

Abstract Keynote Speech Richter IACER 2016 Bangkok

Title: About the German “Energiewende“ (Energy Transition) and a Green Power Plant and Storage for Smoothing Electricity from Renewables

As the only big industry country, Germany has committed itself in 2010 to power-off all of its numerous nuclear power plants until 2022, and because of the so-called “Energiewende“ (Energy Transition), also the many coal- and oil-based electric power stations shall be reduced significantly until 2050. The plan of the German Government is to get them replaced by renewable energies and by higher energy efficiency. A minimum of 80% of the electric power consumption of 2050 shall be produced by renewable energies. However, there are challenges that may hamper the energy transition to proceed with the same pace as in the past: 1.) the completion of DC super-grid links from North Germany, where the wind is, to South and West Germany, where most of the industrial production is located, is delayed by years. This can create problems for the stability of the German power grid. 2.) large-scale energy-storages of a technological readiness level (TRL) of 7 or higher, which are considered to be indispensable for balancing-out supply and demand of the volatility of renewables, do not exist. In this talk, a short overview on the German “Energiewende“ is given and a smart compound of closed-loop power plant and storages for the energy transition is presented. The proposed system smooths on-the-fly incoming fluctuating electrical power from renewables and delivers them in a constant rate. It is a ”large-scale“ concept for the real-time filtering and backing of electric power that counteracts any fluctuations at time-scales from seconds to weeks.

Biography of Harald Richter

Harald Richter was born in Stuttgart/Germany. He got a ‘Dipl.-Ing.’ diploma degree in Electrical Engineering with specialization in Computer Engineering from the University of Stuttgart. He received also a ‘Dr.-Ing.’ degree in Electrical Engineering from Munich University of Technology, and in 1998, he acquired a ‘Dr. rer.nat.habil.’ degree in Computer Engineering from the same University. Since 2000, he has the chair of Technical Informatics and Computer Systems at Clausthal University of Technology, where he works until today. He teaches computer organization and computer networks. His research interests are Cloud Computing, Real-Time Computer Networks, Renewable Energies and High-Performance Computing and Simulation.

