



SAN DIEGO STATE
UNIVERSITY

College of Engineering – Associate Dean RESEARCH SEMINAR

“FRIENDS and WAR”

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& James Clerk Maxwell Professor in the UB Department of Electrical Engineering

Thursday, February 5, 2015 – 11:00am-12:00pm
Love Library, Room 430 (4th floor)

Abstract: Creating a bright energy future for us all is possible. From use of wind, solar, biomass, nuclear power, and fossil fuels, to transmission and distribution systems, the vast portfolio of technologies and services may be shown as key to operating other dependent and critical services. Clearly, we need the best policies, people, and technologies to operate what is considered the most complex and beneficial system developed by mankind – the energy grid.

In particular, it will be shown historically and for the next 50 years how our economic growth and quality of life is dependent on our energy infrastructure. Renewable and other clean power sources will become more important to our energy grid than ever before. Power production and delivery can be made to be in harmony with mitigation of climate change and improvements in reliability and restoration of energy services. We will address this subject in terms of how will energy get to the public in the most efficient way possible, even during weather disturbances. It is all about balanced energy sources. Efforts in forming flexible, reliable, intelligent, energy delivery systems will be addressed in conjunction with weather and reliability considerations. FRIENDS and WAR are factors that will be critical to planting the seeds for a bright energy future. More specifically research will be presented demonstrating how weather effects are monitored and modeled, as well as smart grid dynamic reconfiguration during weather events. Implementation of the method developed on real grids will be presented. Starting from reliable power sources, energy flows to a new smart grid structure where it may be used as needed and integrated with other dependent infrastructures and services essential to our way of life. And the best part? The power grid becomes enabled to supply energy during peak hours, providing clean uninterrupted power on demand, reducing dependence on foreign sources of energy, creating jobs for our economy, and requiring a skilled workforce produced by universities bridging education and research.

Speaker Bio: Dr. Alex Domijan is the Director of the Power Center for Utility Explorations in the School of Engineering and Applied Sciences at the AAU RU/VH University at Buffalo, and is the James Clerk Maxwell Professor in the UB Department of Electrical Engineering. Dr. Domijan received his B.S. in electrical engineering from the University of Miami, M.E. in electric power engineering from RPI, and Ph.D. in electrical engineering from the University of Texas at Arlington. He has been a tenured Professor at the University of Florida (an AAU RU/VH institution with over 45K students) and the University of South Florida (an RU/VH institution with over 40K students). He has authored over 80 refereed publications and has been PI on over \$20M in research projects. His main interests are in flexible, reliable, and intelligent energy delivery systems, which are more commonly known as smart grids. Dr. Domijan developed the Power and Energy Applied Research Laboratory which was among the first with the capability to produce arbitrary voltage and current waveforms to apply to devices under test, and now has a portfolio of capabilities to address a range of power research from transmission, distribution to generation. He has been the Chair of many international conferences on energy systems. His significant efforts have included Demand Response Opportunity Pilots (awarded Peak Load Management Award), Sustainable Electric Energy Delivery Systems (energy storage effort), Distributed Energy Programs in wind and solar, Smart Energy pilots, Distributed Premium Power Park, Time Monitoring for Power Quality, Peak Load Shaving Technology with Renewable Resources, Demand Side Management Pilots, Advanced Commercial Energy technology for price response load management; and a Weather and Reliability effort monitoring 3 million utility customers, and work now in progress involves formation of a community advancement strategy to revitalize urban areas, and leading a DOE and FPL funded \$12.5M Gateway to Power smart energy educational effort. In summary the work of Dr. Domijan has been centered about dealing with energy systems comprehensively and providing solutions and paths that enable our interconnected infrastructures to operate robustly.

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