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Year of Birth: 1957
Place of Birth: Sarajevo, Bosnia and Herzegovina



SUMMARY OF QUALIFICATIONS

- 1985** Master Science degree of Electrical Engineering - *M.Sc.E.E.* with title "The forecast of consumption of electric energy and peak load"
Faculty of electrical engineering, University of Sarajevo, B&H
- 1980** *Graduate Electrical Engineer – dipl.ing.*
Faculty of electrical engineering, University of Sarajevo, B&H

FURTHER TRAINING

- 2005** PSS/E Training Course for Optimal Power Flow, held by Red Electrica, Spain
- 2003** PSS/E Training Course for Optimal Power Flow, held by Simens-PTI
- 2002** PSS/E Training Course for Load Flow and Dynamic Simulations, held by Simens-PTI

MEMBERSHIP

- UCTE Sub Group Network Models and Forecast Tools
- Member of the UCTE-IPS/UPS Workgroup
- Member of SECI - The Southeast European Cooperative Initiative
- Member of Black Sea Regional Workgroup

KEY QUALIFICATIONS

- ☞ Management of teams and consulting projects involving international partners.
- ☞ Design and implementation of computation codes for power system planning, system operational planning and system operation (state estimation, steady-state and contingency analysis, short circuit calculations, constrained and optimal power flow, dynamic and voltage stability analysis, unit commitment)
- ☞ Achievement of planning studies for transmission and distribution network
- ☞ Electricity consumption and peak load forecast
- ☞ Implementation of system planning software
- ☞ Training of engineers in the field of power system planning.
- ☞ Measuring of lines electrical parameters
- ☞ Determination and checking the criteria for choice of high voltage equipment
- ☞ Maintenance and service of: lines, power transformers, current and voltage transformers, lightning arresters, disconnectors, circuit breakers, substations HV and middle voltage cells

SPECIAL SKILLS

- ☞ Languages
 - English (good)
- ☞ Professional software
 - PTI PSS/E (load flow, fault analyses, dynamic analyses)
 - RASTR (constrained load flow-optimal power flow)
 - CORONA (load flow, dynamic analyses)
 - CLF-OPF, GASAN, RAS (constrained load flow-optimal power flow)
 - PSA - Power System Analyzer (load flow, network transfer capacities evaluation)
- ☞ Microsoft Office Applications
- ☞ Management tools
- ☞ Graphical design (AutoCAD, Adobe applications, CorelDraw and other)
- ☞ Geographical Information System – GIS (MapInfo Professional)

PROFESSIONAL EXPERIENCE

- | | |
|--------------------------|---|
| 2007 – to present | <i>Director</i> Electricity Coordinating Center Ltd. |
| 2002 – 2007 | <i>Head of Research and Consulting Department</i> Electricity Coordinating Center Ltd. |
| 1994 – 2002 | <i>Consulting engineer</i> Electricity Coordinating Center Ltd. |
| 1989 – 1993 | <i>Independent development engineer</i> Electric power utility of Bosnia and Herzegovina in Sarajevo |
| 1980 – 1989 | <i>Development engineer</i> Electricity transmission enterprise Elektroprenos - Sarajevo |

SELECTED REFERENCES

2009 Study of the 400 kV OHL Serbia – Romania

Consultant

for: MVV-decon (Germany)

Feasibility study on connection Serbia and Romania with new 400 kV tie-line, which included following tasks: load flow analyses, security assessment, TTC calculation and cost-benefit analysis.

Connection of the TPP Tuzla G7 (500MVA) to the EPS of Bosnia and Herzegovina

Consultant

for: ESOTECH, Slovenia

Study on connection of the new production unit G7 in TPP Tuzla. The following design studies have been provided: Choice of relevant parameter and characteristic ratios of new turbo generation unit and its inherent block-transformers, Load flow studies, fault studies, transient stability studies, frequency response studies, auxiliary supply analyses, network investment analyzes.

Generation surplus projections in Eastern Europe (EE) region and electricity market scenarios in the period 2008 – 2020, [Updated data and scenarios]

Consultant

for: TERNA, Italy

The objective of the study is to analyze different scenarios of generation surplus in SEE/EE region and features of electricity market development, as well as to analyze the transmission network evolution in the period under analysis (2008-2020). This Study presents an Update of similar SEE Market Study performed in 2007, with extended time horizon (until 2020), scenarios (optimistic, besides pessimistic and realistic) and countries (Ukraine, Moldova, Hungary).

CAO - Freising - IT system for coordinated flow based allocation and related services

EKC: Technical Parameters Calculation PTDF/MF

Team member

for: Riecado (Siemens, CEE CAO Freising/Munich, Germany)

Technical Parameters Calculation software for flow-based Coordinated Auctions in Central-East Europe: validation and merging of network models, load flow, security analyses, calculation of PTDF factors and maximum Flow capacities, preparation of technical parameters as auction input for yearly, monthly and daily auctions.

Connection of the TPP Porto Romano to the EPS of Albania

Consultant

for: RWE, Germany

Technical Parameters Calculation software for flow-based Coordinated Auctions in Central-East Europe: The aim of the study is to examine the possibility of constructing the TPP Porto Romano, which is to be connected to the 400 kV transmission network of Albania, considering the state of 400, 220 and 110 kV network in future period in year 2016 and to provide the best possible solution for its connection, as well as to check the transfer possibilities of electric power from TPP Porto Romano to neighboring EPSs (Montenegro, Serbia, Macedonia, Greece, Italy) for different scenarios.

Connection of the TPP Kakanj G8 (350MVA) to the EPS of Bosnia and Herzegovina

Consultant

for: IBE, Slovenia

Study on connection of the new production unit G8 in TPP Kakanj. The following design studies have been provided: Load flow studies, fault studies, transient stability studies, frequency response studies, auxiliary supply analyses, techno-economical aspects.

Prefeasibility Study of Connection of the TPP Banovići to the EPS of Bosnia&Herzegovina

Consultant

for: IBE, Slovenia

The scope of the Study is connection of the new TPP Banovići (350MVA/300MW) to the transmission grid of Bosnia and Herzegovina taking into consideration transmission development plans of 400, 220 and 110 kV

network until 2020. The Study investigates all possible variants of connection and provides the best solution for it. It was necessary to confirm that transmission possibilities of Serbian network shall not be endangered and to give solution for safe and qualitative electricity delivery of whole produced energy in any moment. Taking into consideration maximum engagement of TPP Dragacevo, techno economical analyses, for all potential variants are performed. In other words, estimation of basic investments that depends on variants of connection of TPP is provided. The following design studies have been provided: Load flow studies, auxiliary supply analyses and techno-economical aspects.

2008 Prefeasibility Study of Connection of the TPP Dragačevo to the EPS of Serbia

Consultant

for: Mineral Investments

The scope of the Study is connection of the new TPP Dragačevo (146MVA/132MW) to the transmission grid of Serbia taking into consideration transmission development plans of 400, 220 and 110 kV network until 2016. The Study investigates all possible variants of connection and provides the best solution for it. It was necessary to confirm that transmission possibilities of Serbian network shall not be endangered and to give solution for safe and qualitative electricity delivery of whole produced energy in any moment. Taking into consideration maximum engagement of TPP Dragacevo, techno economical analyses, for all potential variants are performed. In other words, estimation of basic investments that depends on variants of connection of TPP is provided. The following design studies have been provided: Load flow studies, auxiliary supply analyses and techno-economical aspects.

Feasibility study for new under sea HVDC interconnection between Italy and Montenegro - Economical and financial aspects

Project manager

for: TERNA, Italy; EPCG, Montenegro

Objective of this study is to review investment related costs and future development of transmission network in SEE, from economical point of view, and to evaluate economical costs and benefits of new under sea HVDC interconnection between Italy and Montenegro.

Feasibility study for new under sea HVDC interconnection between Italy and Montenegro - Short Circuit and Voltage and Dynamic Stability analyses

Project manager

for: EBRD; EPCG, Montenegro

Objective of this study is to review current and future development stages of transmission network in SEE, from short circuit levels and voltage and dynamic stability point of view, and to evaluate security and reliability of supply and feasibility of new under sea HVDC interconnection between Italy and Montenegro.

Review of electricity supply, demand and transmission projections in South-east Europe in the period 2008-2020

Project manager

for: CEZ, Cech Republic

Objective of this study is to perform data analyses to get review in alternatives for power supply, demand forecast and transmission network adequacy in region, for time horizon 2008-2020. In the scope is to analyze the regional transmission system to identify the existing potential for electric power trade in the region and limiting factors.

Feasibility study for new under sea HVDC interconnection between Italy and Montenegro - Static security analyses

Project manager

for: TERNA, Italy; EPCG, Montenegro

Objective of this study is to analyze technical feasibility for new under sea HVDC interconnection between Italy and Montenegro. Capacity of the cable will be up to 1000 MW, and network constraints are to be identified as well as investments in transmission network necessary to support maximum capacity of the cable, taking into consideration electricity market conditions.

2007 Connection of new (second) block in TPP Gacko to power system of Bosnia & Herzegovina

Project Manager

for: CEZ, Czech Republic

Study on connection of the new production unit in TPP Gacko. The following design studies have been provided: Load flow studies, fault studies, transient stability studies, frequency response studies, auxiliary supply analyses, techno-economical aspects

2006 Technical Study for the synchronous parallel Operation of the Turkish Power System with UCTE

Team member

for: CFCU Turkey, UCTE

Feasibility study on connection of Turkish power system with UCTE main grid. The following tasks have been provided: load flow analyses, transfer capacities evaluation.

Feasibility Study: Synchronous Interconnection of the Power Systems of IPS/UPS with UCTE

WG 1: Steady State Analysis

WG 2: System Dynamics

WG 3: Power System Control

WG 4: Network Operation and Organization

Team member of four working groups, Member of Project Consortium

for: EU, CIS

Feasibility study on connection of IPS/UPS systems (Russia, Ukraine, Moldova...) with UCTE main grid. The following tasks have been provided: load flow analyses, probabilistic congestion analysis, allocation of measures for interconnection and estimation of related costs, dynamic system modeling, dynamic system equivalence, small signal stability analysis, transient stability studies, frequency response studies, suggestion of remedial measures, power system control, required level of primary and secondary reserve, required load matching based on load forecast and availability and dynamic performance of generators, investigation of effect of control power flows on TRM values, defense and restoration plans, assessment of compatibility of existing defense and restoration plans, conditions under which total disconnection may/shall happen, definition and simulation of operating modes for re-synchronization, operational and organizational aspects, control of power exchanges, forecast & real time network security calculations and definition of necessary data exchange; day ahead congestion forecast (DAF), protection systems settings, outage scheduling, emergency situation management, restoration of interconnection, congestion management.

Project group on development of interconnection of electric power systems of Black sea region,

- **BSR Transmission System planning project,**
- **Regional model construction for 2010**

Responsible task leader

for: USAID, USEA

Study on connection of countries forming the Black Sea ring (Russia, Ukraine, Moldova, Romania, Bulgaria, Turkey, Georgia, Armenia, Azerbaijan). The following tasks have been provided: load flow analyses, transfer capacities evaluation.

2005 Regional Balkans Infrastructure Study REBIS – Generation Investment Study GIS,

- **Regional Transmission Planning Project,**
- **Appendix 12: PSS/E ANALYSES AND RESULTS**

Project leader

for: European Commission, World Bank

Study on feasibility of generation investment plans in accordance with paralel network development plan for South East European region. The following tasks have been provided: load flow analyses, transfer capacities evaluation, steady state stability.

2004 Technical and economical aspects of connection electric power systems between Serbia and Macedonia with new transmission line 400 kV Niš - (Leskovac-Vranje) - Skopje.

Team member, responsible for a technical and economical aspects of connection

for: EPS – Electric company of Serbia

Feasibility study for construction of new 400 kV line Niš (Serbia) – Skopje (Macedonia), and two new 400/110 kV substations Leskovac and Vranje. The following tasks have been provided: load forecast, load flow

analyses, transfer capacities evaluation, steady state stability, fault analyses, OHL line routing, techno-economical aspects, telecommunication systems.

Effects of connecting power systems of Republic of Srpska and Serbia with new 400kV line Ugljevik - S.Mitrovica after reconnection first and second UCTE zone

Team member, responsible for a technical and economical aspects of connection

for: EPS – Electric company of Serbia, Elektroprenos - Banja Luka

Study on feasibility of construction of new 400 kV line from Ugljevik (Bosnia and Herzegovina)-Sremska Mitrovica (Serbia). The following tasks have been provided: load flow analyses, transfer capacities evaluation, steady state stability analyses, techno-economical aspects.

Audit of overcurrent protection relay settings on north-south transmission corridor (SEE)

Project leader

for: HTSO- Hellenic Transmission System Operator

Study for increase of reliability of the power transfers along north to south South East European transmission corridor, to increase stability and security of supply during Olympic games in Athens. The following tasks have been provided: load flow analyses, transfer capacities evaluation, steady state stability.

2003 Project SECI project group on development of interconnection of electric power systems of SECI countries for better integration to the European system.

- **Regional Transmission Planning Project,**
- **Regional model construction for 2005. (updating and expanding existing Regional Transmission Network Model for the year 2005) and 2010.**

Project task leader

for: SECI

Study on interconnection of countries in South East Europe (Romania, Hungary, Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Albania, Greece, Bulgaria and Turkey) and network development plans on regional level. The following tasks have been provided: load flow analyses, transfer capacities evaluation, steady state stability, short circuit studies, dynamic system modeling, transient stability studies.

Study for new 400 kV interconnection lines between FYROM - Serbia and Albania - Montenegro

Project task leader

for: SECI

Feasibility study for building the two 400 kV lines Podgorica (Montenegro) – Elbasan (Albania) and Nis (Serbia)-Skopje (Macedonia). The following tasks have been provided: load forecast, load flow analyses, transfer capacities evaluation, short circuit, steady state stability, OHL line routing, environmental aspect, techno-economical aspects, dynamic modeling, transient stability assessment.

Study of electric power and energy losses in transmission network of power utility of Montenegro (EPCG) with measurements for their reduction

Team member

for: EPCG

Study of electric power and energy losses in transmission network of power utility of Montenegro (EPCG) with measurements for their reduction, The following tasks have been provided: load forecast, transmission losses, load flow analyses, influence of electricity transfer.

Review of Electricity Supply and Demand in South Eastern Europe (2002 - 2012)

Team member

for: World Bank

Review of Electricity Supply, Demand, GDP, new transmission network elements in South East Europe till 2012 with recognized all bottlenecks in transmission networks in SEE region.

2002 Project SECI, project group on development of interconnection of electric power systems of SECI countries for better integration to the European system,

- **Regional Transmission Planning Project,**
- **Regional model construction 2005**

Project task leader

for: SECI

Study on interconnection of countries in South East Europe (Romania, Hungary, Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Albania, Greece, Bulgaria and Turkey), Regional Transmission Planning Project, Regional model construction 2005. The following tasks have been provided: load flow analyses, transfer capacities evaluation, steady state security, short circuit.

Preliminary design for Catchment area management center in Trebinje

○ **part I: Energy management system**

○ **part II: Telecommunications,**

Responsible project leader

for: HET

Energy management system and appropriate telecommunications equipment for Catchment's area management center in Trebinje.

Preliminary design for Distribution Dispatching Center in Pale,

part I: Energy management system / part II: Telecommunications, type of project : Preliminary Design,

Responsible project leader

for: ZDP "Elektrodistribucija" Pale

Energy management system and appropriate telecommunications equipment for Distribution Dispatching Center in Pale.

Estimate of electric power and energy losses in the area of ZDP Elektro Hercegovina Trebinje

Team member

for: ZDP Elektro Hercegovina Trebinje

Estimate of electric power and energy losses in the above mentioned area. The following tasks have been provided: load flow analyses, transmission and distribution losses.

Preliminary design for solution of electric energy supply of the Trebinje area,

Team member

for: ERS

Electric energy supply of the Trebinje area has been performed by this Study. The following tasks have been provided: bus load forecast, load flow analyses, short circuit analysis, transmission and distribution losses..

Preliminary design for substation 35/10 kV for power supply of water pumping installation "Vrelo oko", elaborate

Project leader

for: Regional assembly of Trebinje

Feasibility study and design for substation 35/10 kV.

Feasibility study for installation of the new Hydro Power Stations Buk Bijela and Srbinje (Foca) in the power system

Project leader

for: Electric company of Republic of Srpska

Study on connection of the new Hydro Power Stations Buk Bijela and Srbinje (Foca). The following design studies have been provided: Load flow studies, fault studies, transient stability studies, frequency response studies, auxiliary supply analyses, techno-economical aspects.

Feasibility and Evaluation Study of Electricity Interconnection of Turkey with Balkan Pool and UCTE - Steady-state and transient stability analysis,

Team member

for: EU DG TREN

Study on interconnection of Electricity Interconnection of Turkey with Balkan Pool and UCTE and network development plans on regional level. The following tasks have been provided: load flow analyses, transfer capacities evaluation, steady state stability, fault studies, dynamic system modeling, transient stability studies...

2001 Feasibility analysis of parallel operation of power transformers 110/35 kV/kV in RP Trebinje with preliminary design of 35 kV transformer bay

Project leader

for: ERS - Electric company of Republic of Srpska

Analysis of parallel operation of power transformers 110/35 kV/kV in RP Trebinje with preliminary design of 35 kV transformer bay.

Estimate of electric power and energy losses in the area of ZDP Elektrodistribucija Sarajevo,
Team member

for: ZDP Elektrodistribucija Sarajevo

Estimate of electric power and energy losses in the above mentioned area. The following tasks have been provided: load flow analyses, transmission and distribution losses.

2000 Estimate of electric power and energy losses in the area of ZDP Elektrokrajina Banja Luka

Team member

for: ZDP Elektrokrajina Banja Luka

Estimate of electric power and energy losses in the above mentioned area. The following tasks have been provided: load flow analyses, transmission and distribution losses.

Estimate of electric power and energy losses in the area of ZDP Elektro Doboj

Team member

for: ZDP Elektro Doboj

Estimate of electric power and energy losses in the above mentioned area. The following tasks have been provided: load flow analyses, transmission and distribution losses.

PUBLICATIONS

Selected journal and conference papers:

- 2005** **Influence of new 400 kV lines Niš-Skoplje and Podgorica-Elbasan on regional network transfer capacities**
M. Vuković, P. Mikša, D. Balkoski
YUKO CIGRE, May, 2005
- Electric power and energy losses in transmission network of power utility of Montenegro (EPCG) with measurements for their reduction**
M. Vuković, P. Mikša, L. Bataković
YUKO CIGRE, May, 2005
- 2004** **Technical and economic analysis of the feasibility of the construction of 400 kV OHL Niš-Leskovac-Vranje-Skopje**
S.Mijailović, M.Vuković, D.Balkoski
YUKO CIGRE, May, 2004
- 2003** **Installation of HPP Buk Bijela and HPP Srbinje in electrical power system**
M. Vuković, P. Mikša, Z. Nešovanović
YUKO CIGRE, May, 2003
- Developing of interconnection network in South-East European countries – Influence of construction of new interconnection lines candidates in courtiers members of SECI**
M. Vuković, P. Mikša
YUKO CIGRE, May, 2003
- Transmission losses in electric power systems in Montenegro**
D.Vukasović, M. Vuković
Nikšić, 2003
- SECI Regional Transmission Planning Study 2003**
T.Čerepnalkovski, P.Miller, D.Bajs, G.Majstrovic, S.Mijailović, M.Vuković, N.Rusanov, N.Gamov
- 2001** **Analysis NTC Calculations, experience of EKC**
M.Vuković, M.Ivković, P.Biuković
25. Conference of YUKO CIGRE, R38-06, September 2001

NTC calculations within the second UCTE synchronous zone

R.Balarescu, M.Vuković, N.Gamov, N.Mijusković

Black sea el-net regional meeting 10-14 June 2001 Suceava, Romania

1997

Connection of hydro power plants Dabar, Nevesinje and Bileća in electric network of East Herzegovina

S.Mijailović, D.Popović, M.Vuković

23. Conference of YUKO CIGRE, R37-03, May, 25-30, 1997

1996

Technical aspects and possibilities Yugoslav EPS after reconnection in frame UCPT

D. Popovic, S. Mijailovic, B.Milosevic, S.Bulatovic, M.Vukovic

YUKO CIGRE, 1996