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C1-202 Assessment of Island Interconnection Projects via HVDC Links of Partial Capacity: The Case of Crete
S. PAPATHANASSIOU, M. PAPADOPOULOS, S. NANO - GREECE

C1-203 Transmission Network Planning and Delivery: comparing the German and Chilean Experiences
J. ARANEDA - CHILE

C1-204 Managing Regional Security of Supply: A Case Study from Scotland
S GILL, G HAWKER, K BELL - UNITED KINGDOM

C1-205 Djibouti Transmission Master Plan at 2033 horizon
L. CHARLIER, R. ADEN, J. DUBOIS - DJIBOUTI

C1-206 Research on Power Grid Planning Data Model and Data Stream of State Grid Corporation
P. HUANG, J. L. FENG, J. R. LI, F.Z. LUO - CHINA

C1-207 Challenges in Realising the Potential of the GCC Interconnector
MOHAMED SHAIKH - GULF STATES COMMITTEE
C1-301 Energizing Green Cities in Southeast Asia: Application of Sustainable Urban Energy and Emissions Planning in Vietnam
D.R. OSTOJIC, R.K. BOSE - USA

C1-302 Integration of Series FACTS into Interconnect-scale Production Cost and Long-term Planning Tools
F. KREIKEBAUM, A. WANG, S. BROAD - USA

C1-303 Innovative approach to obtaining authorisation for new power corridors in South Africa
KEVIN, K LEASK - SOUTH AFRICA

C1-304 Change in selection philosophy of shunt line reactor allows Eskom to realize perpetual economic benefits
SUMEET, S RAMANDH - SOUTH AFRICA

C1-305 Overcoming barriers to the use of alternative and innovative solutions such as stand-alone power systems as an alternative to replacement of end-of-life network assets
T FAIRFIELD, O ARTEAGA NOVOA, P HOWE, P NEWITT, J THOMAS - AUSTRALIA

C1-306 Transmission System Planning under uncertainties including renewable penetration regime in Indian Context
SUBIR SEN, I.S. JHA, Y.K. SEHGAL, K. BHAMBANI - INDIA

C1-307 Probabilistic Power Flow as an element of planning methodology
W LUBICKI, M PRZYGRODZKI - POLAND

C1-308 Assessment of the Impact on Hybrid AC/DC Power System Following a Change of the Bulk Power System
A. NAKAJIMA - JAPAN

C1-309 Offshore wind farm stochastic economic evaluation
MOHAMED ALI - EGYPT

C1-310 Optimization of RES Generation in the European System
J.L. FERNÁNDEZ, R. PEIRÓ - SPAIN

C1-311 Technical and Economical Evaluation of the Use of Energy Storage to Provide Frequency Regulation Services in the Chilean Interconnected Systems
A. ALEGRIA - CHILE

C1-312 Complex Modernization of Russian Distribution Network of Bashkirenergo based on advanced Smart Grid Technologies
H. MUELLER - GERMANY

C1-313 CANCELLED - New Approaches and Solutions for Future System Planning – a System System Planning – a System

C1-314 Côte d'Ivoire Generation and Transmission Master Plan at 2030 horizon
A. TRAORE, L. CHARLIER, S. AHOUSOU, J. DUBOIS, B. JANSSENS - IVORY COAST

C1-315 e-Highway2050: a research project analysing very long term investment needs for the pan-European transmission system
G. SANCHIS, T. ANDERSKI, F. CARERI, N. GRISSEY, G. MIGLIAVACCA, D. ORLIC - SC C1

C1-316 French Zonal Model for Development Studies
G PAUL - FRANCE

C1-317 An innovative cost-benefit analysis to assess transmission projects: the Italian case
E ELIA, V VASCELLARI, P DI CICCO, S IBBA, D CANEVER, B COVA, A VENTURINI, P VICINI - ITALY

C1-318 Application of innovative grid-impacting technologies in pan-European and regional case studies towards the EU Energy Union: the GridTech analyses
A. L'ABBATE, H. AUER, C. VERGINE, O. D'ADDESE, A. SALLATI, P. TISTI, A. MANSOLDO - ITALY

C1-319 A practical implementation of representative planning case selection for grid studies, as used in TYNDP studies for ENTSO-E
P. VAN ROY - BELGIUM
Research on the Efficient and Secure Transmission of Wind, PV and Thermal Power from Large-scale Energy Resource Bases through UHVDC Projects
Z.Y. LIU, Q. P. ZHANG, C. DONG, L. ZHANG, Z.D. WANG - CHINA

Comparison between Deterministic and Probabilistic Methods for Evaluating Grid-Accommodative Wind Power Capacity
E.S. DU, N. ZHANG, C.Q. KANG, X.M. JIN, J.H. BAI - CHINA

Systematic Approach for Dynamic Equivalents Development of Large-Scale Power System Using PSS/E
M. M. AL HAJJI, M.A. ABIDO - GULF STATES COMMITTEE

Planning and Design Considerations Associated with the Integration of the UAE’s First Nuclear Power Plant
BRUCE STEELE - GULF STATES COMMITTEE

Improvement of mode controllability and short-circuit currents limitation in metropolises power grid by means of electromechanical AC links as an alternative to DC links
P SOKUR, Y. DEMENTYEV, Y. SHAKARIAN, N. PINGUKH, V. NOVOZHILOV, V. TRETYAKOV, V. DYACHKOV, Y. KUCHEROV, D. YAROSH, A. MAYOROV, A. SHABASH - RUSSIA

SC C2 SYSTEM OPERATION AND CONTROL

PS1: Grid operation solutions to changes in generation mix including distributed and renewable generating resources

Using a Static and Dynamic Security Assessment Tool to Evaluate the Effects of Increasing Wind Power Penetration in Future Operating Conditions of the Brazilian Interconnected Power System

Improvement of Technical Requirements for Connecting Wind Plants in the Brazilian Interconnected Power System

High Fidelity Modeling Approach to Analysing Combined-Cycle Power Plant Response to Proposed ROCOF Requirements in Ireland
S. BARNES, D. LEONARD, M. ALEXANDER, V. TASHJIAN, P. DOYLE, C. D’ARCY - USA

Tuning primary frequency controllers using robust control theory in a power system dominated by hydropower
L. SAARINEN, U. LUNDIN - SWEDEN

Full Scale Frequency Response Tests in the Nordic Synchronized Area
E. AGNEHOLM, M. NILSSON, M. LAASONEN, M. HOEGDAHL ZARNASTIL, A. JANSSON, S. LINDAHL, A. WESTBERG - SWEDEN

Integration of PV Contribution into the Load Forecast and Dispatch
D SHARAFI, R MORRIS - AUSTRALIA

Selective Generation Shift Key determination - an enhanced method for the flow-based market coupling capacity calculation
S. ALMEIDA DE GRAAFF - NETHERLANDS

Secondary Frequency Control and Balancing Operation Using Coordination Control of Conventional Sources and Battery Energy Storage System with Large-scale Renewable Energy Integration
Y. KANEUCHI - JAPAN

Storage application for frequency control of hourly cross-border program changes
D. (DANNY) KLAAR - NETHERLANDS

Innovative tools for the future coordinated and stable operation of the pan-European electricity transmission system
G.A. MORALES - NETHERLANDS

Increased cooperation between TSO and DSOs as precondition for further developments in ancillary services due to increased distributed (renewable) generation
M. KRANHOLD - GERMANY

Primary control reserves provision with battery energy storage systems in the largest European ancillary services cooperation
M. KOLLER - SWITZERLAND
C2-113 Real time synchronous generator dynamic reactive reserve monitoring by coordinated reactive power voltage controller
J DRAGOSAVAC, Ž JANDA, D ARNAUTOVIC, T GAJIC, S DOBRICIC, J MILANOVIC, S SUBOTIC, B MIHIC - SERBIA

C2-114 Anticipating Power System Needs in Response to the Global Energy Transition
E. QUITMANN - GERMANY

C2-115 Emulated Inertial Response from Wind Power: Ancillary Service Design and System Scheduling Considerations
P DALY - IRELAND

C2-116 Operational Security Challenges and Tools for a Synchronous Power System with High Penetration of Non-conventional Sources
I. DUDURYCH - IRELAND

C2-117 Smart dispatch of variable-speed Pump Storage Plants to facilitate the insertion of intermittent generation
A NETO - FRANCE

C2-118 Innovative solutions for real-time Dynamic Security Assessment and automatic system devoted to special protection schemes of Italian Defense plan
G BRUNO, E CARLINI, R SALVATI, L CAMPISANO, V AGNETTA, P PAU, M STORI, C CANDIA, F ISELLA - ITALY

C2-119 Power Systems Oscillations Damping with Regard to the Finite Speed of Propagation the Electromechanical Waves
O. AGAMALOV - UKRAINE

C2-120 Integration of 2 days-ahead capacity forecast for managing Belgian energy imports
F. SKIVEE - BELGIUM

C2-121 Monitoring, operation and control solutions in the process of renewable energy source integration Transelectrica’s experience
D. ILISIU, F. BALASIU, D. FIRICA - ROMANIA

C2-122 Probabilistic dimensioning of tertiary control reserve driven by the intermittency of renewable generation in Portugal
N. PINHO DA SILVA, R. PESTANA - PORTUGAL

C2-123 Stability Control Strategy and Operation of Large-Scale UHVAC/DC Hybrid Power System

C2-124 New Ancillary Service to Mitigate Deterministic Frequency Deviations
B.H. BAKKEN - NORWAY

C2-125 Automatic device of monitoring of stability margins
A. LISITSYN, P. KATS, S. CHAPLUK, M. EDLIN, E. SATSUK - RUSSIA

SC C2 2 SYSTEM OPERATION AND CONTROL

PS2: Managing system disturbances and system restoration

C2-201 Ensuring the black start capability of the South African Power system
ALAN NAMBIAR - SOUTH AFRICA

C2-202 Geomagnetic Disturbances Monitoring, Modelling and Mitigation
S. SAGARELI, M. KOENIG, H. CAMARA, V. PANUCCIO, S. SAMBASIVAN, A. O’MALLEY, Z. QAYYUM, J. TAYLOR, R. LORDAN - USA

C2-203 EXPERIENCES WITH GENERATOR FAILURE AND EFFECT ON NETWORK AND LOAD RESPONSE
ROBERT, R STEPHEN - SOUTH AFRICA

C2-204 Wide-area control of SVCs in Australian power system
A VAHIDNIA, G LEDWICH, R MEMISEVIC - AUSTRALIA

C2-205 POORLY DAMPED ELECTROMECHANICAL OSCILLATION IN THE 345 kV INTERCONNECTION BETWEEN ARGENTINA AND CHILE. IDENTIFICATION BASED ON A SLIDING PRONY ANALYSIS.
J. AGÜERO, R.D. MOLINA, J.C. BARBERO, F. ISSOURIBEHERE - ARGENTINA

C2-206 Control of wind farm and VSC-HVDC to enhance frequency reserve
G. JANG, H KIM, K KIM, Y YOO, B KO - KOREA
C2-207 Methodology for next generation system operation between DSO and DSO
R. SCHWERDFEGER - GERMANY

C2-208 Advances in Wide Area Monitoring and Control to address Emerging Requirements related to Inertia, Stability and Power Transfer in the GB Power System
D WILSON, S CLARK, S NORRIS, J YU, P MOHAPATRA, C GRANT, P ASHTON, P WALL, V TERZIJA - UNITED KINGDOM

C2-209 Disturbance Management in the Turkish Power System interconnected with the ENTSO-E System. Defence Strategies and Operation Experience
F. ILICETO - TURKEY

C2-210 Norwegian disturbance management system and database
G. KJOLLE - NORWAY

C2-211 Power system operation efficiency increasing considering transfer capacity parameters affection
V. DIYACHKOV, E. REPINA - RUSSIA

C2-212 Operator Training for Restoration of Power Systems with High Shares of Volatile Generation
W. WELLSSOW - GERMANY

C2-213 An Assessment of a Cost-effective Demand Response Scenario A case study for Jordan
M. ALNABULSI - JORDAN

SC C3 SYSTEM ENVIRONMENTAL PERFORMANCE
PS1: Environmental liabilities of transmission and distribution assets

C3-101 Analysis of the Impact of Geomagnetic Disturbances on the Austrian Transmission Grid
T. HALBEDL - AUSTRIA

C3-102 Electrocution risks to endangered birds on MV overhead lines – South African experiences
ANDREAS, A BEUTEL - SOUTH AFRICA

C3-103 The authorization procedure for Energy Storage Systems Projects installed on the Italian Transmission Grid
R VANADIA, M. REBOLINI, S. TOSI, N. DI PIETRO, E. SENATORE, R. POLITO - ITALY

C3-104 Liability for contaminated sites initiated by the unbundling of the transmission grid in Belgium
V. DUFOUR - BELGIUM

SC C3 SYSTEM ENVIRONMENTAL PERFORMANCE
PS2: Overhead lines and underground cables: acceptability issues

C3-201 Evaluation method for values derived from substation instalment
R. TAKAHASHI - JAPAN

C3-202 Ausgrid's North Shore 132kV Cables Project - Learnings on Route Selection, EMF Mitigation and Stakeholder Engagement
J HART, G MELIK - AUSTRALIA

C3-203 HV Underground Cables Magnetic Field Mitigation Measures
C. WALL, P. ARNERA, B. BARBIERI - ARGENTINA

C3-204 3D multi-viewpoints environment to analyze the visual impact of overhead lines
F.J. MORENO - SPAIN

C3-205 Analysis of Induced Electromotive Force in Phase Conductors of 35 kV Line Caused by Phase-to-Ground Fault in 400 kV Overhead Power Line
M. GRBIC, D. SALAMON, A. PAVLOVIC - SERBIA

C3-206 CANCELLED - Visual Impact provision
C3-207 On the use of the HMCPL shielding system in renewing the underground HV power lines in big cities
P. RIBALDONE, G. LAVECCHIA, A. CANOVA, L. GIACCON - ITALY

C3-208 CANCELLED - The citizens and local authorities views on actions taken to enhance public acceptance of a 380kV grid extension project

C3-209 Life cycle assessment of the UGC transmission system in Iceland
H. HROLFSDOTTIR, M. PALSSON, I. HJARTARSON, A. KJELD, G.M. INGOLFSDOTTIR, H.J. BJARNADOTTIR - ICELAND

C3-210 Environmental Impact and Prevention analysis for urban Substations
J. WANG, W. HUANG, Y. QIANG - CHINA

C3-211 CANCELLED - Implementation of 3D-graphic technology into practical overhead transmission line routeing

SC C3 SYSTEM ENVIRONMENTAL PERFORMANCE

PS3: Climate Change: Implications for Electric Power Systems

C3-301 Hydropower plants and the Climate Change: Impacts and Actions
P.K.T NAKAYAMA, A.L. MUSTAFA - BRAZIL

C3-302 Enhancing resilience of the North Indian Power System against pollution and foggy weather - An Experience

C3-303 An approach to dealing with visual impact of existing high voltage transmission lines
H PEARSON - UNITED KINGDOM

C3-304 Reduction of greenhouse gases in GIS pilot project application in UK
E LARUELLE - FRANCE

C3-305 Climate Change Impact on Electrical Power System, Case study from Jordanian Electrical System
M. ALOMARI - JORDAN

SC C4 SYSTEM TECHNICAL PERFORMANCE

PS1: Impact of inverter based generation and Energy Storage

C4-101 Harmonic Distortion Assessment Related to the Connection of Wind Parks to the Brazilian Transmission Grid
R.P.D ROSS, M.P. CARLI, P.F. RIBEIRO - BRAZIL

C4-102 Transient Stability Impacts of High Levels of RES on the Western US Grid
N.W. MILLER, M. SHAO, S. PAJIC, R. D'AQUILA, K. CLARK - USA

C4-103 Utility Connected Smart Inverters – Lessons Learned from Demonstration of Open Standards and Protocols
A. HUQUE, T. KEY, B. SEAL, J. SMITH, H. ASGEIRSSON, C. BURNS - USA

C4-104 Development of improved aggregated load models for power system network planning in the Nordic power system

C4-105 CANCELLED - Voltage stability based assessment of embedded generation carrying capacity in MV and LV distribution feeders

C4-106 CANCELLED - The modeling optimization of Lithium ion batteries for the Energy Storage System for use in Frequency Regulation.

C4-107 Voltage Swell Mitigation in EHV Real Network Using Flexible AC Transmission Systems Based on Evolutionary Computing Method
M. A. MOUSTAFA HASSAN - EGYPT
C4-108  Power Quality Monitoring and Assessment in the Spanish Transmission System  
A. DÍAZ, L. SOTO, L.F. BEITES, M. ÁLVAREZ - SPAIN

C4-109  STORE: A Comprehensive Research and Demonstration Project on the Application of Energy Storage Systems in Island Power Systems  
L. ROUCO, I. EGIDO, E. LOBATO, L. SIGRIST, A. BARRADO, P. FONTELA, J. MAGRÍÑÁ - SPAIN

C4-110  Power Intensitive Energy Storage and Multilevel STATCOM for frequency and voltage grid support  
E. SPAHIC - GERMANY

C4-111  Challenges in harmonic assessments of non-linear load connections  
L KOO, Z EMIN - UNITED KINGDOM

C4-112  Amplification of Harmonic Background Distortion in Wind Power Plants with Long High Voltage Connections  
C.F. JENSEN - SC C4

C4-113  Power Quality and EMC Issues associated with future electricity networks – status report on behalf of CIGRE/CIRED JWG C4.24  

C4-114  Investigation of Harmonics Trends and Characteristics on the Irish Transmission System by analysing Historical PQ Measurements and SCADA Records  
B. KELLY - IRELAND

C4-115  LARGE SCALE ITALIAN ENERGY INTENSIVE STORAGE INSTALLATION: SAFETY ISSUES AND ENVIRONMENTAL COMPATIBILITY  
N. DI PIETRO, R. BENATO, S. DAMBONE SESSA, R. POLITO, M. ANDRIOLLO - ITALY

C4-116  Electrochemical Energy Storage Systems and ancillary services: the Italian TSO’s experience  

C4-117  Impact of Photovoltaic Power Systems Control on Romanian Power Quality as Measured in the Connection Common Points  
D. ILISIU, D. STANESCU, P. POSTOLACHE - ROMANIA

C4-118  Assessing Inverter Based Generation Exposure to Voltage Sags  
A. SANTOS, M.T. CORREIA DE BARROS - PORTUGAL

A. JABERT - JORDAN

SC C4 SYSTEM TECHNICAL PERFORMANCE

PS2: Challenges with modeling and evaluation of lightning performance and insulation coordination in the power system of the future

C4-201  Application of the Leader Progression Model to evaluate the lightning performance of AC and DC EHV transmission lines  
P.M. MIGUEL, D.M. CORREIA, A.C. CARVALHO - BRAZIL

C4-202  Overview of statistical data on lightning outages of transmission lines in Japan  
M. MIKI - JAPAN

C4-203  Economic Assessment of Lightning Performance Improvement of 69 kV Overhead Subtransmission Line on Monopole and Concrete Pole in MEA’s Power Distribution System  
A PHAYOMHOM - THAILAND

C4-204  A CASE STUDY AND OBSERVATION ON CAUSE OF TRANSMISSION LINE OUTAGES IN MALAYSIA  
I MOHAMED RAWI, M AB KADIR - MALAYSIA

C4-205  Assessment of Lightning Shielding Performance of a 400 kV Double-Circuit Fully Composite Pylon  
T. JAHANGIRI, CLAUS LETH BAK, FILIP FARIA DA SILVA, B. ENDAHL, J. HOLBØLL - DENMARK

C4-206  CANCELLED - Numerical investigations of transient voltages in high voltage networks related to Insulation Coordination
C4-207 Analysis of opportunities to improve the HVDC SwePol Link operation due to commutation failures
M PRZYGRODZKI, M SZABLICKI, P RZEPKA - POLAND

C4-208 Investigating the Methodology and Implications of Implementing Long HVAC Cables in the Ireland and Northern Ireland Power System
N. CUNNIFFE - IRELAND

C4-209 Isolated systems interconnected via HV submarine XLPE cables
G TREMOUILLE - FRANCE

C4-210 Switching transients on very long HV ac cable lines: simulations and measurements on the 230 kV Malta-Sicily interconnector
F PALONE, M. REBOLINI, S. LAURIA, M. MACCIONI, M SCHEMBARI, J.P. VASSALLO - ITALY

C4-211 ELECTRICAL PERFORMANCE OF 10kV POLYMER INSULATOR UNDER LIGHTNING INDUCED VOLTAGE CONDITION
M.Z.A. AB-KADIR - MALAYSIA

C4-212 EFFECT OF PARALLEL 275kV TRANSMISSION LINE WITH OIL PIPELINE ON ELECTROMAGNETIC FIELD CALCULATION
M.Z.A. AB-KADIR - MALAYSIA

C4-213 Measurement Techniques on Transient Process of Lightning Striking Overhead Transmission Lines
S.J. XIE, J.M. LI, R. ZENG, Y. ZHANG, C. J. ZHUANG, H. WANG - CHINA

SC C4 SYSTEM TECHNICAL PERFORMANCE

PS3: Bridging the gap between EMT, FEM and positive sequence grid simulation

C4-301 Simulating Single-Pole Opening Using a Detailed Protection Model and a Transient Stability Program
D.M. MACGREGOR, C. ZHENG, S.G. AQUILES-PEREZ, N.D. ORREGO-PALACIO - USA

C4-302 Development of surge simulation techniques based on the finite difference time domain method and its application to surge analysis
A. TATEMATSU - JAPAN

C4-303 Defining - and Computing the Margin in Critical Clearing Time: Eskom experience
FRANCO, LNF DE VILLIERS - SOUTH AFRICA

C4-304 "Shunt Compensation, Reliability Analysis and Condition Monitoring System measurements and simulations for an EHV mixed Overhead line - Cable connection
H. KHALILNEZHDAD - NETHERLANDS

C4-305 HVDC system modeling coherence between EMT and phasor domain tools
S DENNETIERE - FRANCE

C4-306 SOME MEANINGFUL EXAMPLES OF SEQUENCE THEORY USE LIMITATION
R BENATO, S DAMBONE SESSA - ITALY

SC C5 ELECTRICITY MARKETS AND REGULATION

PS1: Interactions between wholesale and retail markets; the future of regulation

C5-101 Aligning Regulatory Incentives and Price Signals in the Brazilian Wholesale and Retail Electricity Markets
X. VIEIRA FO., R. HOCHSTETLER, J.C. MELLO, L.A. BARROSO - BRAZIL

C5-102 Market design of one hour ahead and real time market and implementation of cross-regional network operation in Japan
H. ASANO - JAPAN

C5-103 CANCELLED - Is the regulatory regime of liberalised electricity markets appropriate for the future?

C5-104 A methodology for the analysis of market design at the horizon 2030
E CERQUIERA, A DALLAGI, R BELHOMME, M TROTIGNON, R JOVER, L GLORIEUX - UNITED KINGDOM
C5-105 New approach to congestion management for decentralized market coupling using net export curves
I.V. BLINOV - UKRAINE

SC C5 ELECTRICITY MARKETS AND REGULATION

PS2: Market models and regulatory structures in an evolving industry situation

C5-201 Practices for Risk Assessment and Control in the Brazilian Electricity Market: state of the art
P. HANSEN, R. CABRAL, H. LEME, L.F.S ROSA, R. SACCHI, D. MACIEL, L. BARROSO - BRAZIL

C5-202 Market coupling, facing a glorious past?
R HIRVONEN - FINLAND

C5-203 The Importance of a Performance-Based Capacity Market to Ensure Reliability as the Grid Adapts to a Renewable Energy Future
G. VAN WELIE, R.G. ETHIER - USA

C5-204 HVDC Transmission Scheme for Sustainable Energy Supply
YING JIANG-HÄFNER, P. LUNDBERG - SWEDEN

C5-205 Impacts of asset investment of renewable energy on market design and operation
K. OGIMOTO - JAPAN

K. PANPUEK - THAILAND

C5-207 Introduction of Sub-Hourly Market in Power Exchanges and Facilitating Large Scale Renewable Energy Integration in India

C5-208 CANCELLED - Preparation for implementation of a Capacity Mechanisms based on the cost based pool in the Korea electricity market

C5-209 REGULATORY STRUCTURE AND MARKET MODEL IN MALAYSIA WITH THE IMPLEMENTATION OF INCENTIVE BASED REGULATIONS (IBR) AND NEW ENHANCED DISPATCH ARRANGEMENT (NEDA)
W WAN SYAKIRAH - MALAYSIA

C5-210 Mexico `s Wholesale New Power Market
M.A. AVILA-ROSALES - MEXICO

C5-211 Restructuring System Services for the Highest Levels of Wind Integration
J O`SULLIVAN - IRELAND

C5-212 Capacity Markets and the EU Target Model – a Great Britain Case Study
G HAWKER, K BELL, S GILL - UNITED KINGDOM

C5-213 Capacity Mechanisms: Results from a World Wide Survey
H. HÖSCHLE ON BEHALF OF CIGRE WG C5.17, G. DOORMAN - SC C5

C5-214 Flow-based market coupling in the Central Western European region: Welcome to the market coupling 2.0
D GARREC - FRANCE

C5-215 Techno-economic analysis and simulations of the transmission and distributions systems interactions in different regulatory frameworks

C5-216 Implementation of a Strategic Reserve in Belgium: Product Design and Market Results
H. HOSCHLE - BELGIUM

C5-217 Study on Key Issues of Direct Trading between Power Users and Plants
X. ZHANG, B. PANG, L.J. SHI, J. GENG, Y. X. ZHEN - CHINA
C5-218 Capacity market. Change of the model shifting from deficit to excess
A. KATAYEV, F. OPADCHIY - RUSSIA

C5-219 Evaluating Regulatory Framework in Iran’s Electricity Sector: A Benchmarking Analysis
M. MOHAMMADI, S. RAMYAR, M.P. ARABANI - IRAN

SC C5 ELECTRICITY MARKETS AND REGULATION

PS3: Distributed resource and demand response integration from the perspective of electricity market structures

C5-301 EVALUATION OF DEMAND SIDE MANAGEMENT MECHANISMS AND OPPORTUNITIES FOR THEIR DEVELOPMENT IN THE BRAZILIAN POWER INDUSTRY
C. DORNELLAS, E. NEVES, L. BARROSO, J. MELLO, J.W.M LIMA, J. DUTRA, A. PIMENTA, H. SOUSA - BRAZIL

C5-302 Experiences and Lessons Learned based on Distributed Generator of EGCO in Thailand Power Grid
W SINSUKTHAVORN, G BUMROONGGIT, S POCHANART - THAILAND

C5-303 Market Access for Renewables in the German Power Market and Market Design Challenges
P. GIESBERTZ - NETHERLANDS

C5-304 Comparison of market designs enabling DSR participation in the energy market
B GUÉDOU - FRANCE

C5-305 The impact of active demand on the electrical system and its actors estimated within the ADVANCED project
M. LOMBARDI, S. DI CARLO, S. DE FRANCISCI, S. BRAMBILLA, O. FRANZ, P. FRIAS, M. VALLES, M. SEBASTIAN VIANA - ITALY

C5-306 Project SMART – lessons learned from the emergency DSR programmes involving residential consumers and the aggregator
M KRUPA, M SOBCZAK, K KULA - POLAND

C5-307 DSO-TSO Interactions in Flexibility Contracting
A. RAMOS - BELGIUM

C5-308 The importance of market regulation in exploiting demand response on balancing market: Slovenian and Austrian case
D. PARAVAN - SLOVENIA

SC C6 DISTRIBUTION SYSTEMS AND DISPERSED GENERATION

PS1: Integrated planning and operation for up grading distribution networks

C6-101 THE GROWTH OF DISTRIBUTED GENERATION IN BRAZIL: IMPACTS, OPPORTUNITIES AND DIFFICULTIES FOUND

C6-102 Messaging for Enterprise Distributed Energy Resources
J.J. SIMMINS, B.K. SEAL, G.R. GRAY, R.J. SARFI - USA

C6-103 Learning from a 3.275 MW Utility Scale PV Plant Project
T SAHA, M ALAM, R YAN, A CHIDURALA, D EGHBAL - AUSTRALIA

C6-104 Dynamic distribution system planning considering distributed generation and uncertainties
D FRANCO, A VARGAS, M SAMPER - ARGENTINA

C6-105 A Probabilistic Monte-Carlo Simulation to Assess Distribution Network Reliability
M. GAHA - CANADA

C6-106 Advanced Self-Healing for Wide Area Power Outage and Network Reconfiguration for Feeder Uploading
B. N. HA, N. H. CHO, S. W. LEE, I. H. LIM - KOREA

C6-107 Impact of Distributed Energy Resources and Normally Open Switches on the Operational Performance of Low Voltage Distribution Networks
E.N. DIALYNAS, L.G. DAOUTIS - GREECE

C6-108 An Adaptive Protection Infrastructure for Modern Distribution Grids with Distributed Generation
G. KORRES, V. PAPASPILIOTOPOULOS, N. HATZIARGYRIOU - GREECE
C6-109 Protection coordination for distribution systems containing distributed generating units
AHMED KAMEL - EGYPT

C6-110 State estimation in MV distribution networks: experience in the Spanish smart grid project PRICE-GDI
R. GONZÁLEZ, M. BOCOS, J. Mª MAZA, E. ROMERO, I. DÍAZ, A. GASTALVER - SPAIN

C6-111 Linear State Estimation in Low Voltage Grids Based on Smart Meter Data
W. WELLSW - GERMANY

C6-112 Intelligent control of on-load tap changer based on voltage stability margin estimation using local measurements
H. FENG - GERMANY

C6-113 South East Europe Distribution System Operators Benchmarking Study
G. MAJSTROVIC, T. BARICEVIC, M. SKOK, W. POLE, A. DOUB, G. STRMECKI - CROATIA

C6-114 Key findings of a study into the development of future GB systems integrating low carbon technologies and smart solutions
J KIN, G WILLIAMSON, V LEVI - UNITED KINGDOM

C6-115 Impact of distributed generation on load shedding scheme in France: current status and perspectives
J OTTAVI - FRANCE

C6-116 Technical-economic optimum development plan of the Distribution Network of Abidjan
S. AHOUSOU, S. LEYDER, A. TRAO, S. RAPORT - IVORY COAST

C6-117 Prosumers' Battery Electrical Storage Systems: new ancillary services, impact on network planning and operation
F. CAZZATO, M. DI CLERICO, L. CECCHI, C. NOCE, C. PEZZATO, G. CANEPONI, V._BUFANO - ITALY

C6-118 Real field testing results of the innovative Medium Voltage control system developed in the Italian Demonstrator of GRID4EU
D. STEIN, L. CONSIGLIO, G. VIGANO', C. MICHELANGEI, C. CARLINI, D. MONETA - ITALY

C6-119 Linear Optimization for Active Distribution Systems Operation Considering Demand Response Mismatch
Y. WANG, Q.X. CHEN, C.Q. KANG, J.Q. MIAO, J.H. BAI, M. MIAO - CHINA

SC6 C6 DISTRIBUTION SYSTEMS AND DISPERSED GENERATION
PS2: Energy infrastructure for urban networks

C6-201 Local Adaptive Control of Solar Photovoltaics and Electric Water Heaters for Real-time Grid Support
B. BHATTARAI, IKER DIAZ DE CERIO MENDAZA, B. BAK-JENSEN, J. RATHAKRISHNA PILLAI - DENMARK

C6-202 Towards Holistic Power Distribution System Validation and Testing – An Overview and Discussion of Different Possibilities
T. STRASSER - AUSTRIA

C6-203 Optimized and Enhanced Grid Architecture for Electric Vehicles in Europe
S. UEBERM ESSER - AUSTRIA

C6-204 Leveraging Smart Grids Assets for Building Smart Cities at Marginal Cost
REJI KUMAR PILLAI, S.A. KHAPARDE - INDIA

C6-205 Advancing the method of estimating the distribution system condition by utilizing smart meters
M. INAI - JAPAN

C6-206 Beyond Smart Meters: Management of the LV network

C6-207 CANCELLED - Navigating the complex world of Energy supply and demand

C6-208 Planning studies for active distribution grids in presence of EVs charging stations: simulation on areal test network
M. DI CLERICO, G. CANEPONI, F. CAZZATO, S. COCHI, M.C. FALVO, M. MANGANELLI - ITALY
The Integrated Model for Marketing and Distribution Information - Integration Architecture, Implementation and Validation

Demonstrations of Communication Standards for Automated Demand Response and Smart Grid
J. YOSHINAGA - JAPAN

SC C6 DISTRIBUTION SYSTEMS AND DISPERSED GENERATION

PS3: Microgrids and offgrid hybrid systems

NY Prize Community Grid Competition
S. VENKATARAMAN, E. LAROSE, M. RAZANOUSKY, J. SAINTCROSS, M. KOTCH - USA

Fast Demand Response as an Enabling Technology for High Renewable Energy Penetration in Isolated Power Systems
M NEGNEVITSKY, D NIKOLIC, M DE GROOT, S GAMBLE, J FORBES, M ROSS - AUSTRALIA

No Load Diesel Application to Maximise Renewable Energy Penetration in Offgrid Hybrid Systems
M NEGNEVITSKY, J HAMILTON, A TAVAKOLI, X WANG, S GAMBLE - AUSTRALIA

Business Cases for Isolated and Grid-connected Microgrids – Methodology and Applications
G. JOOS - CANADA

Decision and Management to Interconnect Distributed Energy Resources into Distribution Networks
H.K KANG, S. S. CHO, B.N HA - KOREA

Smart Region – Automation of Distribution System
ZDENEK MÜLLER - CZECH & SLOVAK Reps.

Battery Energy Storage Control Strategies for Deterministic and Stochastic Power Profiles
A. OUDALOV - SWITZERLAND

Smart grids for rural conditions and e-mobility - Applying power routers, batteries and virtual power plants
V. BUEHNER - GERMANY

Probabilistic Planning of Multi-Microgrids with Optimal Hybrid Multi-Generation sets
E. GHIANI, G. CELLI, S. MOCCI, G.G: SOMA, C. VERTUCCIO, F. PILO - ITALY

The Hybrid Energy Storage System based on lithium-ion batteries and supercapacitors

SC D1 MATERIALS AND EMERGING TEST TECHNIQUES

PS1: Compact Insulation Systems (AC and DC)

Solid-gas insulation in HVDC gas-insulated system: Measurement, modeling and experimental validation for reliable operation
R. GREMAUD - SWITZERLAND

Interest of simulations to assess tests to be performed on DC GIS
A GIRODET - FRANCE

Various Characteristics of GIS Insulation Systems and Test Method of Insulating Spacers for Residual DC Voltage
S. OKABE - JAPAN

Evaluation of small scale testing for high field conductivity of HVDC cable materials
C. ANDERSSON, V. ENGLUND, H. GHRBANI, C.-O. OLSSON - SWEDEN

LONG TERM PERFORMANCE OF XLPE INSULATION MATERIALS FOR HVDC CABLES

Study of dielectric properties of XLPE for HVDC cables during long-term ageing
A HASCOAT - FRANCE
D1-107 ZnO stress grading tape for stator windings for electrical machines located at higher altitudes
L. DONZEL - SWITZERLAND

D1-108 DIELECTRIC PERFORMANCE BY ELECTRODE SURFACE PRETREATMENT AND MULTI-LAYER COATINGS IN GIS
J. H. SON, J. Y. SHIM, D. J. PARK - KOREA

D1-109 Tracking and Erosion Tests for SR Composite Insulators under DC Voltage
X.D. LIANG, S.H. LI, Y. CHEN, Y. YIN, Z.Y. LI - CHINA

D1-110 Long-term performance of composite station insulators with larger diameters: laboratory tracking and erosion test vs. service experience
I. GUTMAN, M. GULLO, M. GÄRDESTEDT, J.F. GOFFINET, J. SEIFERT, F. SCHMUCK - SWEDEN

D1-111 The Effect of Bird Streamers on the Insulation Strength of HVDC Lines
NISHAL, N MAHATHO - SOUTH AFRICA

D1-112 Performance of polymeric insulators in hybrid AC/DC overhead lines under polluted conditions
A. WAGNER - GERMANY

D1-113 GCCIA POLLUTION TEST STATION: An Optimizing Tool for Pollution Site Severity & Selection of Optimum Insulators Profile In Eastern KSA
AHMED AL-THAGAFI - GULF STATES COMMITTEE

SC D1 MATERIALS AND EMERGING TEST TECHNIQUES

PS2: New materials

D1-201 Electrical and thermal behaviour of synthetic transformer liquids
Q LIU, Z WANG, P JARMAN, G WILSON, R Hooton, D WALKER, P DYER, CH KRAUSE, PWR SMITH, A GYORE, R MARTIN, P MAVROMMATIS, J NOAKHES - UNITED KINGDOM

D1-202 Preliminary study for use of vegetable esters in big power transformers
F SCATIGGIO, M. REBOLINI, C. SERAFINO, A. VALANT - ITALY

D1-203 Molecular Simulation and Experiment of Transformer Cellulose Insulation Paper Modified by Nano Al2O3
C. TANG, S. ZHANG, Q. ZHOU, X. LI - CHINA

D1-204 CHARACTERISTICS OF FLUORONITRILE/CO2 MIXTURE - AN ALTERNATIVE TO SF6
K. POHLINK - SWITZERLAND

D1-205 Methodology to validate gases for switchgear applications
C PREVE - FRANCE

D1-206 Thermoplastics for LV Switchgear Application
BEEMA THANGARAJAN R, S.H. CHETWANI - INDIA

D1-207 Preparation of Exoergic Insulating Composite Material Using Electrostatic Adsorption Method
Y. MURAKAMI - JAPAN

D1-208 Comparative Investigation on Ester Insulating Liquids for High Voltage Applications
I. HOEHLEIN-ATANASOVA - GERMANY

SC D1 MATERIALS AND EMERGING TEST TECHNIQUES

PS3: Non-standardised stresses and emerging test techniques

D1-301 Developments for Frequency Response Analysis Automation
D TUSEK, J WELSH, S WOLINSKI - AUSTRALIA

D1-302 Diagnostic control of oil-paper insulation based on method of “direct” measurement of paper moisture content
L.A. DARIAN, A.A. KOZLOV, A.V. KOZLOV, V.P. POLISTCHOOK, A.V. SHURUPOV, N.A. MATVEEV - RUSSIA

D1-303 Development of a brand new spectrophotometric method for analysis of 2-furfuraldehyde in transformer oil as an indicator of paper degradation. An easy, rapid and inexpensive method to analyse furans
J. JIMÉNEZ, B. REMARTÍNEZ - SPAIN
D1-304 Dissolved Gas Analysis Applied to on Load Tap-Changers
C.D. SESSA, A.C.P MARTINS, L.M.M CHAVES, D.J. VASSALO, M.J. PROENÇA - BRAZIL

D1-305 A study of liquid-immersed transformer reference insulation systems used to determine thermal class
H.M. WILHELM, L. LANGER, G. DAL PONT, P.O. FERNANDES, L.G. FEITOS, R.P. MAREK, L. GALHARDO, E. WANG - BRAZIL

D1-306 A development of DC PD pattern recognition method using Modified CAPD together with PD finding for Gas insulated apparatus under DC voltage
I. J. SEO, Y. J. LEE, W CHOI, B. W. LEE, J. Y. KOO, J.T KIM - KOREA

D1-307 Signal processing and study of the ripple influence in PD patterns for measurements under HVDC stress
M.A. SÁNCHEZ-URRÁN, F. GARNACHO, F. ÁLVAREZ, G. DONOSO, J. ORTEGO - SPAIN

D1-308 A Review of Dielectric Strength with Distorted Lightning Impulses
R. DÍAZ, J.N. SILVA - ARGENTINA

D1-309 Insulation Evaluation of High-voltage Insulation Systems for Actual Overvoltage Waveforms and Practical Field Conditions
S. OKABE - JAPAN

D1-310 Correcting the Errors of Large Impulse Ultra High Voltage Dividers with the Deconvolution Method
Y LI - AUSTRALIA

D1-311 Investigation of mechanical strength for station post composite insulators subjected to variable loads
J WANKOWICZ, J BIELECKI - POLAND

SC D2 INFORMATION SYSTEMS AND TELECOMMUNICATION

PS1: New applications to control power systems

D2-101 Smart: Intelligent and integrated platform for power operation centers
E. ROCHA N., R. ALMEIDA, L. VENTURA, A.S. ARAUJO, D. SANTOS, J.P. SAUVE, N. MELO - BRAZIL

D2-102 Implementation of PMU-Based Linear State Estimation into Energy Management Systems
A. BOSE, A. JAMPALA, L. ZHANG, V. MADANI, J. GIRI - USA

D2-103 Leveraging Big Data and Modern Communication Protocols to Facilitate New Applications in Power Transmission and Distribution
S. RAVISH, R. PIACENTINI, Q. GUO - USA

D2-104 Implementation of Information and Telecommunication Systems with the aim of Realization of Smart Grid in Japan
H. DOI - JAPAN

D2-105 Communications Infrastructure for Future Centralized Substation Protection and Control Systems
Y. LUSKIND - CANADA

D2-106 Implementation of Online Power System Network Analysis for the EMS in Korean Electric Power Control Center
H.J KIM, Y.I KIM, C.S SONG, M.H LEE, B.S KIM, Y.H SHIN, Y.S CHO, G JANG - KOREA

D2-107 Results of applying a semantic interoperability strategy in Smart Grid applications for DSO in Mexico
A. ESPINOSA, S. GONZALEZ, H.R. AGUILAR - MEXICO

D2-108 Classification of customers based on temporal load profile patterns
I. BENÍTEZ, A. QUIJANO, I. DELGADO, J.L. DÍEZ - SPAIN

D2-109 COCO: Operational control of construction
A. CADENAS, A. SÁNCHEZ, S. SÁNCHEZ - SPAIN

D2-110 Adding New Functions to the Energy Control System for Operating More Than a Decade in Taiwan
J.D. LEE - TAIWAN

D2-111 Portable WAMS – a Paradigm Shift
D. BRNOBIC - CROATIA
D2-112  Experiences from Intelligent Alarm Processing and Decision Support Tools in Smart Grid Transmission Control Centers  
N. BARANOVIC, P. ANDERSSON, I. IVANKOVIC, K. ZUBRINIC-KOSTOVIC, D. PEHARDA, J.E. LARSSON - CROATIA

D2-113  Distributed control architecture for effective Distributed Energy Resources Management  
G FOGGIA - FRANCE

D2-114  CANCELLED - Leveraging big data analytics for customer engagement: the online and mobile solution adopted within the ENEL Info+project

D2-115  Optimizing the Network and the Asset Lifecycle and Reduce Operational and Capital Costs through Predictive Analytics and Asset Health Management  
J. BUJAK, S. HAGNER - SWEDEN

D2-116  Study and Practice of General State Estimation and Load Flow Hybrid Method for Modern Power Systems Control Centers  
Y.Q. YAN, Y.Z. XIN, H.Z. TAO - CHINA

SC D2 INFORMATION SYSTEMS AND TELECOMMUNICATION

PS2: EPU response to evolving cyber security landscape

D2-201  Network Architecture and Cyber Security – Two Faces of the Same Coin  
R FERNANDEZ - AUSTRALIA

D2-202  Cyber Security Architecture for Operational Technologies (ICS/SCADA)  
L. (LHOUSAIN) LHASSANI - NETHERLANDS

D2-203  Application and Management of Cybersecurity Measures for Protection and Control  
D.K. HOLSTEIN, T.W. CEASE, M.G. SEEWALD - USA

D2-204  Application of Monitoring Standards for enhancing Smart Grids Security  
G DONDOSOLA, R TERRUGGIA, P. WYLACH, G. PUGNI, F. BELLIO - ITALY

D2-205  Fuzzy Rule Based Expert System for SCADA Cyber Security  
D. MLAKIC, L. MAJDANDZIC - BOSNIA HERZEGOVINA

SC D2 INFORMATION SYSTEMS AND TELECOMMUNICATION

PS3: Mobile operational applications, systems and infrastructure

D2-301  Wireless and Mobile Systems for Electric Power System Operation in Japan  
S. MICHIWAKI - JAPAN

D2-302  Ensuring Uptime of WAMS Network with the Help of Common IT Tools – Case Studies  
P.K. AGARWAL, H.K RATHOUR, P. MAURYA - INDIA

D2-303  Communication Networks for Indian Smart Grids  
N.S. SODHA - INDIA

D2-304  Usefulness of AMI data communication systems to the development of Polish DSO smart MV and LV grids with regard to SCADA control systems  
A BABAS, J SWIDERSKI, M TARASIUK - POLAND

D2-305  MAGIC – A Microgrid AAgent Intelligent Control Device  
N. HATZIARGYRIOU, A. DIMEAS, I. VLACHOS, I. KOUVELIOTIS-LYSIKATOS, D. KOUKOLA, S. MAKRYNIKAS, M. KOUVELETSOU - GREECE

D2-306  PLC MV telecommunications: An evolution path for sustainable private telecom networks enabling smart grid applications  
T. ARZUAGA, D. GIL, J.A. MORENO, A. ARZUAGA - SPAIN

D2-307  IT and OT integration to improve outage management  
M WILLSON, M CANTABRANA - UNITED KINGDOM
D2-308  Study on Evolution of Communication Infrastructure for Smart Grid Operation and Management
B.Y. HUANG, X. M. BAI, Q. S. CUI - CHINA

D2-309  MPLS-TP AS PACKET PLATFORM FOR CRITICAL SERVICES IN POWER TRANSMISSION
J. RAMIREZ, H. CABRERA, O. BAUTISTA - VENEZUELA

D2-310  Communication network toward the realization of a new power distribution automatic control system
H. DOI, K. SHIMOOSAKO, T. ITO, H. NAKAGAWA - JAPAN