

Curriculum Vitae of Alberto Berizzi

Alberto Berizzi was born in Milan (Italy) in 1966. He obtained the MSc Degree in Electrical Engineering in 1990, and the PhD Degree in Electrical Engineering (1994) at the Politecnico di Milano.

Assistant Professor at the Politecnico di Milano from 1992 to 1988, since 1998 he has been an Associate Professor of Electric Power Systems and since 2006 he has been full professor of Electric Power Systems.

Since 2011, he is responsible for the PhD studies in Electrical Engineering at Politecnico di Milano.

His research is testified by about 150 papers and publications (including volume chapters for international editors, publications on national and international journals, at national and international conferences).

The main subject of Alberto Berizzi's research are:

- **security issues of power systems.** In particular, the security is taken into account during the analysis and control of electric power systems, their optimization, in particular with reference to voltage collapse, reactive power flow control and security of voltage control, also taking into account the Secondary Voltage Control typical of the Italian power system. Moreover, he worked on short-circuit current computations adopting IEC or ANSI Standards and on some mathematical issues linked to the study of large power systems, such as sparsity of matrices.
- **power system operation and planning and the electricity market operation.** In particular, the following issues have been deeply investigated: zonal markets, determination of market zones, computation of Total Transfer Capacity, optimization using innovative – with respect to vertically integrated systems - objective functions, use of probabilistic concepts applied to the determination of TTC and finally to security.
- **large power system dynamic perturbations.** This research activity has been started after the blackouts that stroke several European Countries in 2003, on impulse of the public investigation promoted (and carried out by the Politecnico di Milano) by the Italian regulator (AEEG). He also has been working on the dynamics and modelling of power systems, with the goal of developing tools to simulate large power systems taking into account non linearities and protections.
- Finally, in the last year he has been leading some research projects dealing with the operation of Renewable in HV/MV/LV distribution systems, in both connected and islanded operation. In particular, congestion management, voltage control and islanding are the most important subject studied.

He is a member of the IEEE Voltage Stability Subcommittee and he was a member of the Task Force “Blackouts experience, mitigation and role of the new technologies” within the IEEE Power System Dynamic Performance Committee. He has also be a member of the CIGRE WG C1.17 "Planning to manage power interruption events".

He is reviewer for the main journal in the power system field.

He worked on / was responsible of many research contracts with industry (last ten years):

- "Market rules in the Italian power sector and their critical issues" (Electricité de France, 2004), Scientific responsible.
- "ORPF procedures:innovative objective functions for the maximization of security and the minimization of costs" (CESI, 2004), Scientific responsible.
- "Multiobjective optimization for the optimal dispatching of the reactive power" (CESI, 2005), Scientific responsible.
- Consulting activity (RetrASM Brescia, 2006) for the connection of the power plant in Gissi. Scientific responsible.
- "Analysis of the Green Certificate market:forecast of the demand and the offer", (AEM, 2006), Scientific responsible.
- Consulting activity (RetrASM Brescia, 2007) for the connection of the power plant in Scandale. Scientific responsible.
- Consulting activity (Studio Frosio, 2009) for the building of a Hydro power plant at El Chaparral (San Salvador)
- "Grid code and market rules for the Popular Republic of Congo" (Eni, 2009), Scientific Responsible.
- "Islanding operation of subtransmission/distribution systems" (Siemens Italia, 2010-12), Scientific Responsible
- "DMS for distribution systems" (Siemens Italia, 2010-12).
- "Software for simulation of smart grids" (LMS, France, 2011)
- Optimization of gas contracts (Energeya, 2012)
- Dynamic study of the short-circuit occurred at the power transformer in Tavazzano power plant (Eon Italia, 2011);
- Dynamic study relevant to the incident at the EHV cable in the Scandale power plant (Eon Italia, 2012);
- PLU Protection modeling in the Fiumesanto power plant (Eon Italia, 2013)

After the Italian blackout of Sept. 2003, the research group of Milan was selected by the Italian Regulator (AEEG) as a technical consultant to define the responsibility of the blackout. During this activity, the dynamics of power systems with large perturbations has been studied and the Italian Grid Code has been revised. Moreover, prof. Berizzi has been invited to several international meetings to relate about the events that resulted in the 2003 blackout (IEEE PES 2004 General meeting, Denver , USA; University of Waterloo, Canada; 54th NPCC System operators seminar, USA; Hydro One, Toronto, Canada)

So far, prof. Berizzi has been tutor for more than 150 Graduate students and for 10 PhD students.