



Curriculum Vitae

Personal information		
First name(s) / Surname(s)	Damir Jakus	
Address(es)	60, Primorska, 21213, K.Gomilica, Croatia	
Telephone(s)	00385 21 305807	Mobile: 00385 91 4305807
Skype:	damir.jakus	
E-mail	damir.jakus@fesb.hr	
Nationality	Croatian	
Date of birth	12.07.1984.	
Gender	Male	
Work experience		
Dates	08/2018 –	
Occupation or position held	Associate professor Head of the department for electrical networks and energy facilities	
Main activities and responsibilities	Teaching in following courses: Mathematical programming in power system networks, Electrical networks, Electric power distribution systems, Engineering economics, Renewable energy sources Recent industrial and research projects: <ul style="list-style-type: none">- “Research and development of smart-grid charging station for electric vehicles within the construction of a rotary parking system”- “System for the establishment of a stable electrical distribution network (GridS)”- “Application of advanced optimization and machine learning methods for optimal planning and control of power systems with a high share of RES (ADVANCE - RES)”	
Name and address of employer	Faculty of electrical engineering, mechanical engineering and naval architecture, University of Split Rudjera Boskovicica 32, 21000 Split, Croatia	
Type of business or sector	University of Split, Power System Department	
Dates	07 / 2013. – 08/2018	
Occupation or position held	Assistant professor	
Main activities and responsibilities	Teaching in following courses: Renewable energy sources, Mathematical programming in power system networks, Electrical networks, Electric power distribution systems, Engineering economics, Fundamentals of electrical engineering.	
Name and address of employer	Faculty of electrical engineering, mechanical engineering and naval architecture, University of Split Rudjera Boskovicica 32, 21000 Split, Croatia	
Type of business or sector	University of Split, Power System Department	
Dates	15.01.2007. – 17.07.2013.	
Occupation or position held	Assistant-researcher	
Main activities and responsibilities	Teaching assistant in following courses: Electrical networks, Power system analysis, Electric power distribution systems, Wind power generation, Engineering economics, Fundamentals of electrical engineering. Researcher on scientific project “Power system expansion and operation with large scale integration of wind power”.	

Name and address of employer	Faculty of electrical engineering, mechanical engineering and naval architecture, University of Split Rudjera Boskovicica 32, 21000 Split, Croatia																																			
Type of business or sector	University of Split, Power System Department																																			
Education and training																																				
Dates	10/2006-11/2012																																			
Title of qualification awarded	Dr.sc. (Phd degree) – Electrical Engineering/Power Systems																																			
Name and type of organisation providing education and training	Faculty of electrical engineering, mechanical engineering and naval architecture, University of Split Rudera Boskovicica 32, 21000 Split, Croatia																																			
Phd. thesis	<i>Wind power integration considering limited transmission capacity</i>																																			
Dates	10/2002-07/2006																																			
Title of qualification awarded	Mag. ing. el. (master degree) – Electrical Engineering/Power Systems																																			
Name and type of organisation providing education and training	Faculty of electrical engineering, mechanical engineering and naval architecture, University of Split Rudera Boskovicica 32, 21000 Split, Croatia																																			
Personal skills and competences																																				
Mother tongue(s)	Croatian																																			
Other language(s)	English																																			
Self-assessment	<table border="1"> <thead> <tr> <th colspan="4">Understanding</th> <th colspan="4">Speaking</th> <th colspan="2">Writing</th> </tr> <tr> <th colspan="2">Listening</th> <th colspan="2">Reading</th> <th colspan="2">Spoken interaction</th> <th colspan="2">Spoken production</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>C2</td> <td>Proficient user</td> <td>C1</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> <td>C1</td> <td>Proficient user</td> <td>C1</td> <td>Proficient user</td> </tr> </tbody> </table>						Understanding				Speaking				Writing		Listening		Reading		Spoken interaction		Spoken production				C2	Proficient user	C1	Proficient user	C2	Proficient user	C1	Proficient user	C1	Proficient user
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<i>European level (*)</i>	(*) Common European Framework of Reference for Languages																																			
Computer skills and competences	<p>Programming skills in: Python (Django, Pyomo, Gurobipy, Pandapower, PyPower...)</p> <p>Mathematical programming and optimization: <i>Pyomo</i>, Gurobipy, <i>GAMS</i></p> <p>Microsoft office (Advanced user of Microsoft Excel+Visual Basic for Application),</p> <p>Advanced user of various software for power system analysis: Plexos, Powerfactory, PowerCAD, WinDIS, Homer, RETScreen International, Matpower, ...</p> <p>Advanced user of Mathworks MATLAB (both Simulink toolboxes and programming interface)</p> <p>Intermediate user of Autocad (Map and Raster design)</p>																																			
Hobbies	Basketball, spearfishing, Arduino																																			

Additional information

Awards:

2006. – Annual award “Hrvoje Požar” for excellent study achievements
2006. - Faculty's award for the best student of power engineering.

Main areas of scientific and commercial work:

Power system optimization
Integration of renewable resources
EV optimal charging
Power system analysis
Electricity market
Transmission expansion planning
Probabilistic approach based planning, analysis and operation methods for power systems with wind power penetration

Research/industry activities and interests:

Primary research and industry related interests include integration of renewable energy sources and electric vehicles, in particular, impact of renewable energy and electric vehicles on transmission/distribution congestions and expansion planning, as well as optimal participation in energy and reserve markets.

Last two years working as a principal researcher on a project related to development of a smart-grid charging station for electric vehicles within the construction of a rotary parking system. The research focus is on development of web services for optimal EV charging management considering different objective functions (energy cost minimization, RES supply maximization, EV energy curtailment minimization in congested networks) and different EVCS energy supply schemes (grid, grid + PV, grid +PV +battery storage). Currently focusing on the development of algorithms and REST APIs for combine participation of hybrid EV charging stations (grid+PV+energy storage) on day-ahead and reserve markets.

Generally, due to the strong development of renewable energy sources, EV integration, lack of investment in the development and revitalization of the transmission/distribution network, my main research focus was related to development of a methodologies that will enable the identification of maximum grid integration capabilities of existing transmission/distribution network without the need for additional investments in network development, and without significant disruptions of relations in the electricity market. At a system level, energy storage and optimal EV charging coordination can be used as a measure to relive transmission/distribution congestions, to avoid investments in power network and reduce the reserve requirements from conventional power plants which are necessary to compensate stochastic nature of renewable energy sources. Future work will be focused on techno-economic analysis of energy storage and optimal EV charging coordination as an alternative solution to transmission/distribution expansion and balancing support from conventional power plants.

Since this matter covers different categories of problems, knowledge of wide range of scientific methodologies and tools is required. Therefore subcategories of interests include:

- Time-series analysis, forecasting and simulation (description of all variables in power system Wind, Solar, Hydro, Load, Electricity market prices ...),
- Application of mathematical programming concepts for solution of different optimization problems related to power systems with significant shares of renewable energy sources (optimal capacity allocation, stochastic unit commitment, multiperiod optimal power flow, ...)
- electricity markets, and power system analysis
- etc.

Annex 1 List of Publications

Books:

Goić, Ranko; Jakus, Damir; Penović, Ivan: *Electrical Distribution Network (Distribucija električne energije)*, FESB, 2008.

Goić, Ranko; Jakus, Damir: *Fundamentals of Power Engineering (Osnove elektroenergetike)*, FESB, 2007.

Goić, Ranko; Jakus, Damir; Penović, Ivan: *Electrical Networks (Električne mreže)*, FESB, 2007.

Journal papers (full list available at: <https://www.bib.irb.hr/pregled/profil/21982>):

Vasilj, Josip; Jakus, Damir; Sarajcev, Petar, *Robust Nonlinear Economic MPC based Management of a Multi Energy Microgrid*. // IEEE transactions on energy conversion, 36 (2021), 2; 1-10 doi:10.1109/TEC.2020.3046459

Vasilj, Josip; Jakus, Damir; Sarajcev, Petar, *Virtual Storage-Based Model for Estimation of Economic Benefits of Electric Vehicles in Renewable Portfolios*. // Energies, 13 (2020), 9; 1-19 doi:10.3390/en13092315

Sarajčev, Petar; Jakus, Damir; Mudnić, Eugen, *Gaussian process regression modeling of wind turbines lightning incidence with LLS information*. // Renewable energy, 146 (2020), 1221-1231 doi:10.1016/j.renene.2019.07.050

Jakus, Damir; Čadenović, Rade; Vasilj, Josip; Sarajčev, Petar, *Optimal Reconfiguration of Distribution Networks Using Hybrid Heuristic-Genetic Algorithm*. // Energies, 13 (2020), 7; 1544, 21 doi:10.3390/en13071544

Sarajčev, Petar; Jakus, Damir; Vasilj, Josip, *Optimal scheduling of power transformers preventive maintenance with Bayesian statistical learning and influence diagrams*. // Journal of Cleaner Production, 258 (2020), 120850, 13 doi:10.1016/j.jclepro.2020.120850

Vasilj, Josip; Gros, Sebastien; Jakus, Damir; Zanon, Mario *Day-ahead scheduling and real-time Economic MPC of CHP unit in Microgrid with Smart buildings*. // IEEE Transactions on Smart Grid, 10 (2019), 2; 1992-2001 doi:10.1109/TSG.2017.2785500

Sarajčev, Petar; Jakus, Damir; Vasilj, Josip, *Introducing novel risk-based indicator for determining transmission line tower's backflashover performance*. // Electric power systems research, 160 (2018), 337-347 doi:10.1016/j.epsr.2018.03.006

Sarajčev, Petar; Jakus, Damir; Vasilj, Josip; Vodopija, Stipe, *Application of genetic algorithm in designing high-voltage open-air substation lightning protection system*. // Journal of electrostatics, 93 (2018), 43-51 doi:10.1016/j.elstat.2018.03.003

Damir Jakus, Josip Vasilj, Rade Čadenović, Petar Sarajčev, *Optimising the transformer substation topology in order to minimise annual energy losses*, IET Generation, Transmission & Distribution, 2017

Sarajčev, Petar; Jakus, Damir; Jolevski, Danijel, *Transformer insulation coordination using volt–time curve and limit–state surface formulation*, International Journal of Electrical Power & Energy Systems. 90 (2017) ; 256-266

Vasilj, Josip; Sarajčev, Petar; Jakus, Damir, *Estimating future balancing power requirements in wind–PV power system*, Renewable energy. 99 (2016) ; 369-378

Sarajčev, Petar; Vasilj, Josip; Jakus, Damir, *Method for estimating backflashover rates on HV transmission lines based on EMTP-ATP and curve of limiting parameters*, International journal of electrical power & energy systems, 78 (2016) ; 127-137

Sarajčev, Petar; Vasilj, Josip; Jakus, Damir, *Monte–Carlo analysis of wind farm lightning- surge transients aided by LINET lightning- detection network data*, Renewable energy. 99 (2016) ; 501-513

Sarajčev, Petar; Vasilj, Josip; Jakus, Damir, *Statistical Description of Counterpoise Effective Length Based On Regressive Formulas*, International Journal of Electrical, Computer, Electronics and Communication Engineering, 9 (2015) , 2; 123-129

Vasilj, Josip; Sarajcev, Petar; Jakus, Damir, *Wind Power Forecast Error Simulation Model*, International Journal of Electrical, Computer, Electronics and Communication Engineering. 9 (2015) , 2; 115-120

Jakus, Damir; Krstulovic, Jakov; Vasilj, Josip, *Algorithm for optimal wind power plant capacity allocation in areas with limited transmission capacity*, International Transactions on Electrical Energy Systems, 24 (2013) , 10; 1505-1520

Jakus, Damir; Goić, Ranko; Krstulović Opara, Jakov, *The impact of wind power plants on slow voltage variations in distribution networks*, Electric power systems research. 81 (2011) , 2; 589-598

Goić, Ranko; Krstulović-Opara, Jakov; Jakus, Damir, *Simulation of aggregate wind farm short-term production variations*, Renewable energy, 35 (2010) , 11; 2602-2609

Goić, Ranko; Jakus, Damir; Mudnić, Eugen, *Calculation of Annual Active Energy Losses in a Distribution Network with a Connected Wind Power Plant*, Journal of Energy, 56 (2007) , 06; 676-699

Annex 1 | **International Conferences** (full list available at: <https://www.bib.irb.hr/pregled/profil/21982>):

Vasilj, Josip; Jakus, Damir; Marusic, Mateo; Relja, Mate, Robust model for EV driven grid impact estimation. // 2022 International Conference on Smart Systems and Technologies (SST), Osijek, Hrvatska: IEEE, 2022. str. 1-5 doi:10.1109/sst55530.2022.9954731

Jakus, Damir; Novakovic, Josko; Vasilj, Josip; Grbavac, Nikola; Jolevski, Danijel, Active Distribution Network Voltage Profile Optimization Using Mixed Integer Linear Programming. // 2022 International Conference on Smart Systems and Technologies (SST), Osijek, Hrvatska: IEEE, 2022. str. 1-7

Sarajcevic, Petar; Jakus, Damir; Vasilj, Josip, Ensemble learning with time-series clustering for aggregated short-term load forecasting. // Proceedings of the 20th IEEE Mediterranean Electrotechnical Conference (IEEE MELECON 2020) Palermo, Italy

Vasilj, Josip; Jakus, Damir; Sarajcevic, Petar; Grauers, Anders, Model for optimal transition towards a fully electric public transportation system. // 5th International Conference on Smart and Sustainable Technologies (SpliTech) Split, Hrvatska: IEEE, 2020. str. 1-6 doi:10.23919/splitech49282.2020.9243721

Sarajcevic, Petar; Jakus, Damir; Nikolic, Matej, Wide & Deep Machine Learning Model for Transformer Health Analysis. // 4th International Conference on Smart and Sustainable Technologies (SpliTech 2019), doi:10.23919/SpliTech.2019.8783122

Jakus, Damir; Vasilj, Josip; Sarajcevic, Petar ADVANCED ENERGY METER WITH LOAD CONTROL BASED ON ESP8266 MODULE AND MQTT PROTOCOL. // 25th International Conference on Electricity Distribution Madrid: CIRED, 2019. str. 1-5

Jakus, Damir; Čadenović, Rade; Vasilj, Josip; Sarajcevic, Petar; Maximizing distribution network hosting capacity through optimal network reconfiguration. // 16th European Energy Market Conference, Ljubljana: 2019. str. 1-5

Vasilj, Josip; Gros, Sebastien; Jakus, Damir; Sarajcevic, Petar Multi-market Scheduling of Battery Storages Within Renewable Portfolios. // 2018 IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT-Europe), Sarajevo, BiH, 2018. str. 1-6 doi:10.1109/ISGTEurope.2018.8571455

Sarajcevic, Petar; Jakus, Damir; Vodopija, Stipe; Vasilj, Josip Using Genetic Algorithms in Designing Substation Lightning Shielding. // Proceedings of the 25th International Lightning Detection Conference, Louisville, USA: Vaisala Inc., 2018. 12, 6

Sarajcevic, Petar; Jakus, Damir; Vasilj, Josip; Nikolic, Matej, Analysis of Transformer Health Index Using Bayesian Statistical Models. // 3rd International Conference on Smart and Sustainable Technologies (SpliTech) Split: FESB, 2018. S1 - 1570435404 - 2706, 7

Jakus, Damir; Vasilj, Josip; Sarajcevic, Petar; Novaković, Joško, Maximization of Expected Wind Power Plant Profit Through Optimal Offers on the Day-Ahead Market. // 15th International Conference on the European Energy Market, Lodz, 2018. str. 1-5

Jakus, Damir; Vasilj, Josip; Bošnjak, Josip; Sarajcevic, Petar; Vodopija, Stipe, Optimal Scheduling of Distributed Generation and Flexible Storage in Smart Buildings. // 15th International Conference on the European Energy Market, Lodz, Poljska, 2018. str. 1-5

Jakus, Damir; Čadenović, Rade; Bogdanović, Mia; Sarajcevic, Petar; Vasilj, Josip, *Distribution network reconfiguration using hybrid heuristic — genetic algorithm*, 2nd International Multidisciplinary Conference on Computer and Energy Science SpliTech 2017

Cadenovic, Rade; Jakus, Damir; Sarajcevic, Petar; Vasilj, Josip., Optimal reconfiguration of distribution network using cycle-break/genetic algorithm, PowerTech, 2017 IEEE Manchester

Sarajcevic, Petar; Jakus, Damir; Vasilj, Josip. *Novel indicator of transmission line towers backflashover performance* // Proceedings of the International conference on power system transients (IPST2017), Seoul

Sarajcevic, Petar; Vasilj, Josip; Jakus, Damir, *Application of Gaussian Copulas in Describing Station Impinging Lightning Overvoltages*, Proceedings of the 34th IEEE Electrical Insulation Conference (EIC), 2016. 317-320, Montreal, Kanada

Jakus, Damir; Vasilj, Josip; Sarajcevic, Petar, *Voltage control in MV distribution networks through coordinated control of tap changers and renewable energy sources*, PowerTech, 2015 IEEE Eindhoven, IEEE Power & Energy Society, 2015. 1-6

Vasilj, Josip; Jakus, Damir; Sarajcevic, Petar, *Energy and Reserve Co-optimization in Power System with Wind and PV power*, Proceedings of the 12th International Conference on the European Energy Market, Lisbon, 2015

Vasilj, Josip; Sarajčev, Petar; Jakus, Damir, *PV Power Forecast Error Simulation Model*, Proceedings of the 12th International Conference on the European Energy Market, Lisbon, 2015. 1-5

Vasilj, Josip; Sarajčev, Petar; Jakus, Damir, *Wind power forecast error simulation model*, XIII International Conference on Electrical Energy and Networks, International Scholarly and Scientific Research and Innovation, 2015, 551-556

Sarajčev, Petar; Vasilj, Josip; Jakus, Damir, *Statistical description of counterpoise effective length based on regressive formulas*, XIII International Conference on Electrical Energy and Networks. International Scholarly and Scientific Research and Innovation, 2015. 544-550

Jakus, Damir; Vasilj, Josip; Goić, Ranko, *Impact of PV Power Plants on the Voltage Conditions and Power System Losses in MV Distribution Network*, Proceedings of the 4th International Workshop on Integration of Solar into Power Systems, Berlin, 2014. 1-6

Jakus, Damir; Vasilj, Josip; Tutavac, Hrvoje, *Coordinated Control of Renewable Energy Sources in Distribution Networks*, Proceedings of the 4th International Workshop on Integration of Solar into Power Systems, Berlin, 2014. 1-6

Jakus, Damir; Krstulović Opara, Jakov; Vasilj, Josip, *Correlation and autocorrelation characteristics of Croatian wind resource and method of synthetic wind data simulation*, EWEA 2013 Conference proceedings, Vienna, EWEA, 2013. 1-8

Jakus, Damir; Krstulović, Jakov; Vasilj, Josip, *Wind power plant capacity allocation in areas with limited transmission capacity*, EUROCON 2013, Zagreb, 862-867

Goić, Ranko; Jakus, Damir; Krstulović Opara, Jakov; Vasilj, Josip, *Voltage profile analysis in 30 kV network after connection of wind power plant*, CIRED, 21st International Conference on Electricity Distribution, Frankfurt, Germany, 06.-09.06.2011.

Goić, Ranko; Jakus, Damir; Krstulović Opara, Jakov, *Wind power plant as ancillary service provider*, 8th International Conference on the European Energy Market, Zagreb, 2011

Krstulović Jakov; Goić, Ranko; Jakus, Damir – *MCMC Simulation of wind speed time series*, 6th PhD Seminar on Wind Energy in Europe, Trondheim 2010, Norway, 30.09.-01.10.2010.

Domestic Conferences (full list available at: <https://www.bib.irb.hr/pregled/profil/21982>):

Šolić, Antonio Josip; Jakus, Damir; Vasilj, Josip; Jolevski, Danijel; Garma, Tonko; Šimunović, Luka *INSIGHT INTO THE ELECTRIC VEHICLE CONSUMPTION CHARACTERISTICS AND THE DEGREE OF UTILIZATION OF CHARGING STATIONS*. // 15. simpozij o vođenju EES-a, Cavtat, Hrvatska, 2022. str. 1-10

Jakus, Damir; Vasilj, Josip; Matić, Barbara; Kalinić, Maro, *OPTIMAL DISTRIBUTION NETWORK PLANNING BASED ON MIXED INTEGRATED LINEAR PROGRAMMING*. // 15. simpozij o vođenju EES-a, Cavtat, Hrvatska, 2022. str. 1-10.

Jakus, Damir; Čađenović, Rade; Sarajčev, Petar; Vasilj, Josip, *OPTIMAL RECONFIGURATION OF DISTRIBUTION NETWORKS USING MIXED INTEGER SECOND ORDER CONE PROGRAMMING*. // 6. (12.) savjetovanje HO CIRED-a Opatija, 2018. str. 1-9

Jakus, Damir; Čađenović, Rade; Vasilj, Josip; Sarajčev, Petar, *MAXIMIZATION OF DISTRIBUTION NETWORK HOSTING CAPACITY*. // 14. simpozij o vođenju EES-a, CIGRE / - , 2020, 1-11

Vasilj, Josip; Vrbičić Tendera, Dajana; Sagrestano Štambuk, Petra; Jakus, Damir; Lovrić, Marko *Application of machine learning in electric load forecast*. // 14. simpozij o vođenju EES-a, CIGRE online, 2020. str. 1-

Čađenović Rade; Jakus Damir; *An overview of methods for optimal reconfiguration of distribution network*, Proceedings of the 13th HRO CIGRÉ Session on Power System Management, 2017.

Damir Jakus; Mia Bogdanović; Rade Čađenović; Josip Vasilj, *Optimal reconfiguration of distribution networks using heuristics and genetic algorithms*, Proceedings of the 12th HRO CIGRÉ Session on Power System Management, Split, Croatia, 2016.

Jakus Damir; Vasilj Josip; Čađenović Rade; Mučić Dragan, *Optimizing the transformer station topology in order to minimize annual energy losses*, Proceedings of the 12th HRO CIGRÉ Session on Power System Management, Split, Croatia, 2016.

Jakus, Damir; Vasilj, Josip; Novaković, Joško, *Maximization of expected wind power plant profit through the optimal offers on the day-ahead market*, Proceedings of the 12th HRO CIGRÉ Session, Šibenik, Croatia, 2015.

Jakus, Damir; Vasilj, Josip; Tutavac, Hrvoje; Novaković, Joško, *Optimal coordinated control in distribution networks with high shares of RES*, Proceedings of the 12th HRO CIGRÉ Session, Šibenik, Croatia, 2015.

Jakus, Damir; Mučić, Dragan; Kovačić, Zvonko; Ćurković, Marin, *Technical and commercial losses in electricity distribution networks*, 4.(10.) Session of HO Cired, Trogir/Seget Donji, Croatia, 11. - 14. May 2014.

Jakus, Damir; Šarić, Tomislav, *Impact of PV power plants on voltage conditions and power system losses in MV distribution networks*, 4.(10.) Session of HO Cired, Trogir/Seget Donji, Croatia, 11. - 14. May 2014.

Jakus, Damir; Krstulovic Opara, Jakov; Vasilj, Josip; Goic, Ranko; *Method to generate correlated samples of wind speed / wind power generation*, Proceedings of the 11th HRO CIGRÉ Session, Cavtat, 2013.

Jakus, Damir; Krstulovic Opara, Jakov; Vasilj, Josip; Goic, Ranko; *Assessment of wind power integration capabilities into the existing transmission network by analyzing typical operating conditions*, Proceedings of the 11th HRO CIGRÉ Session, Cavtat, 2013.

Jakus, Damir; Krstulovic Opara, Jakov; Vasilj, Josip; Goic, Ranko; *Interdependence and persistence analysis of wind speed time series from different locations in Croatia*, Proceedings of the 11th HRO CIGRÉ Session, Cavtat, 2013.

Vasilj, Josip; Jakus, Damir; Penović, Ivan; Goic, Ranko; *Risk analysis of wind power plant project financial parameters evaluation*, Proceedings of the 10th HRO CIGRÉ Session, Cavtat, 2011

Goić, Ranko; Jakus, Damir; Krstulović Opara, Jakov; Penović, Ivan; Vasilj, Josip, *Technical and economic basis for high penetration of renewables into Croatian power system*, Proceedings of the 9th HRO CIGRÉ Session, Cavtat, 2010.

Goic, Ranko; Jakus, Damir; Krstulovic Opara, Jakov; Vasilj, Josip; *Voltage profile analysis in 30 kv network after connection of WPP Orlice*, 2. (8.) Session of the CIRED, Umag, 2010.

Goić, Ranko; Jakus, Damir; Penović, Ivan; Vasilj, Josip; Kovačević, Aleksandar; Lovrić, Marko; Klarić, Mario, *Integration of wind energy into Croatian power system*, 8th Symposium on Power System Management, Cavtat, 2008.

Membership:

IEEE (Power & Energy Society)

HO CIGRE – member of executive board (<https://hro-cigre.hr/en/hro-cigre-eng/executive-board>)

CIRED – member of SO 5 “Distribution system development” (<https://www.ho-cired.hr/en/>)

Conferences (Scientific/Programme Committee):

European Energy Markets, SWEDES, Splitech, Eurocon, Powertech, CIGRE, ISGT Europe,...

Journal referee:

Electric power system research, IEEE Transaction on Power System, IEEE Transaction on Power Delivery, Applied Energy, Renewable Energy, Wind Energy, Energies, Journal of Electrical Engineering and Electronic Technology, IET Transmission, Distribution & Generation, European Transactions on Electrical Power, Entropy, Journal of Cleaner Production ...

Annex 2 Partial list of expertizes and projects for industry - (TSO's, DSO's, Independent Power Producers, Private Investors,...)

Commercial projects – Wind power plant integration analysis

- Preliminary grid connection analysis and solution for WPP Vrbnik, FESB, 2007.
- Preliminary grid connection analysis and solution for WPP Glunča, FESB, 2007.
- Preliminary grid connection analysis and solution for WPP Svilaja, Fractal, 2007.
- Preliminary grid connection analysis and solution for WPP Oton, FESB, 2007.
- The basic grid connection solution for wind power plants: Bat Kozjak, Debelo, Goli, Gradina, Jelinak, Krivi put, Plasina, Prolog, Ripenda and Žbevnica, FESB, 2007
- Wind power portfolio assessment for HEP OIE d.o.o. (HEP – renewable energy sources), FESB, 2007-2009
- Wind power portfolio assessment for E.H.N., FESB, 2007
- Wind power plant subsidies study – wind potential analysis for HEP OIE Ltd., FESB, 2008
- The basic grid connection solution for wind power plants: Čemernica, Visoka, Opor and Perun, FESB, 2008
- Preliminary grid connection analysis and solution for WPP Ponikve, Fractal, 2008.
- Preliminary power grid connection analysis of the WPP KPA, FESB, 2008-2009
- Preliminary grid connection analysis and solution for WPP Visoka, Fractal, 2010.
- Preliminary grid connection analysis and solution for WPP Opor, Fractal, 2010.
- Preliminary grid connection analysis and solution for WPP Kozjak, Fractal, 2010.
- Short circuit analysis for the WPP Jelinak, FESB, 2010.
- Preliminary grid connection analysis and solution for WPP Orljak, Fractal, 2012.
- Preliminary grid connection analysis and solution for WPP Boraja II, Fractal, 2012.
- Optimal technical solution for transmission grid connection of WPP ST1-1 Voštane and WPP ST1-2 Kamensko, Fractal, 2012.
- Preliminary grid connection analysis and solution for WPP Otrić, Fractal, 2013.
- Preliminary grid connection analysis and solution for WPP Čučin, Fractal, 2013.
- Preliminary grid connection analysis and solution for WPP ZD2P and WPP ZD3P, Fractal, 2013.
- Preliminary technical evaluation of the WPP Pometeno brdo, FESB, 2013.

...

Commercial projects – other

- Techno -economic analysis of small hydro power plant Peruća, FESB, 2007.
- Study of hydro power plant management for plants owned by JP „Elektroprivreda HZ Herceg Bosne“ d.d. Mostar, FESB, 2007.
- Short circuit analysis for pumped station Buško Blato, FESB, 2007.
- ...

Partial list of expertizes and projects for industry - (TSO's, DSO's, Electricity Power Suppliers, Oil Companies, Independent Power Producers, Private Investors,...)

110 kV cable network conception, feasibility analysis and optimal route selection for the city of Dubrovnik, FESB, 2008.

Optimal location for the new TS 400/110kV in the Zadar area, FESB, 2008.

Options and transmission network stage development influenced by the connection of HPP Zakučac on 220 kV transmission network, FESB, 2008.

Optimal technical solution for transmission connection of HPP Zakučac after reconstruction and capacity increase, FESB, 2009.

Analysis of the 110 kV network in the area of Bilice - Podi - Trogir with optimal technical solution of 110kV power line interpolation in TS Podi and TS Trogir, FESB, 2009.

Long-term grid development plans for areas Omiš-Makarska-Ploče, FESB, 2009.

Planning and development of the medium voltage distribution grid in the area Elektra Šibenik for the following 20 years, FESB, 2010.

Study on ancillary services for power system, FESB, 2010

Analysis of the possibility of series reactor interpolation in OHL 110 kV Meterize-Vrboran, FESB, 2011

Concept design and variants for construction of transformer station 110/x kV Zamošće, FESB, 2011

Interpolation of TS 220/110/35/20(10) kV Plat, FESB, 2012

Concept for new Croatian Grid code for transmission network, FESB, 2012

Planning and development of the medium voltage distribution grid in the area Elektrojug for the period 2011-2031., FESB, 2013.

Development of distribution grid for next 20 years for the distribution area Elektra Zadar, FESB, 2014

Energy and economic analysis of the sHPP Peruća - novelation, FESB 2014.

Planning and development of the medium voltage distribution grid in the area Elektrodalmacija Split for the following 20 years, FESB, 2015.

Development of software tool for calculation of hydropower production, FESB, 2015.

Planning and development of the medium voltage distribution grid in the area Elektrodalmacija Split for the following 20 years: Sinj, Imotski, Vrgorac, Makarska, Ploče, Metković, Brač, Hvar, Vis and island of Šolta, FESB, 2021.

Construction of an PEM electrolyser within the area of the Rijeka Oil Refinery – optimal power supply and participation in day-ahead and reserve market, FESB, 2022.

Optimal capacity and profitability analysis of investment in battery storage within WPP Vrataruša, FESB, 2022.

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Annex 3 Teaching experience and thesis supervision

Teaching:

Renewable energy sources, Mathematical programming in power system networks, Electrical networks, Power system analysis, Electric power distribution systems, Engineering economics, Fundamentals of electrical engineering

Supervised Doctor(PhD) thesis:

Rade Čađenović: *New approaches for optimal distribution network reconfiguration*, (to be finished in 2018)

Joško Novaković: *Capacity allocation and control algorithms for optimal integration of EVs in existing distribution networks*, (to be finished in 2019)

Supervised Licentiate(Master) thesis (outdated list):

Vinka Antonijević: *Development of a software package for the short-circuit analysis*, 2017

Krešimir Ćurčić: *Distribution substations 10(20)/0.4 kV typical design and equipment dimensioning*, 2017

Krešimir Kegalj: *Economic feasibility and risk assessment for WPP projects under the new Croatian act on renewable energy sources and cogeneration*, 2017

Mario Rubinić: *Analysis of the PV plant profitability under the new Croatian act on renewable energy sources and cogeneration*, 2017

Mia Bogdanović: *Optimal distribution network reconfiguration supported by genetic algorithms*, 2016

Mario Radetić: *Optimal reactive power compensation in distribution networks*, 2015

Josip Bošnjak: *Optimal supply strategies for industrial consumers*, 2015

Anđelko Brajković: *Reactive power optimization in power system using particle swarm optimization*, 2014

Ivan Šutalo: *Probabilistic load flow in the power system with wind power plants*, 2014

Hrvoje Tutavac: *Optimal coordinated control of distributed energy resources*, 2014

Josip Baković: *Selection of internal cable grid topology for WPP*, 2014

Ivan Jurčević: *Cost-benefit, sensitivity and risk analysis in WPP projects*, 2014

Marko Mladin: *Development of AC power flow program for large power systems in Matlab environment*, 2014

Tomislav Šarić: *Impact of PV plant on voltage conditions and active energy losses in medium voltage network*, 2013

Bruno Buble: *Calculation of possible production and selection of water turbine and generator in hydro power plant*, 2011

Luka Bekavac: *Selection of 110 / x kV transformers considering network operating conditions*, 2009

Pero Dražić: *Comparison of active energy losses in the 10 kV and 20 kV distribution networks*, 2008

...

Supervised Bachelor thesis (outdated list):

Marin Vujić: Development of software tool for unbalanced three-phase load flow calculation, (to be finished in 2018.)

Petar Latinčić: Development of software tool for distribution network reliability analysis, (to be finished in 2018.)

Mateo Bolanča: Microgrid analysis with large shares of RES and electric vehicles, (to be finished in 2018.)

Hrvoje Filipović: Development of small model solar tracking system, (to be finished in 2018.)

Ana Balić: Distribution network protection, 2017.

Josip Bodanović: Different models for calculation of solar irradiance for PV plants, 2017.

Damir Dronjić: *Optimal integration of RES in distribution networks*, 2016.

Jure Vulinović: *Power system frequency measurement using the Raspberry PI platform*, 2016.

Ana Škara: *Advanced distribution management system*, 2016

Krešimir Čurčić: *Software tool for calculation of bus impedance matrix for short circuit calculation*, 2015

Ivan Grgić: *Development of software tool for load flow calculation in radial and weekly meshed distribution networks*, 2015

Antonio Marin: *Reactive power compensation in distribution network and industry facilities*, 2015

Filip Brnas: *Calculation of electricity losses in distribution transformers*, 2015

Vinka Antonijević: *Organization of electricity market*, 2015

Ivan Radan: *Small hydro power plants*, 2015

Marin Mandić: *Wind power and aerodynamics basics*, 2015

Krešimir Kegalj: *Techno economic analysis of small PV plant*, 2015

Marino Bakula: *Optimal economic dispatch of power plants*, 2015

Matea Marić: *Distribution Transformers*, 2015

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