

Power Electronics – A Key Enabling Technology to realize the Green Deal

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Abstract:

Awareness of global climate change due to the high consumption of fossil fuels has stimulated worldwide research and innovation towards a CO₂-free energy supply. To realize this energy transformation innovation is required not only on the power generation, energy storage and the consumption side, but also, more importantly on the energy distribution infrastructure. In all these sectors, power electronic energy conversion systems are needed. The presentation will focus on power electronic solutions for flexible electrical grid infrastructure, in particular on DC technologies that better serve wind farms, PV systems, factories, building heating and cooling systems and fast charging infrastructure in the urban environment.



Rik W. De Doncker (*IEEE M'87-SM'99-F'01, EPE Member*) received his Ph.D. degree in electro-mechanical engineering from the KULeuven, Belgium. In 1987, he was appointed Visiting Associate Professor at the University of Wisconsin, Madison. In 1988, he joined the GE Corporate Research and Development Center, Schenectady, NY. In November 1994, he joined Silicon Power Corporation (formerly GE-SPCO) as Vice President Technology, developing world's first medium-voltage AC static transfer switch.

Since Oct. 1996, he is professor at RWTH Aachen University, Germany, leading the Institute for Power Electronics and Electrical Drives (ISEA). In Oct. 2006 he was appointed director of the E.ON Energy Research Center of RWTH Aachen University, where he also founded the Institute for Power Generation and Storage Systems (PGS). He leads the German Federal Government BMBF Flexible Electrical Networks (FEN) Research CAMPUS. He has a doctor honoris causa degree of TU Riga, Latvia.

Dr. De Doncker is recipient of the IEEE IAS Outstanding Achievements Award and the IEEE Power Engineering Nari Hingorani Custom Power Award (2008). In 2009, he led a VDE/ETG Task Force on Electric Vehicles. 2010-2020 he was a member of the German National Platform for electro-mobility. He is the recipient of the 2013 IEEE Newell Power Electronics Technical Field Award, and the 2014 IEEE PEELS Harry A. Owen Outstanding Service Award. In 2015 he was awarded Fellow status at RWTH University. In 2016 he became member of the German Academy of Science and Technology (ACATECH). 2017 he became Member of the International Advisory Board of French automotive research institute VEDECOM. In 2020 he has been awarded the 2020 IEEE Medal in Power Engineering.