



# CIRED 2016 workshop

14 – 15 June 2016 | Scandic Marina Congress Center, Helsinki

[www.cired2016-workshop.org](http://www.cired2016-workshop.org)

## Tuesday 14<sup>th</sup> June 2016

08:00 – 09:30 Registration

09:30 – 09:40 **Chairman's Opening Remarks**

09:40 - 10:05 **Keynote: The role of distribution networks in evolving electricity markets**  
Riku Huttunen, *Ministry of Employment and the Economy, Finland*

### **Theme 1: Power distribution companies (DSOs) supporting smart cities**

**Chairman:** Ricardo Prata, *EDP Distribuição, Portugal*

**Room:** Europaea

10:05 – 10:30 **Keynote: Digital DSOs: key enablers to move smartly towards the Cities of the future**  
João Torres, *EDSO for Smart Grids, Belgium/EDP Distribuição, Portugal*

10:30 – 12:00 **Theme 1: Oral presentations**

**0022 Modelling and flexible long-term planning integrating innovative technologies for the distribution grids of Zurich**

J Bader, D Hearn, B Heimbach, R La Fauci, H Luternauer, M Kleinheinz, *ewz, Switzerland*

**0160 Electric vehicle development in China and its power quality challenges to distribution grid**

A Pan, T Chen, *State Grid Shanghai EPRI, China*

**0167 Near real-time outage detection with spatio-temporal event correlation**

J Simoes, *EDP Inovação, Portugal*, A Blanquet, *EDP Distribuição, Portugal*, N Santos, *CGI, Portugal*

**0423 Energy efficiency in street lighting - citizens point of view**

M Meneses, A Fonseca, P Carreira, *EDP Distribuição, Portugal*, M Albuquerque, *EDP SU, Portugal*

**0442 Influences of a hydrogen electrolyser demand on distribution network under different operational constraints and electricity pricing scenarios**

H Xu, I Kockar, *University of Strathclyde, UK*, S Schnittger, J Rose, *Scottish and Southern Energy Power Distribution, UK*

**0473 Regulatory incentive mechanisms for promoting investments in smart distribution system**

M Delfanti, V Olivieri, *Politecnico di Milano, Italy*, S Larzeni, L Lo Schiavo, *Autorità energia, Italy*

12:00 – 13:00 **Lunch and networking**

13:00 – 14:30 **Round table 1: DSO/TSO interaction**  
**Chairman:** Riccardo Lama, *Enel, Italy*

**Speakers:** Jussi Jyrinsalo, *Fingrid Oyj, Finland*  
Laurent Schmitt, *Alstom, France*

Luca Lo Schiavo, *Autorita Energia, Italy*

14:30 – 16:00 **Poster session with a coffee break (All themes)**  
**Room:** Fennia 1 & 2

**Theme 2: Resilient distribution system planning and operation**

**Chairman:** Fabrizio Pilo, *University of Cagliari, Italy*

**Room:** Europaea

16:00 – 16:30 **Keynote: Integrating distributed resources into the planning and operation of resilient distribution systems**  
**Mark McGranaghan, EPRI, USA**

16:30 – 18:00 **Theme 2: Oral presentations**

**0097 Improving the situation awareness of DSOs in major disturbances by visualizing the state of mobile networks**

J Haapanen, H Krohns-Välimäki, P Verho, *Tampere University of Technology, Finland*

**0109 Flexzone concept to enable resilient distribution grids - possibilities in Sundom smart grid**

H Laaksonen, P Hovila, *ABB Oy, Finland*

**0307 Selection of relevant failure modes and system states for the evaluation of reliability in distribution grids depending on ICT**

D Schacht, S Patzack, H Vennegeerts, S Krahl, A Moser, *FGH e.V., Germany*

**0353 Combined effects of distributed generation grid code requirements on the transient behaviour of islanded systems**

F Bignucolo, A Savio, R Sgarbossa, R Turri, *University of Padova, Italy*, A Cerretti, *Enel Distribuzione, Italy*

**0414 Islanding of a commercial district: Nice grid project**

T Drizard, C Lebosse, *ERDF, France*, G Diquerreau, *Socomec, France*

**0426 Forecast of faults during heat waves in a medium voltage grid and crisis management**

O Faivre, Y Le Herve, P Jehl, S Jouhanneau, E Bugnot, *ERDF, France*

18:15 **Drinks reception in Congress Centre – Sponsored by ABB**

## **Wednesday: 15th June 2016**

08:00 – 08:30 **Registration**

**Theme 3: Customer and energy services to enable flexibility and energy efficiency**

**Chairman:** Dag Eirik Nordgaard, *SINTEF, Norway*

**Room:** Europaea

08:30 – 09:00 **Keynote: DSOs – At your service**  
**Annika Viklund, Vattenfall, Sweden**

09:00 – 10:30 **Theme 3: Oral presentations**

**0201 Energy management for hydrogen energy storage system**

M Mizutani, Y Monden, J Sato, T Kono, R Nakajima, *Toshiba corporation, Japan*

**0240 Control of electric vehicle charging in domestic real estates as part of demand response functionality**

A Rautiainen, K Lummi, P Järventausta, *Tampere University of Technology, Finland*, V

Tikka, A Lana, *Lappeenranta University of Technology, Finland*

- 0250 Stimulating the efficiency of the energy infrastructure by DSO tariffs**  
S Honkapuro, J Tuunanen, J Partanen, *Lappeenranta University of Technology, Finland*
- 0258 Load flexibility of household customers with real time consumption data and automatic control of electric heating systems**  
C Svalstedt, M Löf, *Vattenfall, Sweden*
- 0273 Incentivizing consumer response through cost-reflective distribution network charges**  
I Abdelmottaleb, T Gómez, J P Chaves-Avila, J Reneses, *Comillas Pontifical University, Spain*
- 0342 Meta-analysis of the results of European smart grid projects to quantify residential flexibility**  
R Bernards, J Reinders, *Eindhoven University of Technology, Netherlands*, E A M Klaassen, J Morren, J G Sootweg, *Eindhoven University of Technology, Netherlands/Enexis BV, Netherlands*
- 10:30 – 11:30 **Poster session with a coffee break (All themes)**  
**Room:** Fennia 1 & 2
- 11:30 – 13:00 **Round Table 2: Regulation for smart grids and impact on DSO business**  
**Chairman:** Jarmo Partanen, *Lappeenranta University of Technology, Finland*
- Speakers:** Veli-Pekka Saajo, *Finnish Energy Authority, Finland*  
Oliver Günther, *Stromnetz Berlin GmbH, Germany*  
Fabrizio Pilo, *University of Cagliari, Italy*
- 13:00 – 13:05 Chairman's Closing Remark & Close of CIRED Workshop

## CIRED Workshop Posters

**Room:** Fennia 1 & 2

### Theme 1: Power distribution companies (DSOs) supporting smart cities

**Chairman:** Ricardo Prata, *EDP Distribuição, Portugal*

- 0043 M-R algorithm based multi-level feeder queue optimization charging model of electric vehicle and its implementation in energy internet**  
N Chen, M Ai, X Wang, D Li, F Qu, *CEPRI, China*, J Lin, *State Grid Fujian Electric Power Company, China*
- 0047 Presenting the smart city business model: Qualitative and quantitative indicators for energy services**  
A Navidi, S M Hashemi, *Tehran Electrical Distribution Company, Islamic Republic of Iran*
- 0055 Frequency domain harmonic model of electric vehicle charger using three-phase uncontrolled rectifier**  
W Mo, Z Suo, Y Wang, J Fang, L Luan, S Li, *Guangzhou Power Supply Company Ltd, China*, J Wang, Q Wang, *ChongQing University, China*
- 0057 How to foster smart energy behavior of end - users via proactive user participation: s3c project (smart consumer, smart customer, smart citizen) key findings**  
V Nunes, J Nunes, C Marques, R Gonçalves, *EDP Distribuição, Portugal*
- 0063 Smart LED lighting systems implementation in Lisbon metropolitan area**  
R Matos, P Paulo, R Ribeiro, *EDP Distribuição Energia, Portugal*, J Nunes, *Lisbon City Hall, Portugal*, P Valverde, *Arquiled, Portugal*
- 0080 A new framework for infrastructure planning**

- C Heuer, *Siemens AG, Germany*, C Norris, J Chwang, *Siemens Canada Ltd, Canada*
- 0106 Co-simulation architecture for centralised direct load control in smart grid**  
R Alishov, R Witzmann *TUM, Germany* M Sphähn, *Fraunhofer ESK, Germany*
- 0113 An improved network simulator for EV / V2G studies**  
S Broderick, A Cruden, S Sharkh, *University of Southampton, UK*, N Bessant, *SSEPD, UK*
- 0130 A smart cable management system in support of the smart city**  
R Wen, H Wang, C Wang, Y Xiang, *Suzhou Power Supply Company, China*, C Zhou, *Glasgow Caledonian University, UK*
- 0160 Electric vehicle development in China and its power quality challenges to distribution grid**  
A Pan, T Chen, *State Grid Shanghai EPRI, China*
- 0169 Customer outage information system**  
A Berlin, *Pöyry Sweden AB, Sweden*, N Sigfridsson, L Garpetun, *Vattenfall, Sweden*
- 0182 Unbundled meters can boost smart city project**  
D Stanescu, *FDEE Electrica TS, Romania*, D Federenciu, *Societatea Electrica SA, Romania*, M Sanduleac, *ECRO SRL, Romani*, C Stanescu, *CN Transelectrica SA, Romania*
- 0184 Design and construction of LVDC distribution site**  
Y Cho, J Kim, J Cho, J Kim, *KEPCO, Republic of Korea*
- 0185 AEA 92559-1: Towards an Argentinian smart grid vision**  
D A Moreno, J C Tripaldi, *AEA/ADEERA/Edenor SA, Argentina*
- 0191 Study of information integration architecture based on the extensibility of smart grid CIM model**  
Z Lei, L Jinsong, *State Grid Shanghai Electric Power Research Institute, China*
- 0192 Demonstration project of distribution level microgrid in Penetanguishene of Canada**  
K-H Lee, S-Y Yun, P-I Hwang, D-K Seo, Y-T Pak, *KEPCO, Republic of Korea*
- 0203 New services of plug-in electric vehicles charging stations**  
S Zare, P Najafi, H Mansouri, *Tehran Electrical Distribution Company, Islamic Republic of Iran*
- 0224 Power consumption forecasting in the presence of distributed generation and storage in smart home**  
M Yaghmaee, R Hajimahdizadeh, M Zabihi, *Mashhad Electric Energy Distribution Co., Islamic Republic of Iran*, M A Farahnakian, *Tavanir, Islamic Republic of Iran*
- 0234 A competitive model for apartment complexes energy management with the aim of creating the infrastructure of smart city**  
H Ghorbanpanah, A Saeedi, S Alishahi, N Nakhodchi, *Mashhad Electric Energy Distribution Co., Islamic Republic of Iran*
- 0267 How multi-services gateways enable IOT for utilities**  
R Hourdouillie, *Ericsson, France*, D Pollock, *Ericsson, UK*
- 0274 The analysis and design of droop controlled DCMGS considering the line impedance**  
S-Y Choi, R-Y Kim, *Hanyang University, Republic of Korea*
- 0288 Impact on network losses of shorter low-voltage feeders and higher transformer density**  
S C Vegunta, S Stapleton, *S&C Electric Company, UK*, P Jewell, *Western Power Distribution, UK*, D Hawkins, R Brook, *Sohn Associates Ltd, UK*

- 0311 A hierarchical control method of massive plug-in electric vehicles for load valley filling**  
K Zhan, A Xu, X Guo, W Wei, G Jian, *Electric Power Research Institute, CSG, China*
- 0321 Customers swapping between phases for loss reduction considering daily load profile model in smart grid**  
B Mohamadi Kalesar, *Ardabil province electricity distribution company (APED co.), Islamic Republic of Iran*
- 0392 Voltage control demonstration for LV networks with controllable DER - The sustainable project approach**  
H Costa, M Miranda, J Ramos, L Seca, A Madureira, *INESC TEC, Portugal*,  
D Lemos, R Santana, M Louro, P G Matos, L Rosa, *EDP Distribuição, Portugal*,  
N Silva, *EFACEC, Portugal*
- 0422 Reduction of measurement points in low-voltage grids with high PV-share**  
G Seifert, J Gutbrod, M Luther, *FAU Erlangen-Nuremberg, Germany*, A Köpken, *ESTW, Germany*
- 0442 Influences of a hydrogen electrolyser demand on distribution network under different operational constraints and electricity pricing scenarios**  
H Xu, I Kockar, *University of Strathclyde, UK*, S Schnittger, J Rose, *Scottish and Southern Energy Power Distribution, UK*
- 0474 Energy planning approach for an efficient distribution grid**  
M Delfanti, D Falabretti, S Mandelli, M Merlo, M Moncecchi, *Politecnico di Milano, Italy*
- 0475 Evolving role of distribution system operators in end user engagement**  
J Vasiljevska, F Gangale, A Mengolini, *Joint research centre, Netherlands*

**Theme 2: Resilient distribution system planning and operation**

**Chairman:** Fabrizio Pilo, *University of Cagliari, Italy*

- 0004 Assessment of the MV/LV on-load tap changer technology as a way to increase LV hosting capacity for photovoltaic power generators**  
K Rauma, F Cadoux, N Hadj-Saïd, *Université Grenoble Alpes, France*, A Dufournet, C Baudot, G Roupioz, *ERDF, France*
- 0005 The IEC 61850 in the Portuguese distribution substations: Contemporary challenges and possible solutions**  
H Leite, D Martins, J Ferreira, *University of Porto, Portugal*, A Pinto, *EDP Distribuição, Portugal*
- 0023 Optimal number, type and location of automation devices in distribution networks with distributed generation**  
Z Popovic, *Faculty of Technical Sciences, Serbia*, S Knezevic, B Brbaklic, *Schneider Electric DMS NS, Serbia*
- 0024 Bad data processing for low voltage state estimation systems based on smart meter data**  
D Waeresch, R Brandalik, W H Wellssow, *Technical University of Kaiserslautern, Germany*,  
J Jordan, *IDS GmbH, Germany*, R Bischler, N Schneider, *SWK Kaiserslautern, Germany*
- 0026 Resilient distribution system by forming/coupling microgrids in extreme contingencies**  
M Khederzadeh, *Shahid Beheshti University, Islamic Republic of Iran*
- 0030 Further validation and extensions of the global capacity announcement procedure for distribution systems**  
B Cornélusse, M Glavic, D Ernst, *Université de Liège, Belgium*, D Vangulick, *ORES, Belgium*

- 0034 Optimal levels of automation and underground cabling of Finnish MV networks in the new legislation and regulation environment**  
H Långland, L Kumpulainen, K Kauhaniemi, *University of Vaasa, Finland*, A Salo, *Vaasan Sähköverkko Oy, Finland*
- 0039 A CEP based ETL method of active distribution network operation monitoring and controlling signal data**  
M Ai, N Chen, X Ge, Z Li, T Pu, Y Li, *CEPRI, China*, Z Chen, P Lin, W Wu, *State Grid Fujian Electric Power Company, China*
- 0040 Health index approach to substation civils**  
D Neilson, L Speakman, A Elena de Leonardo, *SP Energy Networks, UK*
- 0041 Improving transient stability of micro-grid in the islanding state and after it using DFACTS**  
M Khaksar, *Electricity distribution company, Islamic Republic of Iran*
- 0053 Distribution grid restoration by forming resiliency-oriented less-vulnerable microgrids**  
M Khederzadeh, *Shahid Beheshti University, Islamic Republic of Iran*
- 0056 Resilient and comprehensive network planning is key to a successful integration of renewable energy resources**  
L Jendernalik, D Giavarra, *Westnetz GmbH, Germany*, C Engels, A Maier, *enerVance GmbH, Germany*
- 0060 Simulation and analysis of assessment procedures for condition based maintenance of MV/LV substations**  
P Köhn, A Schnettler, *RWTH Aachen University Germany*, N Schultze, *SAG GmbH, Germany*
- 0061 Investments in distribution automation as a foundation for smart grids**  
J Morren, H Slootweg, *Enexis/ TU Eindhoven, Netherlands*
- 0071 Dynamic grid support with EV charging management considering user requirements**  
R Uhlig, M Stötzel, M Zdrallek, *Univeristy of Wuppertal, Germany*, N Neusel-Lange, *SAG GmbH, Germany*
- 0072 Distributed synchronous coordination field testing of an actual automated distribution feeder system**  
S Geiger, *OMICRON, Austria*, A Smit, *SIEMENS, USA*, D Bowman, *Wake Electric, USA*
- 0075 Residential storage to improve system resilience: Technical design and cost estimation**  
P Loevenbruck, *EDF, France*
- 0078 Managing volatility in distribution networks with active network management**  
H Zoeller, M Reischboeck, S Henselmeyer, *Siemens AG, Germany*
- 0083 New planning principles for low voltage networks with a high share of decentralized generation**  
S Harnisch, P Steffens, H H Thies, K Cibis, M Zdrallek, *Bergische Universität Wuppertal, Germany*, B Lehde, *Avacon AG, Germany/ Bergische Universität Wuppertal, Germany*
- 0084 Islanding tests with Li-ion storage system on the EDF concept grid**  
B Puluhen, L Joseph-Auguste, S Vilbois, *EDF, France*, T Drizard, C Lebosse, *ERDF, France*, G Diquerreau, *Socomec, France*
- 0086 Handling exceptional situations in a distribution network congestion management algorithm**  
A Kulmala, S Repo, *Tampere University of Technology, Finland*

- 0087 Use of time limited ratings in distribution systems to improve asset utilization**  
D Clements, P Mancarella, *University of Manchester, UK*, R Ash, *EA Technology, UK*
- 0088 Evaluating electricity distribution network reconfiguration to minimize power loss on existing networks**  
W van Westering, *Delft University of Technology, Netherlands*, M van der Meulen, *Alliander DSO, Netherlands*, W Bosma, *Radbout University, Netherlands*
- 0089 Application of distributed generation reactive power control modes to increase system stability**  
J Pollock, D Hill, *Northern Ireland Electricity Networks, UK*
- 0095 Modeling approach of a photovoltaic conversion in the PLC frequency range**  
C Wawrzyniak, V Moeyaert, F Vallée, Z De Grève, *UMONS, Belgium*
- 0099 Inspection of distribution facilities using tablet computers**  
S Nishiki, R Hosokawa, J Takata, *Kansai Electric Power Company, Japan*
- 0100 New grid solutions in practice: Voltage regulation in a low voltage grid in Zurich**  
E Kaffe, M Mangani, F Kienzle, H Luternauer, B Loepfe, *ewz, Switzerland*
- 0102 The German demo inside GRID4EU: Field experience, lessons learnt and some aspects about cost-benefit of innovative solutions**  
L Jendernalik, *Westnetz GmbH, Germany*, T Wiedemann, *RWE Deutschland AG, Germany*, P Noglik, *ABB AG, Germany*, A Shapovalov, *TU Dortmund, Germany*
- 0104 Demand flexibility benefits from the DSO perspective - a sustainable case-study**  
M I Verdelho, R Prata, *EDP Distribuicao, Portugal*, D Koraki, K Strunz, *Technische Universität Berlin, Germany*
- 0107 EvolvDSO grid management tools to support TSO-DSO cooperation**  
N Fonseca, A Silva, J Sumaili, R Bessa, *INESC TEC, Portugal*, J Silva, L Seca, J Pereira, M Matos, *INESC TEC, Portugal/FEUP, Portugal*, P Matos, A C Morais, *EDP Distribuição, Portugal*, M Caujolle, *EDF, France*, M Sebastian-Viana, *ERDF, France*
- 0108 A heterarchic hybrid coordination strategy for congestion management and market optimization using the DREAM framework**  
R Kamphuis, J P Wijbenga, J S van der Veen, *TNO, Netherlands*
- 0116 Development of major power disruption management**  
T Ihonen, T Kupila, T Keränen, *Elenia Oy, Finland*
- 0117 Laboratory evaluation of a deterministic optimal power flow algorithm using power hardware in the loop**  
T Sayfutdinov, *Skoltech, Russia*, P Lyons, M Feeney, *Newcastle University, UK*
- 0118 Frequency support by synthetic inertia from variable speed wind turbines**  
E Lidström, D Wall, *Vattenfall, Sweden*
- 0131 Enhancement of microgrid resiliency by mitigating cascading failures through reconfiguration**  
M Khederzadeh, *Shahid Beheshti University, Islamic Republic of Iran*
- 0136 Local island power supply with distributed generation systems in case of large-scale blackouts**  
C J Steinhart, M Finkel, *Hochschule Augsburg, Germany*, M Gratza, R Witzmann, *TU München, Germany*, K Schaarschmidt, G Kerber, *LEW Verteilnetz GmbH, Germany*
- 0145 Modified UVDA suitable for the reconfiguration of future smart grids consist of many dispersed generations**  
A Bayat, *Zanjan electric distribution Company, Islamic Republic of Iran*

- 0158 A stochastic dynamic programming approach for proactive replacement of power cables**  
S Sachan, C Zhou, G Bevan, B Alkali, *Glasgow Caledonian University, UK*
- 0161 Making faults to protect power networks**  
I Orue, I Gilbert, J Larrieta, J A Sánchez, *Ormazabal Spain*
- 0171 Distribution grid planning enhancement using profiling estimation technic**  
S Sarabi, A Davigny, B Robyns, *L2EP-HEI, France*, V Courtecuisse, L Coutard, *GEREDIS Deux-Sèvres, France*
- 0172 Optimal design of standalone micro-grid considering reliability and investment costs**  
H Jahangir, A Ahmadian, M Aliakbar-Golkar, *K N Toosi University, Islamic Republic of Iran*, M Fowler, A Elkamel, *University of Waterloo, Canada*
- 0174 Ensuring the functional capabilities to support resilient distribution and transmission networks through network connection codes**  
M Norton, *EirGrid plc, Ireland*, R Pfeiffer, *Amprion GmbH, Germany*, E Haesen, I M Minciuna, H Urdal, *ENTSOE, Belgium*, K Jansen, *Tennet bv, Netherlands*, J Sprooten, *Elia, Belgium*
- 0176 Economic dispatch of active distribution network considering renewable energy uncertainties**  
Q Li, *Guizhou Power Grid Corporation, China*, G Zhang, C Jiang, *Shanghai Jiao Tong University, China*
- 0178 Current mutation and phase differential fault identification algorithm based on supply area sampling calibration method for active distribution network**  
J Weng, D Liu, *Shanghai Jiao Tong University, China*, Q Zhao, *Guizhou Power Grid Corporation, China*
- 0181 Operation situational awareness based on dynamic power flow for a profound analysis of active distribution network**  
C Sun, D Liu, Y Wang, *Shanghai Jiao Tong University, China*
- 0186 Chronological evaluation of the benefit of storage systems on wind generation reliability**  
J R Lebre, C L T Borges, *Federal University of Rio de Janeiro, Brazil*
- 0195 A study on the placement and model selection of voltage regulators in distribution network**  
Y Miyazaki, S Naoi, Y Kinoshita, *Toshiba Corporation, Japan*
- 0217 Roadmap towards the vision of the future power system and electricity market**  
L Kumpulainen, K Kauhaniemi, *University of Vaasa, Finland*, S Repo, S Valkealahti, P Järventausta, *Tampere University of Technology, Finland*, S Honkapuro, J Partanen, *Lappeenranta University of Technology, Finland*, R Koivisto-Rasmussen, *Oy Merinova Ab, Finland*
- 0226 Durability and resiliency improvement in Mazandaran electricity distribution company against storm**  
M Karami, F Separi, *Mazandaran Electricity Distribution Company, Islamic Republic of Iran*
- 0245 Cyber security of smart grid and SCADA systems, threats and risks**  
H Hooshmandi Safa, D Mohammadi Souran, M Ghasempour, A Khazaei, *Mashhad Electric Energy Distribution Co., Islamic Republic of Iran*
- 0254 Disruptive potential and business model innovation through elastic Microgrid-As-A-Service (MAAS) platforms**  
S Rusitschka, *Siemens AG, Germany*, M Sturm, *Siemens AG, Austria*, M Lehofer, *Siemens AG, USA*



- 0255 'iSSN Application Frame' – A flexible and performant framework hosting smart grid applications**  
M Faschang, M Stefan, F Kupzog, *Austrian Institute of Technology GmbH, Austria*, A Einfalt, S Cejka, *Siemens AG, Austria*
- 0256 SmartCityVillach: final results of field test validation of a voltage estimation application that supports distributed voltage control in times of communication loss**  
R Schwalbe, M Stefan, F Kupzog, *Austrian Institute of Technology, Austria*, C Schneider, *Kärnten Netz GmbH, Austria*, A Einfalt, A Frischenschlager, W Rittsteiger, *Siemens AG, Austria*
- 0257 Fault and event data utilization in distribution network operation**  
K Mäki, S Kunttu, *VTT, Finland*, H Paananen, S Repo, H-M Pekkala, H Koivuniemi, *Elenia Oy, Finland*
- 0259 Influence of different framework conditions on the effectiveness of control concepts in distribution grids**  
F Zeilinger, A Einfalt, K Diwold, A Plank, A Lugmaier, *Siemens AG Austria, Austria*
- 0260 Reliability and economic implications of collaborative distributed resources**  
A Syrri, Y Zhou, E A Martinez Cesena, J Mutale, P Mancarella, *The University of Manchester, UK*
- 0263 Interaction of state estimation and sensitivity analysis for the operation of a real flexible distribution grid**  
M Wagler, R Witzmann, *Technical University of Munich, Germany*
- 0269 Underground low voltage loop system of KEPCO**  
Y-S Jeon, D-Y Shin, Y-U Park, K-S Kim, J-Y Yu, D-M Kim, *KEPCO, Republic of Korea*
- 0270 Factors of vulnerability and resilience in energy systems**  
K Mäki, K Forssén, M Räikkönen, *VTT, Finland*
- 0285 Coordinated operation of TSO, DSO and consumers in voltage management in case of interconnecting large amount of PV**  
S Uemura, *The Central Research Institute of Electric Power Industry, Japan*
- 0290 Development of a phase shifting regulator for power flow control in low voltage grids**  
S Lang, W H Wellssow, *TU Kaiserslautern, Germany*
- 0292 Establishing transparency for distribution grid planning and operation using methods of state estimation**  
M Cramer, P Goergens, F Potratz, A Schnettler, *RWTH Aachen University, Germany*, S Willing, *RWE Deutschland AG, Germany*
- 0293 Resilience of Finnish electricity distribution networks against extreme weather conditions**  
K Forssén, K Mäki, *VTT, Finland*
- 0299 Distribution grid resiliency - North America**  
M Olearczyk, *EPRI, USA*
- 0302 Flexibility activation optimisation for constraints management in distribution grids, using DER flexibility through LV4MV**  
E Vanet, G Lebel, R Caire, N Hadsaid, *G2Elab, France*, M Gabel, M Lazarus, *ESR, France*
- 0310 Reliability assessment of active distribution networks considering distributed energy resources and operational limits**  
A Escalera, B Hayes, M Prodanovic, *IMDEA Energy, Spain*
- 0314 Smart power quality measurement with MV reclosers**  
A Berlin, *Pöyry Sweden AB, Sweden*, N Sigfridsson, *Vattenfall, Sweden*

- 0315 How to facilitate the integration of a huge number of heterogeneous SmartGrid devices?**  
M Gillaux, F Lemenager, T Coste, *EDF, France*
- 0322 Active network management supporting energy storage integration into system, market and the distribution network**  
A R Ahmadi, L Kane, R MacDonald, G Ault, *Smarter Grid Solutions, UK*, S Geogiopoulos, J Barros, P Papadopoulos, *UK Power Networks, UK*
- 0323 A coordinated optimisation method of SNOP and tie switch operation simultaneously based on cost in active distribution network**  
X B Guo, W X Wei, A D Xu, *China Southern Power Grid, China*
- 0325 DSO interacting with heterogeneous DER in distribution grid**  
T Coste, *EDF, France*, O Carre, *ERDF, France*, L Peng, *Maia Eolis, France*
- 0326 Advanced fault location in compensated distribution networks**  
F Carlsson, N Etherden, A K Johansson, D Wall, E Lidström, *Vattenfall, Sweden*, A Fogelberg, *GAEB, Sweden*
- 0328 Use of real-time fault level values to generate an MVA per MVA infeed template for 11kV distribution networks**  
J Berry, *Western Power Distribution, UK*, P Edwards, *WSP Parsons Brinckerhoff, UK*
- 0332 Platform for virtual prototyping of advanced distribution management systems using python and OpenDSS**  
J Taylor, B Deaver, *EPRI, USA*
- 0333 LVDC RULES - Towards industrial-scale application of low-voltage direct current in public power distribution**  
T Kaipia, J Karppanen, P Nuutinen, A Pinomaa, A Mattsson, P Peltoniemi, P Silventoinen, J Partanen, *Lappeenranta University of Technology, Finland*, T Hakala, T Lähdeaho, *Elenia Oy, Finland*, M Luukkanen, D Trinh, P Virtanen, T Kasteenpohja, *Ensto Finland Oy, Finland*
- 0335 Economic analysis of home-based micro-grid under non-real-time pricing mechanism**  
Y Huang, W Mo, G Lu, Y Wang, L Luan, Z Xu, *Guangzhou Power Supply Bureau Company, China*, H Wang, *China Southern Power Grid, China*
- 0337 Investigation of resynchronization process and its influence on microgrid components**  
S Eberlein, K Rudion, *University of Stuttgart, Germany*
- 0339 Impact of load and generation flexibility on the long term planning of YLPIC distribution network**  
P Chittur Ramaswamy, S Leyder, S Rapoport, *Tractebel, Belgium*, B Picart, Z De Grève, *UMons, Belgium*, D Vangulick, *ORES, Belgium*
- 0341 Three-stage model based operational risk analysis of active distribution network**  
L Dong, C Zhao, *North China Electric Power University, China*, N Chen, Z Li, T Pu, *China Electric Power Research Institute, China*
- 0347 Dynamic line rating day-ahead forecasts - cost benefit based selection of the optimal quantile**  
R Dupin, A Michiorri, G Kariniotakis, *Mines ParisTech, France*
- 0349 Fast line drop compensation in low voltage regulators**  
O Leitermann, V Martinelli, J Simonelli, *Gridco Systems, USA*, L Molske, *Gridco Systems, Germany*
- 0350 The PlanGridEV distribution grid simulation tool with EV models**  
F Geth, S Leyder, C Del Marmol, S Rapoport, *Tractebel, Belgium*
- 0351 Towards health assessment: failure analysis and recommendation of condition**

- monitoring techniques for large disconnecter populations**  
A L Brodersson, *Vattenfall, Sweden*, J H Jürgensen, P Hilber, *KTH Royal Institute of Technology, Sweden*
- 0352 Real-time research lab in the Sundom smart grid pilot**  
A Monot, M Wahler, *ABB, Switzerland*, J Valtari, *ABB, Finland*, M Rita-Kasari, *Jubic Oy, Finland*, J Nikko, *Anvia, Finland*
- 0354 Quick fault location and isolation of the distribution network based on IEC61850**  
J Song, J Zhou, L Luo, *State Grid Shanghai Electric Power Research Institute, China*, Y Liu, *Shanghai Jiaotong University, China*, J Liu, *Shanghai University of Electric Power, China*
- 0355 The DISCERN tool support for knowledge sharing in large Smart Grid projects**  
R Santodomingo, M Uslar, M Gottschalk, A Goering, *OFFIS, Germany*, L Nordstrom, G Valdenmaier, *KTH, Sweden*
- 0356 Assessing the combination and coordination of voltage control applications in LV networks with smart grid metrics**  
H Rui, W H Wellssow, *Technical University of Kaiserslautern, Germany*, P Hauffe, *Pfalzwerke AG, Germany*, K Zimmer, C Wendel, H Geiss, *Pfalzwerke Netz AG, Germany*
- 0359 Transitioning from centralised to distributed control: Using SGAM to support a collaborative development of web of cells architecture for real time control**  
E Guillo-Sansano, M H Syed, P Dambraskas, M Chen, G M Burt, S D J McArthur, *University of Strathclyde, UK*, T Strasser, *Austrian Institute of Technology, Austria*
- 0362 The relevance of quality data management for condition based risk management**  
M Anzola, *SP Energy Networks, UK*, C Vila, *Iberdrola Distribucion Electrica, Spain*
- 0364 Experimental investigations of electrical influences on power line communication performance in distribution grid applications**  
B Mölders, *RWTH Aachen University, Germany*, T M Pletzer, M Wächter, M Koch, *devolo AG, Germany*
- 0366 Performance of modern fault passage indicator concept in compensated MV-networks**  
J Altonen, A Wahlroos, *ABB Oy, Finland*
- 0370 LV SCADA project: In-field validation of a distribution state estimation tool for LV networks**  
P Barbeiro, H Teixeira, L Seca, *INESC TEC, Portugal*, J Pereira, *INESC TEC, Portugal/ FEP, Portugal*, P Silva, N Silva, *EFACEC, Portugal*, F Melo, *EDP Distribuição, Portugal*
- 0371 Dualistic assessment of communication technology performance for control of large-scale smart distribution grids**  
F M Kurtz, C Wietfeld, *TU Dortmund University, Germany*, T L F Kristensen, R L Olsen, F Iov, *Aalborg University, Denmark*
- 0373 A state estimator for LV networks: Results from the evolVDSO Project**  
H Teixeira, P Barbeiro, R J Bessa, *INESC TEC, Porto, Portugal*, J Pereira, *INESC TEC, Portugal/ FEP, Portugal*, P G Matos, D Lemos, A Morais, *EDP Distribuição, Portugal*, M Caujolle, *EDF, France*, M Sebastian-Viana, *ERDF, France*
- 0375 Enhancing the business model of distributed storage through optimised multi-service operation for TSO, DSO and generation owners: the VENTEEA real example**  
D Colin, *ERDF, France*, G Delille, *EDF, France*, J Lugaro, *Saft, France*, J-C Pinna, *Schneider Electric, France*, C Caton, *RTE, France*, B Francois, *L2EP/Ecole Centrale de Lille, France*, G Martin, *Boralex, France*
- 0377 Solving voltage constraints through smart grid process**  
S Levaufre, N Touyar, *ERDF, France*, R El Azar, *YELE, France*
- 0378 Review of the smart operator in the field**

P Goergens, F Potratz, M Cramer, A Schnettler, *RWTH Aachen University, Germany*, S Willing, *RWE Deutschland AG, Germany*

- 0380 Pseudo-measurements generation using energy values from smart metering devices**  
J Alves, *EDP Distribuição, Portugal/University of Porto, Portugal*, J Pereira, *INESC TEC, Portugal/University of Porto, Portugal*
- 0383 Power line monitoring using optical satellite data**  
L Häme, J Norppa, *Satellio Oy, Finland*, P Salovaara, J Pylvänäinen, *Elenia Oy, Finland*
- 0386 Energy balance in low voltage network constraints and opportunities**  
S Magalhaes, G Ribeiro, J Mourão, M Lemos, V Santos, *EDP Distribuição, Portugal*
- 0389 Fault detection and location in low voltage grids based on RF-Mesh sensor networks**  
M Nunes, A Grilo, A Casaca, *NESC-ID / INOV, Portugal*, N Silva, F Basadre, P Rodrigues, *EFACEC, Portugal*, F Melo, L Gaspar, *EDP Distribuição, Portugal*
- 0401 Common mistakes found in turn-key DER interconnection protection systems**  
A Neves, M Louro, C Cura, LCandeias, H Heitor, C Fortunato, *EDP Distribuição, Portugal*
- 0406 Co-simulation of ICT technologies for smart distribution networks**  
G Celli, M Garau, E Ghiani, F Pilo, *University of Cagliari, Italy*, S Corti, *RSE S.p.A., Italy*
- 0407 Energy storage management for grid operation purposes**  
R J Santos, A Araujo, *EDP Distribuição, Portugal*, R André, F Guerra, *EDP, Portugal*, R Bessa, C Gouveia, J Sumaili, *INESC TEC, Portugal*, J Damásio, *Siemens, Portugal*, G Bravo, *Indra, Spain*
- 0408 Assessment of aggregated impacts of prosumer behaviour**  
A Ulbig, T Rullan, S Koch, F Ferrucci, *Adaptricity, Switzerland*
- 0409 Innovative solution of safety corridor design for overhead lines: increasing resilience to extreme weather events while providing environmental benefits - concept implementation**  
M I Verdelho, R Prata, S Pereira, A Couto, *EDP Distribuição, Portugal*, M Vieira, *FloraSul, Portugal*
- 0415 Impact of electric vehicles on distribution network operation: Real world case studies**  
P Chittur Ramaswamy, C Chardonnet, S Rapoport, *Tractebel Engineering, Belgium*, C Czajkowski, *Westnetz, Germany*, G O Bulto, *ENEL Distribuzione, Italy*, R R Sanchez, I G Arriola, *Tecnalia, Spain*
- 0418 GridSense Sologrid Pilot Project – using decentralised artificial intelligence for making distribution grids resilient**  
A Ulbig, S Koch, F Ferrucci, *Adaptricity, Switzerland*, D Cajoos, R Hoffmann, G Albisetti, *Alpiq, Switzerland*, M Gasche, R Scharer, D Galli, *AEK Energie, Switzerland*, M Laesar, M Staudinger, *Landis+ Gyr, Switzerland*
- 0420 Machine learning methods for the health-indexing and ranking of underground distribution cables and joints**  
J Heres, F Reinders, *Alliander, Netherlands*, R Stijl, *BearingPoint, Netherlands*
- 0424 Design and evaluation of voltage control techniques by hierarchical coordination of multiple power converters in low-voltage DC distribution systems**  
I-Y Chung, P H Trinh, H Cho, *Kookmin University, Republic of Korea*, J-Y Kim, J-T Cho, *Korea Electric Power Corporation, Republic of Korea*, T-H Kim, *KESRI, Republic of Korea*
- 0426 Forecast of faults during heat waves in a medium voltage grid and crisis management**  
O Faivre, Y Le Herve, P Jehl, S Jouhanneau, E Bugnot, *ERDF, France*

- 0427**     **Capability assessment of distribution network reactive power supports for transmission network using linear estimation**  
Y Guo, H Li, *The University of Manchester, UK*, K Bailey, *Electricity North West Ltd, UK*
- 0438**     **Improved grid operation through power smoothing control strategies utilizing dedicated energy storage at an electric vehicle charging station**  
T Martinsen, B Bremdal, *University of Tromsø, Norway*, N Holjevac, I Kuzle, I Pavić, *University of Zagreb, Croatia*, J M Guerrero, T Dragicevic, Q Shafiee, *Aalborg University, Denmark*
- 0440**     **Advanced fault detection in compensated networks**  
J Starck, J Holmlund, *ABB Oy, Finland*, H Paananen, S Vähäkuopus, M Viholainen, *Elenia Oy, Finland*
- 0453**     **Estimating resiliency of energy distribution supply chain by Monte Carlo simulation**  
B Jamshidieini, *Alborz Province Power Distribution Company, Islamic Republic of Iran/ University of Tehran, Islamic Republic of Iran*, K Rezaie, *University of Tehran, Islamic Republic of Iran*
- 0461**     **Kent active system management - A coordinated approach to contingency analysis on UK power networks distribution network**  
G Manhangwe, R Wilson, M White, *UK Power Networks, UK*
- 0466**     **DC Bus based microgrid for buildings applications**  
R Horta, D Roggo, C Ellert, *HES-SO Valais-Wallis, Switzerland*
- 0471**     **Evolution of business model in railway industry in the presence of energy management system**  
S Khayyam, Z Huang, A Monti, *RWTH Aachen University, Germany*, E Pilo de la Fuente, I Gonzalez, *FFE, Spain*, V Bagliano, *D'Appolonia, Italy*

**Theme 3: Customer and energy services to enable flexibility and energy efficiency**  
**Chairman:** Dag Eirik Nordgaard, *SINTEF, Norway*

- 0011**     **The practical and theoretical potential of demand side management in SMEs to balance wind power**  
M van Blijderveen, D Joskin, J Garthoff, *Alliander, Netherlands*
- 0020**     **Matching building loads with solar and wind power in office of the EAEPD as a micro grid**  
G Derakhshan, H Shayanfar, A Kazemi, *University of Science and Technology, Islamic Republic of Iran*, K Roshan Milani, Y Ahmadpour, *East Azerbaijan Electric Power Distribution Company (EAEPD), Islamic Republic of Iran*
- 0027**     **How power outages affect consumer attitudes to grid companies**  
E F Livgard, *TNS Gallup, Norway*
- 0035**     **Multi-market optimisation of industrial flexibility - market comparison and field test results**  
J Meese, T Kornrumpf, B Dahlmann, T Marquardt, M Zdrallek, *Wuppertal University, Germany*, A Völschow, *WSW Energie & Wasser AG, Germany*
- 0036**     **Activating residential demand side response to relieve network congestion**  
P Davison, S Blake, *Newcastle University, UK*, A Spencer, E Burton, *Northern Powergrid, UK*, S Lee-Favier, *GenGame Ltd, UK*
- 0038**     **Analysis of optimal dynamic price control of heat pump houses with solar power**  
P Koponen, R Pasonen, A Löf, *VTT, Finland*
- 0042**     **The impact of the reformation of the Italian electric tariff in an "all electric" household**  
S Maggiore, *Ricerca sul Sistema Energetico - R.S.E. S.p.A., Italy*

- 0054**     **Advanced islanding operation method integrating multiple power supplies including photovoltaic power generation**  
J Yoshinaga, W Hirohashi, Y Hayashi, S Sato, *Waseda University, Japan/NEC Corporation, Japan*, M Ohashi, *OMRON Corporation, Japan*, J Miyake, *Tokyo Gas Company Ltd, Japan*, S Tsuchiya, *Denso Company Ltd, Japan*
- 0070**     **Defining and realizing flexibility in distribution grid**  
M Khederzadeh, *Shahid Beheshti University, Islamic Republic of Iran*
- 0090**     **A business case modelling framework for smart multi-energy districts**  
N Good, E A Martínez Ceseña, X Liu, P Mancarella, *University of Manchester, UK*
- 0091**     **Multiple services allocation for flexible thermostatic loads**  
V Trovato, G Strbac, *Imperial College London, UK*
- 0092**     **Enabling new business models by utilising flexibility in customer load - addressing NB Power's winter peak demand challenge by using customer thermal storage flexibility**  
T Leopkey, *NB Power, Canada*, B Rideout, T Sahin, *Siemens Canada, Canada*
- 0094**     **Proposal of load management in distribution system by utilising smart meter data**  
T Ito, Y Inaoka, M Maekawa, *Kansai Electric Power Company, Japan*
- 0110**     **Development of operation system for smart meter data providing service**  
Y Yoneda, S Tsuchida, *Kansai Electric Power Company, Japan*
- 0112**     **Electricity distribution network tariffs – present practices, future challenges and development possibilities**  
K Lummi, A Rautiainen, P Järventausta, *Tampere University of Technology, Finland*, P Heine, J Lehtinen, M Hyvärinen, *Helen Electricity Network Ltd., Finland*
- 0115**     **Feasibility analysis of the power-to-gas concept in the future Swiss power system**  
C Park, R Segundo, V Knazkins, P Korba, *ZHAW, Switzerland*
- 0119**     **The future role of DSO in distribution networks with high penetration of flexible prosumers**  
U Markovic, S Karagiannopoulos, A Ulbig, *ETH, Switzerland*, E Kaffe, D Mountouri, F Kienzle, *ewz, Switzerland*
- 0120**     **Mining smart meter data - case Finland**  
A Mutanen, P Järventausta, *Tampere University of Technology, Finland*, H Niska, *University of Eastern Finland, Finland*
- 0122**     **"Are people as smart as their smart meters are?"- Iranian experience of statistics feedback to households**  
H Safari Farmad, *KhorasanRazavi electric distribution Co., Islamic Republic of Iran*, Z Modarres, *Ferdowsi university of mashhad, Islamic Republic of Iran*
- 0125**     **Facilitating DER energy services for grid management via OS4ES: aggregated flexibility, class model and matching algorithms**  
O van Pruissen, *TNO, Netherlands*, M Fernandez, *Tecnalia, Spain*, A Papanikolaou, *Hypertech, Greece*, C Brunner, *IT4, Switzerland*
- 0128**     **Concepts for flexibility use - interaction of market and grid on DSO level**  
S Ohrem, D Telöken, *Westnetz GmbH, Germany*
- 0132**     **Upgrid Portuguese demo – market challenges (in) the power grid**  
P M Nunes, P G Matos, P Pereira, P Felício, J Guisado, G Pires, J Moreira, Y Ahmad, *EDP Distribuicao, Portugal*, A Botelho, *EDP Inovacao, Portugal*
- 0141**     **Enhancing stakeholders involvement by suggestion system, Alborz Province power distribution company experiences**  
N Eskandari, B Jamshidieini, A Dadashi, H Khosravi, *Alborz Province Power Distribution*

*Company, Islamic Republic of Iran*

- 0163 Automated control of efficiency of LV Grid**  
J-F Tissier, J Cornet, H Dumont, *ITRON, France*
- 0165 Better oversight and management of electricity use with smart meter**  
L Predescu, D Vornicu, *CEZ Romania, Romania*
- 0175 Dispatch model of active distribution network based on demand response**  
Q Li, G Zhao, *Guizhou Power Grid Company Ltd, China*, J Hu, C Jiang, *Shanghai Jiao Tong University, China*
- 0183 Design characteristics of a smart grid dominated local market**  
I Ilieva, B Bremdal, J Rajasekharan, *NCE Smart Energy Markets, Norway*, S Ødegaard Ottesen, *eSmart Systems, Norway*, P Olivella-Rosell, *Universitat Politècnica de Catalunya, Spain*
- 0211 Applying phase-change energy storage in active distribution system planning**  
X Shen, S Zhu, Y Han, J Zheng, *Tsinghua University, China*, L Li, Q Li, *China Southern Power Grid, China*
- 0253 Profitability of different Li-ion batteries as back-up power in LVDC distribution network**  
J Markkula, O Vilppo, P Järventausta, *Tampere University of Technology, Finland*, T Hakala, T Lähdeaho, *Elenia Oy, Finland*
- 0266 Risk assessment of aggregated flexibility usage for optimal multi-market trade**  
P MacDougall, B Ran, *TNO, Netherlands*, K Kok, *DTU, Netherlands*
- 0279 Power-based tariffs boosting customer-side energy storages**  
J Haakana, V Tikka, J Tuunanen, N Belonogoda, J Lassila, J Partanen, *Lappeenranta University of Technology, Finland*
- 0286 Towards more reliability for renewable energy generation: PEGASE demonstration project in La Réunion island**  
E Radvanyi, V Grellier, S Ruiz, *EDF, France*
- 0291 Optimal Energy Management in Smart Home in the Presence of PHEV**  
H Moradi, A Ahmadian, M Aliakbar-Golkar, *K. N. Toosi University of Technology, Islamic Republic of Iran*
- 0297 Experimental validation of flexibility provision by highly distributed demand Portfolio**  
M H Syed, G M Burt, *University of Strathclyde, UK*, R D'Hulst, J Verbeeck, *EnergyVille-VITO, Belgium*
- 0301 Real-time pricing of distribution network based on node load sensitivity**  
D Chen, X Chen, J Wang, K Yun, Y Liao, *Hohai University, China*
- 0318 Increased hosting capacity by means of active power curtailment**  
B Bletterie, S Kadam, J Le Baut, *AIT, Austria*
- 0334 Valuation of consumption flexibilities in distribution system planning**  
A Bouorakima, J Boubert, M-A Lafittau, *ERDF, France*
- 0338 The potential of IT to enhance flexibility of domestic practices in a local energy cooperative**  
N Verkade, J I Höffken, *Eindhoven University of Technology, Netherlands*, M van Huijkelom, *Enexis B.V., Netherlands*
- 0343 DSO congestion management using demand side flexibility**  
A Esmat, J Usaola, *Universidad Carlos III de Madrid, Spain*
- 0344 Standardisation of curtailment analysis and the implications for distribution**

**networks operators and generators**

R L Taljaard, M R Hammond, G W Ault, R MacDonald, E Davidson, P Almeida, *Smarter Grid Solutions Ltd., UK*

- 0348 Sambaza Watts: a nano-grid for accessing and sharing energy**  
B A Orner, D E Reilly, A Chase, V Deokar, S P Linder, *Schneider-Electric, USA*, P Goyal, J A Paradiso, E Zuckerman, *M.I.T Media Labs, USA*
- 0365 The impact of the coincidence of STOR and Triad events on STOR provider's net-income considering load recovery characteristics**  
C Mullen, N S Wade, P C Taylor, *Newcastle University, UK*, O Olabisi, *Siemens, UK*
- 0367 Assessing DER flexibility in a German distribution network for different scenarios and degrees of controllability**  
A Silva, J Sumaili, L Carvalho, L Seca, R Bessa, *INESC TEC, Portugal*, J Silva, M Matos, *INESC TEC, Portugal/FEUP, Portugal*, G Schaarschmidt, R Hermes, *RWE, Germany*
- 0368 Classifying flexibility types in smart electric distribution grids: a taxonomy**  
R Bärenfänger, *University of St. Gallen, Switzerland*, E Drayer, *University of Kassel, Germany*, D Daniluk, B Otto, *Fraunhofer IML, Germany*, E Vanet, R Caire, *G2Elab Grenoble INP, France*, T Shamsi Abbas, B Lisanti, *ActValue, Italy*
- 0369 New solutions for a better distributed generation integration to MV and LV networks**  
F Beauné, O Carré, S Levaufre, L Karsenti, *ERDF, France*
- 0372 A photovoltaic production estimator based on artificial neural networks**  
E Corsetti, A Guagliardi, C Sandroni, *RSE, Italy*
- 0374 A business model for an EV charging station with battery energy storage**  
T Martinsen, *University of Tromsø, Norway/University of Life Sciences, Norway*
- 0376 Innovative monitoring system for LV Grid**  
D Valmacco, *RESA, Belgium*, N Clerc, *Socomec, France*
- 0379 Demand response based on smart metering infrastructure to facilitate PV integration in low voltage grids**  
M González Vayá, M Koller, V Wyss, S Poelzig, *EKZ, Switzerland*, M Baldinger, T Borsche, *ETH Zurich, Switzerland*
- 0382 Integration of energy storage in LV Grid normal and emergency operation**  
M Marques, *EDP, Portugal*, P Mousinho, *EDP Distribuição, Portugal*, A Leiria, *EDP Labelec, Portugal*, R Bessa, C Gouveia, A Madureira, C Moreira, *INESC TEC, Portugal*, M Gerlich, *Siemens AG, Germany*, S Rodriguez, *GP Tech, Spain*
- 0388 SENSIBLE Project: Évora demonstrator enabling energy storage and energy management creating value for grid and customers**  
G Mendes, F Guerra, *EDP, Portugal*, A Ferreira, L Rocha, *EDP Labelec, Portugal*, R Bessa, C Gouveia, *INESC TEC, Portugal*, C Murphy-O'Connor, *INDRA, Spain*, S Albuquerque, *EDP Distribuição, Portugal*
- 0390 Daily and short term optimal energy management with uncertainty**  
C Sandroni, E Corsetti, G A Guagliardi, *RSE, Italy*, S Raimondi Cominesi, R Scatolini, *Politecnico di Milano, Italy*
- 0395 Customers' flexibility valued in market and regulated environment**  
R Mendes André, G Mendes, *EDP, Portugal*, T Rautiainen, *Empower, Portugal*, E Jiménez, *INDRA, Spain*, C Varandas, N Lopes, *EDP Labelec, Portugal*, A Michiorri, *Armines, Portugal*, G Pires, *EDP Distribuição, Portugal*, P Matos, *EDP Comercial, Portugal*
- 0403 Optimising virtual power plant response to grid service requests at Newcastle**



**Science Central by coordinating multiple flexible assets**

AM Jenkins, C Patsios, P Taylor, *Newcastle University, UK*, A Khayrullina, V Chirkin, *Skolkovo Institute of Science and Technology, Russia*

- 0405 Multi-agent control system for the exploitation of vehicle to grid in active LV networks**  
S Mocci, N Natale, F Pilo, S Ruggeri, *University of Cagliari, Italy*
- 0410 Dynamic Network Tariffs: are they the most efficient way to match peak consumption and network incremental costs?**  
G Pires, J F Nunes, *EDP Distribuição, Portugal*, J T Saraiva, R B Pinto, J N Fidalgo, *INESC TEC, Portugal*
- 0412 Overview of decentralised distribution system operation techniques**  
I Kouveliotis-Lysikatos, D Koukoula, A Dimeas, *NTUA, Greece*, N Hatziargyriou, *NTUA, Greece/HEDNO, Greece*, S Makrynikas, *HEDNO, Greece*
- 0413 Prosumers, the Portuguese case**  
J Falcão, G Silva, S Barbosa, R Prata, *EDP Distribuição, Portugal*
- 0416 Feasibility studies of end-customer's local energy storage on balancing power market**  
N Belonogova, J Haakana, V Tikka, J Lassila, J Partanen, *Lappeenranta University of Technology, Finland*
- 0425 The role of heat pumps in multi-energy systems in city quarters**  
S Kregel, T Falke, A-K Meinerzhagen, A Schnettler, *RWTH Aachen University, Germany*
- 0428 Flexibilities at customers premises: NICE GRID prosumers**  
T Drizard, C Labosse, *ERDF, France*, I Jalmain, B Chazottes, *EDF, France*
- 0431 Impact of market-based flexibility on distribution grids**  
T Esterl, R Schwalbe, D Burnier de Castro, F Kupzog, S Kadam, *AIT, Austria*, M Kolenc, *cyberGRID GmbH, Slovenia*
- 0435 SGAM business layer for a local flexibility market**  
M Pavlovic, T Gawron-Deutsch, K Diwold, *Siemens AG, Austria*, C Neureiter, *FH Salzburg, Austria*
- 0441 Correlation analysis of distribution grid state through high-resolution measurement data**  
C Tzanetopoulou, M Eisenreich, T Panneck-Conrady, *BKW Energie AG, Switzerland*, A Brenzikofer, *SCS, Switzerland*
- 0446 Assessment of price and quantity of ancillary services provided by active distribution systems at the TSO/DSO interface**  
N Natale, F Pilo, G Pisano, G G Soma, *University of Cagliari, Italy*, M Coppo, R Turri, *University of Padova, Italy*, G Petretto, M Cantù, G Gigliucci, *ENEL, Italy*
- 0459 Developing and enhancing business processes to enable higher levels of TSO-DSO interaction**  
A Z M Shahriar Muttalib, G A Taylor, *Brunel University London, UK*, M E Bradley, *National Grid UK, UK*
- 0470 Evaluation of alternative network tariffs - for residential customers with hourly metering of electricity consumption**  
H Sæle, Ø Høivik, D E Nordgård, *SINTEF Energy Research, Norway*

13:05 – 14:00 Lunch

14:00 – 15:30 **ELECTRA FP7 project consultation with grid operators and energy professionals**

**Room: Europaea**

- Part I – Overview (25 min)
  - Introduction ELECTRA IRP (5 min), Seppo Hänninen, VTT Technical Research Centre of Finland
  - Presentation and interactive discussion of the Web of Cell approach (20 min), Helfried Brunner, AIT Austrian Institute of Technology
- Part II – Integration and Validation (60 min)
  - Presentation and interactive discussion of the validation approach for the Web of Cell concept (30 min), Graeme Burt, University of Strathclyde, Thomas Strasser, AIT Austrian Institute of Technology
  - Presentation and interactive discussion of the future control room functionality (30 min), Carlo Tornelli, Ricerca sul Sistema Energetico (RSE), Mattia Marinelli, Technical University of Denmark (DTU)
- Part III – Summary (5 min)
  - Summary and Conclusions (5 min), Graeme Burt, University of Strathclyde