

Kratak sadržaj predavanja:

Future power systems will be characterised by mix of wide range of electricity generating technologies, responsive and highly flexible demand/storage with significant temporal and spatial uncertainty, proliferation of power electronics (HVDC and to certain extent FACTS devices) at transmission system level, flexible hierarchical control structure and blurred boundaries between transmission and distribution system (with distribution system becoming more “transmission like”) and significantly higher reliance on the use of global (Wide Area Monitoring) signals for system identification and control and Information and Communication Technology embedded within the power system network and its components. In order to successfully control such system and its parts and to ensure its stability and security the control strategies and simulation tools for future power networks would need to cater for: i) Increased uncertainties in controlled system, both in terms of model uncertainties and operational uncertainties ii) Increased reliance on global (WAM) signals for state estimation, dynamic equivalents and application for control & stability; iii) Increased penetration of power electronic devices (RES interface, HVDC, FACTS devices), i.e., static and dynamic models, system integration and control & stability contribution; iv) New types of intermittent and stochastic generation, i.e., new static and dynamic aggregate models; v) Less distinctive boundaries between transmission and distribution network and possibility of their interchangeable roles, i.e., flexible hierarchical control strategies; vi) Responsive flexible demand which may exhibit temporal, spatial and functional variation, i.e., static and dynamic models of demand and system integration; v) integral control and facilitation of efficient energy (electrical, heat, gas) flow and utilisation in small or larger geographical parts of the network.

Biography of the presenter:

Jovica V Milanovic received Dipl.Ing. and M.Sc. degrees from the University of Belgrade, Yugoslavia, Ph.D. degree from the University of Newcastle, Australia, and D.Sc. degree from The University of Manchester, UK. Prior to joining The University of Manchester, UK, in 1998, he worked with “Energoprojekt”, Engineering and Consulting Co. and the University of Belgrade in Yugoslavia, and the Universities of Newcastle and Tasmania in Australia. Currently, he is a Professor of Electrical Power Engineering and Director of External Affairs in the School of Electrical and Electronic Engineering at The University of Manchester, UK (Director of Research 2007-2010), Visiting Professor at the University of Novi Sad, Serbia and Conjoint Professor at the University of Newcastle, Australia. He is a Chartered Engineer in the UK, Foreign member of the Serbian Academy of Engineering Sciences, FIET, FIEEE and Distinguished IEEE PES Lecturer.