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386	<p>An On-board Energy Storage System for Catenary Free Operation of a Tram</p> <p>H. M. Al-Ezee(1), S. Tennakoon(1), I. Taylor(1), D. Schedeicker(2), J. Schweickart(2) 1. Faculty of Computing, Engineering and Sciences. Staffordshire University. U.K. 2. NewTL S.A.S. Ernolsheim sur Bruche</p>

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391	<p>Operation and Maintenance Cost Effect on Optimal Sizing of PV Array and Battery for a Grid-Connected House</p> <p>M.A Hejazi(1), Ali Khorrami(1), Gevork B. Gharehpetian(2)</p> <p>1. Electrical and Computer Engineering Department, University of Kashan, Kashan. Iran 2. Electrical Engineering Department, Amirkabir University of Technology, Tehran. Iran</p>
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397	<p>About power quality monitoring in residential grids</p> <p>M. Buzdugan, H. Balan Technical University of Cluj-Napoca. Romania</p>
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399	<p>The Simulation Analysis for Increasing Output Power in Photovoltaic System by Using Segmented String and Constant Voltage Boost Chopper with MPPT</p> <p>Xiaoyang Li, Teruhisa Kumano Electrical Engineering Program at Graduate School of Science and Technology, Meiji University. Japan</p>
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408	<p>A Contribution for the Diagnosis of Insulation Cables due different conditions of degradation, voltage stress and frequency F. N. Lima, R. W. D. R. Frana, A. P. Finazzi, B. C. Carvalho, Ariela Zanoni Conejo, Marina Timo de S�, Iago de Moura Faria Federal University of Mato Grosso (UFMT), Department of Electrical Engineering– Cuiab�. Brazil</p>

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	PP:652-657
420	<p>Power Quality Analysis of a Biogas Micro-Generation Unit; Performance Comparative of Distributed Generation in respect to Brazilian National and International Standards</p> <p>Ferreira, L. R. A(1), , Otto, R. B.(1,2) , Kitamura, D. S(1)., Scherer, H.V.(1), De Souza, S. N. M.(2), Ando Junior, O. H.(3)</p> <ol style="list-style-type: none"> 1. Automation and Simulation of Electrical Systems Laboratory (Lasse) Itaipu Technological Park (PTI) Foz do Iguacu – Parana. Brazil 2. Programa de Pos-Graduacao em Engenharia de Energia na Agricultura - PPGEA UNIOESTE, State University of Western Parana. Cascavel-PR. Brazil 3. Departament of Renewable Energies. UNILA, Federal University of Latin American Integration. Foz do Iguacu-PR. Brazil
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422	<p>Utilization of residual heat in Diesel engines, CFD simulation of a thermoelectric generator</p> <p>L. Montoro, A. Massaguer, E. Massaguer, M. Comamala, R. Fernández, A. Deltell University of Girona. Spain</p>
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426	<p>PWM strategy with harmonics injection and modulated frequency triangular carrier. A review</p> <p>A. Ruiz-González(1), M. Meco-Gutierrez(1), F.M. Pérez-Hidalgo(1), F. Vargas Merino(1), J. Heredia-Larrubia(2)</p> <ol style="list-style-type: none"> 1. Department of Electrical Engineering. E.T.S.I.I., Málaga University. Spain 2. Department of Technology Electronic. E.T.S.I.I., Málaga University. Spain
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428	<p>Electromagnetic evaluation of an in-wheel double rotor axial-flux switched reluctance motor for electric traction</p> <p>P.Andrada, E.Martínez, M.Torrent, B.Blanqué GAECE, DEE, EPSEVG. Universitat Politècnica de Catalunya UPC-BARCELONATECH, Vilanova i la Geltrú, Spain</p>
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429	<p>Power Control with Static Synchronous Series Compensator for Distribution Network integrating Wind Farm based on DFIGs</p> <p>O. Aouchenni(1), R. Babouri(1), D. Aouzellag(1), F. Chabour(2), C. Nichita(2)</p> <ol style="list-style-type: none"> 1. Department of Electrical Engineering, Laboratoire de Maitrise des Energies Renouvelables, BEJAIA University. Algeria

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432	Renewable Energy Generation Technologies on Urban Scale A. Barragán(1), P. Arias(2), J. Terrados(3) 1. Carrera de Ingeniería Eléctrica. Universidad Politécnica Salesiana. Cuenca. Ecuador 2. Carrera de Ingeniería Eléctrica. Universidad Católica de Cuenca. Ecuador 3. Departamento de Ingeniería Gráfica, Diseño y Proyectos Universidad de Jaén. Spain
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433	Non-linear inductor modelling for a DC/DC Buck converter G. Lullo(1), D. Scirè(1), G. Vitale(2) 1. Dipartimento di Energia, ingegneria dell'Informazione, e modelli Matematici Università di Palermo. Italy 2. Istituto di Studi sui Sistemi Intelligenti per l'Automazione (ISSIA), Consiglio Nazionale delle Ricerche (CNR), Palermo. Italy
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439	Efficiency of auxiliary mounted passive solar systems Milan Belik Department of Power Engineering and Ecology. University of West Bohemia Pilsen. Czech Republic
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440	Why some utilities are opposed to the connection of renewable distributed sources in their distribution systems? Juan Carlos Gómez Targarona, Jorge Arcurio, Jorge Vaschetti, Carlos Coyos, Carlos Ibarlucea, Miguel Piumetto Power Quality Research Group. Córdoba Regional Faculty Technological National University. Argentina
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445	Drive the switched Reluctance Generator with mesh load Voltage Control A.C. Assunção(1), A.W.F.V. Silveira(1), A.V.S. Fleury(2), D.A. Andrade(1), G.F. Cardoso(1), J.R. Camacho(1), L.C. Gomes(1) 1. Federal University of Uberlandia. Minas Gerais. Brazil

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450	Cost-Benefit Comparison of a Time-of-Use Tariff and Real-Time Pricing of Electricity Associated with Automated HVAC Load Management Strategies in Bank Across Mainland Portugal L. Pires Klein(1,2), L. Landeck(2), L. Matos(2), I. Torres(2), A. Bernardes(2) 1. Sustainable Energy Systems Doctoral Program. MIT Portugal Initiative. University of Coimbra. Portugal 2. Virtual Power Solutions Iberia. Pedro Nunes Institute (IPN)–Coimbra. Portugal
	PP:734-739
452	On the robustness of a multiperiod energy management system including electric vehicles and V2G operation A. Jiménez-Marín, J. Pérez-Ruiz Department of Electrical Engineering. Universidad de Málaga. Spain
	PP:740-744
453	The Brazilian Automotive Industry and Sustainability Nilcéia Cristina dos Santos(1), Reinaldo Gomes da Silva(2), Maria Helena Bernardo Myczkowski(1) 1. Faculdade de Tecnologia de Piracicaba “Dep. Roque Trevisan” (FATEC PIRACICABA). CEETPS, Centro Estadual de Educação Tecnológica Paula Souza. Brazil 2. Escola de Engenharia de Piracicaba (EEP). FUMEP, Fundação Municipal de Ensino de Piracicaba. Brazil
	PP:745-750
455	Determining Five Kinds of Power Quality Disturbances by Using Statistical Methods and Wavelet Energy Coefficients Ç. Kocaman(1), M. Özdemir(2) 1. Department of Aeroplane Maintenance and Repair. Ondokuz Mayıs University Samsun. Turkey 2. Department of Electrical and Electronic Engineering. Ondokuz Mayıs University Turkey

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456	<p>Least-squares versus LMS parametric approaches for power quality events segmentation</p> <p>Enrique Alameda-Hernandez(1), Fernando Aznar(1), Francisco Gil(2), Antonio Espin(1)</p> <p>1. Área de Ingeniería Eléctrica. Universidad de Granada. Spain. 2. Área de Ingeniería Eléctrica. Universidad de Almería.. Spain.</p>
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457	<p>Convective Heat Loss Analysis of a Cavity Receiver for a Solar Concentrator</p> <p>O. López(1), A. Arenas(2), A. Baños(1)</p> <p>1. Dpt de Electromagnetismo y Electrónica, University of Murcia. Spain 2. Dpt. de Informática y Sistemas, University of Murcia. Spain</p>
	PP:763-768
458	<p>Study of the Impact of Introducing Smart Meters in the Spanish Electricity Market</p> <p>S. Martin, M. Cabral</p> <p>Department of Electrical Engineering. Escuela Politecnica Superior, Universidad de Málaga. Spain</p>
	PP:769-773
460	<p>Trigeneration for domestic purposes in isolated areas based on hybrid RES</p> <p>L. Acevedo(1), J. Uche(1), A. Martinez(1), A.A. Bayod-Rújula(2), A. Del-Amo(3)</p> <p>1. Energy and Environmental Technologies Area. CIRCE Research Institute Zaragoza. Spain 2. Department of Electrical Engineering. Zaragoza. Spain 3. ENDEF Company. Zaragoza. Spain</p>
	PP:774-777
461	<p>Profitable small-scale renewable energy systems in agrifood industry and rural areas: demonstration in the wine sector</p> <p>José L. Bernal-Agustín(1), Rodolfo Dufo-López(1), Javier Carroquino-Oñate(1), Jesús S. Artal-Sevil(1), José A. Domínguez-Navarro(1), Ángel A. Bayod-Rújula(1), Jesús Yago-Loscos(2)</p> <p>1. Department of Electrical Engineering. EINA. Zaragoza University. Spain 2. Intergia energía sostenible S.L. Zaragoza. Spain</p>
	PP:778-783
463	<p>Analysis of the Energy Transmission System Performance after the use of Linear Reactor and Saturated Reactors for Voltage Regulation</p> <p>A. B. Vasconcellos(1), T.I.R.C. Malheiro(2), I.M. Faria(1), G.N.Lopes(1), V.H.F. Brito(1)</p> <p>1. Federal University of Mato Grosso (UFMT), Electrical Engineering Department – Cuiabá. Brazil 2. Federal Institution of Education, Science and Technology of Mato Grosso – I</p>

	IFMT– Cuiabá. Brazil
	PP:784-790
466	Design of an Appliance Switch Responding to Solar Energy Ambalika Pradip Koshti, Arthur Williams Department of Electronics and Electrical Engineering. University of Nottingham. United Kingdom
	PP:791-796
467	Analysis of the Advanced Static Var Compensator Performance using ATPDraw R.M. Martins(1), W. K. A. G. Martins(2), V. H. F. Brito(2), I. M. Faria(2), B. M. Giancesini(2), R. R. Dias(2) 1. Federal Institute of education, Science and Technology of Mato Grosso, IFMT, Cuiabá. Brazil 2. Electrical Engineering Department. Federal University of Mato Grosso (UFMT) Cuiabá. Brazil
	PP:797-802
469	Impact of overhead line parameters on the short-term voltage stability and its mitigation devices J.C. del-Pino-López, M. Tostado-Véliz, P. Cruz-Romero Escuela Técnica Superior de Ingeniería. University of Seville. Spain
	PP:803-807
470	A comparative assessment of different alternatives to repower transmission corridors for the future supergrid M. Borau-Rumbao, P. Cruz-Romero, A. de-la-Villa-Jaén Department of Electrical Engineering. Escuela Técnica Superior de Ingeniería, Universidad de Sevilla. Spain
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472	Cooking with the Sun: Teaching and capaciting about Solar Energy Juan Bello Llorente Department of Construction and Civil Engineering. CIFP Somo. A Coruña (Spain)
	PP:813-818
473	Analysis of the Impact of the Crowbar Protection on Short-Circuit Level and Quality Index Piedy del Mar Agamez Arias(1,2), Marcus Vinicius Alves Nunes(1) 1. Tecnology Institute ITEC - Department of Electrical Engineering. Federal do Pará University, Guamá. Brazil 2. INESC TEC-InstitutodeEngenharia de Sistemas e Computadores. University of Porto. Portugal
	PP:819-824
475	Isolated operation of wind energy system in critical micro-grid A. Peña Asensio, M. Garcia-Plaza, S. Arnaltes Gómez, J.L. Rodriguez-Amenedo, J. Eloy-Garcia Carrasco, J. Alonso-Martinez Department of Electrical Engineering, Carlos III University, Leganes. Madrid. Spain

	PP:825-830
485	<p>From Time-to-Frequency Domain SMPS Model for Aggregated Harmonic Estimation</p> <p>Gabriel Malagon-Carvajal, Jeisson Bello-Penay, Gabriel Ordonez-Plataz, Cesar Duartex Department of Electric, Electronic and Telecommunications Engineering Universidad Industrial de Santander. Bucaramanga. Colombia</p>
	PP:831-836
488	<p>Numerical Investigations of a Vertical Axis Wind Turbine with Variable Pitch</p> <p>F. Frunzulica(1,2), C. Olteanu(3), A. Dumitrache(2) D. Crunteanu(1) 1. Department of Aerospace Engineering. POLITEHNICA University of Bucharest Romania 2. "Gh. Mihoc – C. Iacob" Institute of Mathematical Statistics and Applied Mathematics, Bucharest. Romania 3. Turbomecanica S.A.Bucharest. Romania</p>
	PP:837-841
490	<p>Approach to the Modeling of LDO-Assisted DC-DC Voltage Linear Regulators</p> <p>Nasima Sedaghati, Herminio Martínez-García, Jordi Cosp-vilella Eastern Barcelona School of Engineering (Escuela de Ingeniería de Barcelona Este – EEBE). Department of Electronics Engineering. Technical University of Catalonia (UPC). BarcelonaTech. Spain</p>
	PP:842-846
491	<p>Course on Renewable Energies for Energy Engineering Students in the Framework of the European Higher Education Area (EHEA)</p> <p>Herminio Martínez-García, Jordi Cosp-Vilella Eastern Barcelona School of Engineering (Escuela de Ingeniería de Barcelona Este – EEBE). Department of Electronics Engineering. Technical University of Catalonia (UPC). BarcelonaTech. Spain</p>
	PP:847-853
493	<p>Compensation of Voltage Harmonics for LCL-filtered Inverters in Islanded Microgrids</p> <p>R. Ghanizadeh(1), M. Ebadian(1), G. B. Gharehpetian(2) 1. Department of Electrical and Computer Engineering, University of Birjand. Iran B 2. Electrical Engineering Department, Amirkabir University of Technology, Tehran. Iran</p>
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495	<p>Intelligent Transmitter of Field (ITF) Based on Microcontroller for Data Acquisition in PV Solar Plants</p> <p>Herminio Martínez-García, Encarna García-Vílchez Eastern Barcelona School of Engineering (Escuela de Ingeniería de Barcelona Este – EEBE). Department of Electronics Engineering. Technical University of Catalonia (UPC). BarcelonaTech. Spain</p>

	PP:859-864
497	<p>Forklifts, Automated Guided Vehicles and Horizontal Order Pickers in Industrial Environments. Energy Management of an Active Hybrid Power System based on Batteries, PEM Fuel Cells and Ultracapacitors</p> <p>J.S. Artal-Sevil, J.L. Bernal-Agustín, R. Dufo-López, J.A. Domínguez-Navarro Department of Electrical Engineering. EINA Escuela de Ingeniería y Arquitectura. University of Zaragoza. Spain</p>
	PP:865-870
498	<p>Assessment of Harmonic Contribution of a Photovoltaic Installation Based on Field Measurements</p> <p>Morteza Pourarab, Jan Meyer, Robert Stiegler Institute of Electrical Power Systems and High Voltage Engineering Technische Universität Dresden. Germany</p>
	PP:871-875
500	<p>Network Usage Tariff (NUT) structure and vision in Hungary in consideration of renewable generation trends</p> <p>I. Vokony Department of Electric Power Engineering. Budapest University of Technology and Economics. Hungary</p>
	PP:876-881
501	<p>Nonlinear Control Structure of Grid Connected Modular Multilevel Converters</p> <p>A. Hajizadeh(1), L.E.Norum(2), A. Ahadpour Shal(3) 1. Department of Energy Technology, Aalborg University. Denmark 2. Department of Electrical Power Engineering. Norwegian University of Science And Technology. Trondheim. Norway 3. Faculty of Electrical Engineering and Information Technology. RWTH-Aachen University. Germany</p>
	PP:882-885
504	<p>The Impact of the Air-Conditioning Systems on the Urban Microclimate of Beirut City</p> <p>Z. Ghaddar, K. Ghali, N. Ghaddar Department of Mechanical Engineering. FEA, American University of Beirut. Lebanon</p>
	PP:886-892
505	<p>Optimisation of bipolar plate through computational fluid dynamic simulation and modelling using nickle open pore cellular foam material</p> <p>Tabbi Wilberforce(1), Ahmed Al Makky(1), A. Baroutaji(2), Rubal Sambhi(1), A. G. Olabi(1) 1. Institute of Engineering and Energy Technologies, University of the West of Scotland. United Kingdom 2. Cork Institute of Technology, Department of Process, Energy and Transport</p>

	Engineering. United Kingdom
	PP:893-898
507	New Control Algorithms for Microgrids Based on Microturbines I. Leibar, I. Zamora, P. Eguia, J.I. San Martin Department of Electrical Engineering. University of Basque Country - UPV/EHU. Bilbao. Spain
	PP:899-902
510	Analysis of the insertion of solar Photovoltaic generation in large consumers of Rio de Janeiro: A Case Study Nogueira, P.C.(1), Souza, C. R.(2) 1. Civil Engineering Department 2. Electrical Engineering Department PUC-Rio, Pontifical Catholic University of Rio de Janeiro. Brazil
	PP:903-910
512	Design and Prototype of a Micro Hydrokinetic Vertical Turbine A.M. Ramirez Tovar(1), Y.U. Lopez(2), S. Laín(2) 1. Renewable Energy for All-Foundation. Cali, Colombia 2. Autonoma de Occidente University, Department of Energetic and Mechanic, Cali. Colombia
	PP:911-916
514	Energy efficiency strategies to improve productivity and competitiveness of the EU countries A. Martínez, S. Valero, C. Senabre, E. Velasco Department of Mechanical and Energy Engineering. E.T.S.I.I., Miguel Hernandez University Elche, Alicante. Spain
	PP:917-921
518	Solar belt supplies electricity for the World Péter Kádár Óbuda University. Dept. of Power Systems, Alternative Energy Sources Knowledge Centre. Budapest. Hungary
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520	Prospectes of wind power generation in Jordan: the case of street lighting S. Sawalha Faculty of Engineering Technology. Al-Balqa' Applied University. Amman
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521	Propulsion Subsystem On Low Cost Electric Vehicles Using Common Large Scale Industrial Equipment Claudinilson A. Luczkiewicz, César D. Paredes Crovato Department of Electrical Engineering. Universidade Vale do Rio dos Sinos Campus of São Leopoldo – Rio Grande do Sul. Brazil



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522	Passive Series-Parallel Compensator for Non-sinusoidal Power System Seong-Jeub Jeon Department of Electronic Engineering. Pukyong National University. Busan. Korea
	PP:939-944
525	Molten salt based nuclear-renewable energy system with thermal storage G. Maronati, B. Petrovic Georgia Institute of Technology. Atlanta USA