systems

Wojciech KOLTUNOWICZ, Glenn BEHRMANN, Matthias BOLZE, Andrea CAPRARA, Graeme COAPES, Fraser COOK, Jonathan FLOOD, Fernando GARNACHO, Hiroyuki HAMA, Thomas HUECKER, Carl JOHNSTONE, Junhao LI, Stefan NEUHOLD, Claus NEUMANN, S. OHTSUKA, S. OKABE, Sean PARSI, Jean-Francois PENNING, Ralf PIETSCH, Uwe RIECHERT, Toshiaki ROKUNOHE, Uwe SCHICHLER, Markus SOELLER, David TEMPLETON, Takanori YASOUKA
Omicron Energy

ID: 951
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics
Keywords: Dissolved gas analysis DGA, fault gas, fault diagnostics, condition monitoring

Determination of Gas Solubility Coefficients for dissolved Gas Analysis (DGA)

Senja LEIVO, Mikko ARONNIEMI, Sami VIRTANEN, Jarkko LARKIO, Toni MELLIN
Vaisala

ID: 952
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics
Keywords: Dissolved gas analysis, DGA, online monitoring, condition monitoring economics

Lifetime Cost of continuous online dissolved Gas Analysis (DGA) Monitoring

Toni MELLIN, Senja LEIVO
Vaisala

ID: 1049
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Requirements for Artificial Intelligence Platform addressed to Automatic Assessment of Insulation Condition of Indoor and Outdoor Installations through Partial Discharge Monitoring

Antonio SÁNCHEZ
Red Eléctrica de España

ID: 1050
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Optimized deployment of Online Partial Discharge Monitoring Solutions for Distribution Grids

Antonio GONZÁLEZ
Viesgo

ID: 1110
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Requirements, design principles and testing experience with composite voltages on a ±550 kV HVDC GIS voltage divider

Maria KOSSE[1], Erik SPERLING[2]
[1]Siemens Energy Global GmbH & CO. KG, Germany; [2]Omicron Electronics GmbH, Switzerland

ID: 1112
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Novel Fiber Optic Sensor Technology for Determining the DP Value of Insulating Paper for Transformers

Tobias MUENSTER[1], Peter WERLE[2]
[1]Leibniz Universität Hannover, Germany; [2]Leibniz Universität Hannover, Germany

ID: 1115
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Contribution to the standardisation of measurement of composite and combined high voltages

Ernst GOCKENBACH
Gottfried Wilhelm Leibniz Universität Hannover

ID: 1116
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

Impact of Different Blocking Elements on the DC-Impulse Composite Waveform

Andreas DOWBYSCH[1], Thomas GÖTZ[2]
[1]Technische Universität Dresden; [2]Technische Universität Dresden

ID: 1132
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS1 - Testing, Monitoring and Diagnostics

The Effect of Graphene as a Hydrophobic Additive on the Pollution Performance, Tracking and Erosion of Coatings when applied to AC and DC High Voltage Ceramic Insulators

B DU PLESSIS
Eskom Holdings SOC Ltd

ID: 129
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Simulation of Diffusion Behavior for New Insulating Gases

Ang XIAO[1], John OWENS[1], Rudi VAN SAN[2]
[1]3M Company, United States of America; [2]3M Belgium BVBA, Belgium

ID: 179
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Oxidation Susceptibility of Insulating Mineral Oil and Natural Ester at Different Oxygen Concentrations

P FERNANDES[1], H WILHELM[1], L DILL[1], K MOSCON[1], C STEFFENS[1], T ROCHA[2]
[1]Vegoor Tecnologia Aplicada, Brasil; [2]ENEL Distribuição São Paulo, Brasil

ID: 180
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Thermally Upgraded Kraft Paper Performance in Insulating System Using Natural Ester Tested According to IEEE STD C57.100

H WILHELM[1], P FERNANDES[1], L DILL[1], K MOSCON[1], C STEFFENS[1], R MAREK[2]
[1]Vegoor Tecnologia Aplicada, Brasil; [2]Consultant, United States

ID: 279
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Research on the application of the environmentally friendly insulating gas CF3I in Electric power apparatus

Yunkun DENG
Yunnan Power Grid Co., Ltd., China

ID: 365
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Transformer Oil GK: Operating Experience and Impact on the Reliability

D.A. VODENNIKOV[1], Y.V. ZHILKINA[2]
[1]Moscow cable network; [2]Federal Grid Company of Unified Energy System

ID: 400
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Dielectric Performance of Aramid Pressboard in Insulating Liquid

Robert C. BALLARD[1], Radoslaw SZEWCZYK[2], Tom PREVOST[3], Brad GREAVES[3]
[1]DuPont, United States of America; [2]DuPont, Poland; [3]Weidmann Electrical Technologies, United States of America

ID: 404
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

New Crosslinking Technologies for Polyethylene Insulated Power Cables

Paul CARONIA[1], Timothy PERSON[1], Jeffrey M. COGEN[1], Roshan AARONS[2], Caroline GRAND[3]
[1]Dow Chemical, United States of America; [2]Dow Chemical, Switzerland; [3]Dow Chemical, Spain

ID: 406
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Characterization of Extruded Material System for HVDC Cable Application

Timothy J. PERSON
Dow Inc., United States of America

ID: 419
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Investigation of Preparation and Properties of TiCN Coatings by Reactive Plasma Spraying

Wenyan QI, Siwei FU, Tian LI, Fang YE, Xunda ZHANG, Sensen GUAN
Tianjin Electric Power Corporation Electric Power Research Institute, China

ID: 498
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Ageing Study on Glass Fiber Composite Rod of Silicone Rubber Insulators

Nitin R SHINGNE
Electrical Research and Development Association (ERDA)

ID: 499
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Acceleration in corona induced degradation of polymeric insulator under low atmospheric pressure

Shakthi P DAS
Indian Institute of Technology, Goa

ID: 500
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Recommendations for IEC 60815-2 based on Functional Performance of Optimized HVCB Porcelain Insulators in Very Highly Polluted Environments

V BALAJI
GE T&D - India

ID: 607
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Changing of the Insulating Characteristics of Mixtures (Mineral Oil and Synthetic Ester) During Prolonged Exposure of Elevated Temperature

M. LYUTIKOVA[1], A. KONOVALOV[2], S. KOROBEYNIKOV[3]
[1]Federal Grid Company of Unified Energy System; [2]Rosseti; [3]Novosibirsk State Technical University

ID: 608
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

The Degradation Degree Control of the Hydrocarbon Base of Mineral Oils Using the Specific Degradation Marker in their Infrared Spectrum

M.Sh. GARIFULLIN[1], Yu.N. SLOBODINA[1], A.R. BIKZINUROV[1], R.A. GINATULLIN[2]
[1]Kazan State Power Engineering University; [2]Kazan National Research Technological University

ID: 609
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Universal Method for Assessing Oil-Filled Equipment Based on the Results of DGA

I. DAVIDENKO[1], K. OVCHINNIKOV[2], M. VLADIMIROVA[3]
[1]Ural Federal University; [2]quot;Energo-Diagnostics and Analytics" LLC; [3]quot;Massa LLC"

ID: 648
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Development of Sophisticated Cone-Type Insulating Spacer for 245 kV Class GIS by Functional Insulating Materials

Kenji OKAMOTO[1], Naoki HAYAKAWA[2], Masayuki HIKITA[3], Hitoshi OKUBO[4], Katsumi KATO[5], Naoki OSAWA[6]
[1]Fuji Electric Co., Ltd.,; [2]Nagoya University; [3]Kyushu Institute of Technology; [4]Aichi Institute of Technology; [5]National Institute of Technology, Niihama College; [6]Kanazawa Institute of Technology

ID: 649
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Nanofiller Dispersion Effect on Insulation Performances of Epoxy Nanocomposite Material: Electroluminescence, Breakdown Strength and Electrical Insulation Lifetime

Takahiro UMEMOTO[1], Shigeyoshi YOSHIDA[1], Takahiro MABUCHI[1], Hirotaka MUTO[1], Muneaki KURIMOTO[2], Kazuyuki TOHYAMA[3]
[1]Mitsubishi Electric Corporation; [2]Nagoya University; [3]National Institute of Technology, Numazu College

ID: 650
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Joint R & D Project on the Development of Electric Power Equipment using new Functional Insulating Materials

Kazuo ADACHI[1], Hirotaka MUTO[2], Kenji OKAMOTO[3], Yoshikazu HOSHINA[4], Nobutaka FUJIMOTO[5]
[1]Central Research Institute of Electric Power Industry; [2]Mitsubishi Electric Corporation; [3]Fuji Electric Co., Ltd.; [4]Toshiba Energy Systems and Solutions Co.; [5]Sumitomo Seika Chemicals Co., Ltd.

ID: 685
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes
Keywords: residual quartz, lifetime, C-130, alumina porcelain, high voltage insulator

Impact of the residual quartz to the expected lifetime of C-130 alumina porcelain high voltage insulator

Markku RUOKANEN[1], M. VRABEC[1], A. TRNIK[2], O. AL-SHANTIR[2], D. MIKUSOVA[2]
[1]PPC Insulators Switzerland; [2]Constantine the Philosopher University in Nitra Slovakia

ID: 828
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Test methods and criteria for validation of functional properties of composite insulators related to materials and interfaces

Susannelgor GUTMAN[1], Andreas DERNFALK[1], Johan LUNDENGÅRD[1], Peter SIDENVALL[1], A DECKWERTH[2], K VERLI[3], M LEONHARDSBERGER[4], P TRENTZ[5], K VÄLIMAA[6], P MEYER[7], K HALSAN[8], Milan RADOSAVLJEVIC[9]
[1]I2G, Sweden; [2]50Hertz, Germany; [3]Amprion, Germany; [4]APG, Austria; [5]E.ON, Germany; [6]Fingrid, Finland; [7]RTE, France; [8]Statnett, Norway; [9]Svenska kraftnät, Sweden

ID: 829
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Mechanical strength of pressboard materials under dynamic compressive stress

Orlando GIRLANDA[1], L.E. SCHMIDT[1], P HEINZIG[2], S MUMCU[3], R SZEWCZYK[4], Stefan ÖSTLUND[5]
[1]HITACHI ABB POWER GRIDS, Sweden; [2]WEIDMANN; [3]ENPAY; [4]DU PONT; [5]KTH ROYAL INSTITUTE OF TECHNOLOGY, Sweden

ID: 865
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Investigation of Novel Solid Dielectric Material for Transformer Windings

Fatih ATALAR[1], Alper AYDOĞAN AYDOĞAN[2], Aysel Ersoy YILMAZ[3]
[1]Department of Electrical and Electronic Engineering, İstanbul University Cerrahpasa; [2]Department of Electrical and Electronic Engineering, İstanbul University Cerrahpasa; [3]Department of Electrical and Electronic Engineering, İstanbul University Cerrahpasa

ID: 982
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Differences in ageing pattern and production/consumption of ageing markers in kraft and thermally upgraded papers immersed in mineral and natural ester oil

Jelena LUKIC[1], Jelena RANKOVIC[1], Draginja MIHAJLOVIC[1], Lars Erik SCHMIDT[2], Mark JOVALEKIC[3]
[1]Electrical Engineering Institute Nikola Tesla, Serbia; [2]Hitachi ABB Power Grids, Germany; [3]PUCARO Elektro-Isolierstoffe GmbH, Hitachi ABB Power Grids, Germany

ID: 1027
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Thermal faults simulation for aramid insulation in liquid immersed power transformers

Radosław SZEWCZYK[1], Roger C. WICKS[1], Leonardo GALHARDO[1], Helena M. WILHELM[2], Paulo O. FERNANDES[2], Lais P. DILL[2], Camila STEFFENS[2], Kethlyn G. MOSCON[2], Sergio M. PERES[2]
[1]DuPont; [2]Vegoor Tecnologia Aplicada

ID: 1048
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Fingerprinting and testing methods of RTV Silicone-Coatings for Glass Insulators

Héctor DE SANTOS
Verescence La Granja Insulators

ID: 1109
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Compatibility of Transformer Materials with Insulating Liquids

Ivanka HOEHLEIN[1], Veronika HARAMIJA[2]
[1]Siemens Energy, Germany; [2]Koncar Institute, Croatia

ID: 1113
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Experimental investigations on electro-thermal ageing of EPDM for HVDC cable joints

Isabella NETT[1], Marvin BENDIG[2]
[1]RWTH Aachen University, Germany; [2]RWTH Aachen University, Germany

ID: 1114
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS2 - Materials for Electro Technical Purposes

Investigations on the long-term performance of Fluoronitrile-containing gas mixtures in gas-insulated systems

Karsten JUHRE[1], Hansgeorg HAUPT[2]
[1]Siemens Energy, Germany; [2]TU Darmstadt, Germany

PS3 SIMULATION TOOLS PARTENERED WITH MEASUREMENT TECHNIQUES

ID: 181
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS3 - Simulation Tools Partnered With Measurement Techniques

Evaluation of the Electrical Performance of Insulation in High Voltage Equipment Under the Effects of Contaminants Usually Neglected on Ordinary Electric Field Calculations

C ARRUDA[1], A MARTINS[2], F OLIVEIRA[1], O FILHO[1]
[1]CEPEL; [2]CEMIG GT

ID: 269
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS3 - Simulation Tools Partnered With Measurement Techniques

Development and Implementation of Transformer Condition Monitoring Models for the Interpretation of Sensor and SCADA Data

Patrick PICHER
Institut de recherche d'Hydro-Québec (IREQ)

ID: 272
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS3 - Simulation Tools Partnered With Measurement Techniques
Keywords: Infrared thermography, PV modelling, single-diode model, irradiance, temperature

Power generation by unhealthy photovoltaic modules

Rita RAIMUNDO[1], André COELHO[2], Rui MARTINS[2], Isabel CATARINO[1]
[1]Faculdade de Ciências e Tecnologia - NOVA Lisboa, Portugal; [2]EDP Labelec, Portugal

ID: 935
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS3 - Simulation Tools Partnered With Measurement Techniques

Development of new simulation tools for high voltage circuit-breakers filled with g3 gas mixture

Philippe ROBIN-JOUAN[1], G PERNAUDAT[1], V AUBRECHT[2], P KLOC[2], S GORTSCHAKOW[3], D UHRLANDT[3]
[1]GENERAL ELECTRIC; [2]Brno University of Technology -; [3]Leibniz Institute for Plasma Science and technology -

ID: 1111
D1 MATERIALS AND EMERGING TEST TECHNIQUES
Topics: PS3 - Simulation Tools Partnered With Measurement Techniques

Use of Multiphysics Simulation Tools for Building a Digital Twin of Power Transformers

Stefan TENBOHLEN[1], Chandra Prakash BEURA[2]
[1]University of Stuttgart, Germany; [2]University of Stuttgart, Germany

D2 - INFORMATION SYSTEMS & TELECOMMUNICATION

PS1: The opportunities and challenges brought by emerging Information and Communication Technologies to Electric Power Utilities in their path to Digital Transformation

ID: 182
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Application of Artificial Intelligence Tools for Optimized Maintenance Scheduling based on Asset Management Concepts

M ALVES[1], G GOMES[1], M PINTO[1], R FEHLBERG[1], C URAS[1], D ARAUJO[1], S GIROTO[1], G MOURA[1], A CAMPOS[2], R DIAS[2], F SILVA[2], I SIQUEIRA[3], R FLAUZINO[4]
[1]RADICE TECHNOLOGY; [2]CEB; [3]TECNIX; [4]USP

ID: 183
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Use of Drones and Augmented Reality in Transmission Pre-Auction Studies

R PARANA., M FILHO., R MOREIRA., J GODOY
COPEL

ID: 407
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Artificial Intelligence-based Circuit Breaker Monitoring in IEC 61850 Digital Substations

Alex APOSTOLOV
OMICRON electronics, United States of America

ID: 410
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Building a National Infrastructure for Artificial Intelligence on the Grid

Sean MURPHY[1], Kevin JONES[2], Theo LAUGHNER[3]
[1]PingThings, Inc., United States of America; [2]Dominion Energy, United States of America; [3]Lifescale Analytics, United States of America

ID: 420
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

An Intelligent Devices Management and Collaborative Computing Technology in Cyber Power Physical System

Pengtian GUO, Daoxing LI, Zhixiang JI, Xiaohui WANG
China Electric Power Research Institute Co. Ltd., China

ID: 501
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Asset Mapping & Vulnerability Assessment using GIS Tools-Powergrid Experiences

Pankaj MAHATA
Power Grid Corporation of India Ltd.

ID: 502
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Digital Transformation of Indian Electricity Market through Implementation of National Open Access Registry (NOAR)

Subhendu MUKHERJEE
Power System Operation Corporation Limited

ID: 532
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

The advanced Applications for Equipment Maintenance utilizing the latest Information and Communication Technologies of Japanese Electric Power Utilities

Hiroyukie HATTORI[1], Makoto KUBO[2]
[1]Electric Power Development Co., Ltd.; [2]Tohoku Electric Power Network Co., Inc.

ID: 536
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

A Study on Diagnosis and Pattern Analysis of Partial Discharge of Underground Transmission Cables Using Deep Learning Ensemble Model

Mijeong JUN
KEPCO KDN, Korea, Republic of (South Korea)

ID: 613
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Employing the Digital Platform for Intelligent Control of Distributed Energy Resources

A. NEBERA[1], S. KOVALYOV[2], N. SHUBIN[1], V. PERELYGIN[1], K. PEREVALOV[1], A. ANDRIEVSKY[1], F. NEPSHA[1], M. KRASILNIKOV[1]
[1]INTELAB, LLC; [2]Institute of Control Sciences V.A. Trapeznikov Academy of Sciences

ID: 616
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Implementation of a Decision Support System for Unaccounted Electricity Consumption Detection Using Machine Learning Methods

D.A. AKIMOV, I.P. VOLTOV, O.V. TURKINA
Joint-stock company «Federal Test Center» (JSC «FTC»)

ID: 618
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Machine Learning Approach for Power Flow Control in Congested Grids with Large Share of Variable Energy Resources

E.A. TSYDENOV, A.V. PROKHOROV
National Research Tomsk Polytechnic University

ID: 619
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Application of Modern Time-Series Analytics Tools to Improve Peak Load Management and Planning the EPU Development

Pavel LITVINOV[1,2], Sergey NESTEROV[1,2]
[1]RTSOFT JSC; [2]INTELAB LLC

ID: 620
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Power Grid Diagrams Import Automation as a Part of a Digital Twins Development Process

Anton A. NEBERA
RTSoft-Smart Grid, OOO

ID: 621
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Methodology of High-Voltage Equipment Life Cycle Management Based on Intelligent Cyber-Physical Systems

A.I. KHALYASMAA[1,2], S.A. EROSHENKO[1,2], P.V. MATRENIN[2]
[1]Ural Federal University named after the first President of Russia B.N. Yeltsin; [2]Novosibirsk State Technical University

ID: 623
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Data Management and Analytics Platform for converged operational Data

Maja SAVINEK[1], Tadej SINKOVEC[2], Rok DOLINSEK[3], Miroslav PAVLESKI[4]
[1]Elektro Ljubljana d.d.; [2]Elektro Ljubljana d.d.; [3]Troia d.o.o.; [4]Troia d.o.o.

ID: 753
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation
Keywords: IPPs, CIM, IEC

A practical approach for enhancing stakeholder effectiveness through improved asset and grid information governance - Achieving digital utility status by 2024

Jayaprakash PONRAJ, Vinay SARDANA
Abu Dhabi Transmission and Despatch Company, United Arab Emirates

ID: 833
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Computing intelligent insights about health of station subsystems with data analysis and Lean IIoT

Sarala Mohan NAIDU
Hitachi ABB Power Grids, Sweden

ID: 849
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation
Keywords: Data Augmentation, Partial Discharge, Training Dataset

Data Augmentation for Classification of the Partial Discharge Pattern Considering Imbalance and Phase Uncertainty of the Training Dataset

Sung-Chan PARK, Gyu-Bon HWANG, Hyun-Ho KWON
LS ELECTRIC, Korea, Republic of (South Korea)

ID: 936
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Use of AI for power lines

Paolo GUZZINI[1], S MANDRAU[2]
[1]ALTEIA; [2]GENERAL ELECTRIC

ID: 956
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation
Keywords: Compact secondary substation (CSS), Internet-of-Energy (IoE), IoT connectivity, maintenance, asset management

Practical Approach to brownfield compact secondary Substations using the Internet-of-Energy (IoE) for next-level Maintenance and Asset Management

Bruno Jorge de Oliveira SOUSA[1], Iiris RAUHALAMMI[2], Shyam MUSUNURI[3], Martin Davidsen KIRKEGAARD[4], Tony MÄNTYPURO[2]
[1]Siemens Oy, Finnish branch; [2]Caruna Networks Oy; [3]Siemens AG, MAC4IoE Center; [4]Siemens A/S

ID: 989
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Wind Energy Bidding Strategy and Optimization using Model-Based Deep Reinforcement Learning

Manassakan SANAYHA
TNC-CIGRE, Thailand

ID: 991
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Field Circuit Breaker Inspection using Machine Learning and Data Analytics on Sound Recognition

Sethachai DARNSOMBOON, Walanchaporn BOON-NONTAE
TNC-CIGRE, Thailand

ID: 1053
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

DAS Technology: an opportunity to use fibre optics for asset monitoring and security applications in Electric Power Utilities

Sacha KWIK
Red Eléctrica de España

ID: 1090
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS1 - The Opportunities and Challenges Brought By Emerging Information and Communication Technologies to Electric Power Utilities in Their Path to Digital Transformation

Optimized decision making for asset management by using advanced fuzzy logic

Stefan WIETZKE[1], Andreas KUBIS[2]
[1]PSI Software AG, Germany; [2]PSI Software AG, Germany

PS2: CYBERSECURITY TECHNIQUES, TECHNOLOGIES AND APPLICATIONS FOR SECURING CRITICAL UTILITY ASSETS

ID: 185
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

A Practical Approach on Cybersecurity Measures for Brazilian Utilities

P ANTUNES[1], A TEMPORAL[2], J HELUANY[1], M BRANQUINHO[3], P SILAS[4]
[1]SIEMENS; [2]CHESF; [3]TI SAFE; [4]SIDI

ID: 186
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

Cyber Security Regulatory Impact Analysis in Brazilian Electric Power System – a Proposal of Regulatory Procedure

B MAZETO, T PINHEIRO, S SILVA, L QUEIROZ, M PINHEIRO, V OLIVEIRA, T COSTA, R AFONSO, S NETO
ANEEL (Brazilian Electricity Regulatory Agency)

ID: 270
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

Secure Access and Device Management (SADM) System Implementation by Duke Energy

Ameen HAMDON
SUBNET Solutions

ID: 348
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

A Blueprint for Cyber Security of Brownfield Substations in Power Systems using IEC 62443

Vetrivel RAJKUMAR[1], Shyam MUSUNURI[2], Alexandru STEFANOV[1], Siem BRUIJNS[3], Johan DE WIT[4], Danny KLAAR[3], Amadou LOUH[5], Arnaud THOEN[5], Peter PALENSKY[1]
[1]Delft University of Technology; [2]Siemens AG; [3]TenneT TSO; [4]Siemens Nederland NV; [5]Stedin NV

ID: 411
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

Cyber Security Challenges in IEC 61850-based Transmission Line Protection Systems

Alex APOSTOLOV
OMICRON electronics, United States of America

ID: 414
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

NERC CIP and Managing Industrial Control System (ICS) Assets

Steve R. KNUDSEN
KeyLogic Systems, Inc., United States of America

ID: 423
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

Cybersecurity Master Plan for Chilean Electricity Sector (2021 – 2023)

Eduardo MORALES[1], Jerson REYES[2], Fernando MUNOZ[3], Alvaro ACORIA[4]
[1]ENTEL; [2]CNE; [3]SAESA; [4]Independent

ID: 503
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

AI based security mechanism to false data injection attack- Case study of Northern Region Indian Grid

S Naresh RAM
Power System Operation Corporation Limited

ID: 582
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets
Keywords: Adaptive, Whitelist, detect, abnormal behaviors, SCADA

Development of an Adaptive Whitelist technology to detect abnormal behaviors for SCADA in Electric Utility

Myongsoo KIM, Minhae JANG
Korea Electric Power Co.(KEPCO), Korea, Republic of (South Korea)

ID: 588
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

A Method in Evaluating the Effectiveness of Substation Firewalls and A Substation Perimeter Architecture in Connecting Third Party Generators to a Transmission Substation

Victor TAN[1], Brendan GRAHAM[2], Paolo TUAZON[2]
[1]VTan Consulting; [2]Power and Water Corporation, Australia

ID: 617
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

Development of a Method for Using Artificial Intelligence Systems for Assessing Cybersecurity Threats to Objects of a Digital Electrical Network

Vladimir KARANTAEV, Vladislav KARPENKO
Moscow Power Engineering Institute

ID: 713
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets
Keywords: Cybersecurity, Cyber Risk Assessment, Digital Engineering, Digital Twin

Role of Digital Engineering and Digital Twin Technology in Cybersecurity of Electrical Grid

Djenana CAMPARA[1], Andrea HRUSTEMOVIC[2], Adnan AHMETHODZIC[2], Nikolai MANSOUROV[3]
[1]BH K CIGRE, Bosnia and Herzegovina; [2]JP Elektroprivreda BiH, Bosnia and Herzegovina; [3]KDM Analytics, Canada

ID: 752
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets
Keywords: OT, Cybersecurity, network, IPS, DLP

Unidirectional and Bidirectional Connections and Cybersecurity of Smart Grid Infrastructure

Abdullah ALFAHHAD, Bassam ALALI
Saudi Electricity Company, Saudi Arabia

ID: 762
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets
Keywords: cyber, supply chains, attack, Resiliency, risks

Cyber Security Supply Chain Risks and Challenges

Rabee ALMAGABI, Hebah AL_SHUHAIL, Ahmed KASSAB
GCCIA, KSA

ID: 794
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

How to assess the cybersecurity posture of utility infrastructures? A case study from the OSMOSE project

Giovanna DONDOSSOLA
RSE, Italy

ID: 832
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

Identified challenges and opportunities with Cyber Security standard compliance in combination with a long-expected lifetime

Johan MALMSTRÖM, Daniel HALLMANS
Hitachi ABB Power grids, Sweden

ID: 1051
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

Analysis of the impact of cryptography in GOOSE communications

Miguel Ángel SÁNCHEZ
Arteche

ID: 1121
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets

Cybersecurity approaches for OT Critical Infrastructures

Dan BORDEA
Romanian NC Cigre, Romania

ID: 1136
D2 INFORMATION SYSTEMS AND TELECOMUNICATION
Topics: PS2 - Cybersecurity Techniques, Technologies and Applications for Securing Critical Utility Assets
A Substation-focused NMS for visualizing IEC 61850 Communication Networks

Yukang HUANG, King WU, Sever SUDAKOV
Moxa Inc, Taiwan

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Topics: PS3 - Meeting the Demands of the Modern Utility and DER with an Agile and Resilient Telecommunication Network

Reflections on the Potential use of 5G Technologies in the Electric Sector

A PINHEL
Cigre-Brasil 5G Working Group

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Research on the Architecture and Application of Power 5G Virtual Private Network based on Network Slicing and Edge Computing Technology

Delong YANG, Zhihui WANG, Ye XIA, B. MAO
China Electric Power Research Institute, China

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The latest Wireless Communication Technology Initiatives from Japanese Electric Power Utilities

Hiroaki TSUCHIYA[1], Hiroyuki KAI[2], Ryousuke UMEZAWA[3], Yuki IWATA[4]
[1]Central Research Institute of Electric Power Industry; [2]Kyushu Electric Power Co., Inc.; [3]Chubu Electric Power Grid Co., Inc.; [4]Chugoku Electric Power Transmission & Distribution Co., Inc.

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Seamless extension of fibre optical IP/MPLS network with 5G technology Releases allowing Business service segregation, Precision time synchronization and Critical teleprotection services in Utility distribution networks

Amadouh LOUH[1], Shuang ZHANG[2], Andrej GOERBING[3], Joey GODEFROOI[1], Andreas JAHR[3]
[1]Stedin NV; [2]Huawei Technologies; [3]Siemens AG

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Teleprotection signal testing over IP/MPLS network

Megha SHAHI, Paolo TUAZON, Mark SINCLAIR, Sameep GHARTI CHHETRI
Power and Water Corporation, Darwin, Australia

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Automation of Distribution Networks Using Cellular Communication Technologies

A. RODIONOV[1], A. POPOV[1], D. ULYANOV[1], S. PISKUNOV[1], A. MOKEEV[2]
[1]ENERGOSERVICE; [2]NARFU

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Increasing the availability of modern digital grid applications by offering accurate time of day information as a service of the operational telecommunication network

Ramon BAECHLI[1], Marko BORISAVLJEVIC[1], Adolf FREI[1], Stefan MATTMANN[2], Yann GOSTELI[2]
[1]Hitachi ABB Powergrids Switzerland; [2]CKW Switzerland

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Combined use of wireless solutions for secondary distribution substations applications

Philippe CONQ
GENERAL ELECTRIC France

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Experimental evaluation of Teleprotection services over packet-based Networks

Soodesh BULJORE[1], F FONTENELLE[1], L ESTELRICH[1], P ALEMAN[1], M ACACIA[2]
[1]GENERAL ELECTRIC; [2]ELIA

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Challenges for the Use of Spectrum in Colombian Utilities

Jaime ZAPATA
XM E.S.P. S.A

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Electric Power Industry of Serbia IP MPLS network upgrade: Providing operational and corporate services

Danilo LALOVIĆ, Vesna VUKIĆEVIĆ, Ivan VUKADINOVIĆ, Vigor STANIŠIĆ, Miodrag JEVTIĆ, Dalibor MITIĆ
Electric Power Industry of Serbia, Serbia

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Leveraging SD-WAN For Improving Availability of EGAT's Communication Network

Thanyapatt SRIJANTHUB
TNC-CIGRE, Thailand

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Design of a daring IP Network Architecture in REE for the unavoidable convergence of services

Juan Ramón FEIJOO
Red Eléctrica de España