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Renewable energies, current status and enabling technology

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Abstract— Electric energy security is one of the most essential and important needs for humanity. The fluctuating cost and limited sources of fossil fuels, in addition to the need to reduce greenhouse gasses emission, have made renewable resources attractive in today's world economy and energy mix. The potential for renewable energy resources is enormous as they can, in principle, continually meet many times the world's energy demand; therefore, they will have a significant share in the future world's energy portfolio, and much of the world is now concentrating on advancing their pool of renewable energy resources. Accordingly, during the seminars it will be presented how renewable energy resources are currently being deployed and controlled. Renewable energies enabling technologies will be discussed with a focus on power electronic converters. Examples of new converter topologies for better system reliability will be discussed. Additionally, the seminar will represent the impact of renewable energies on future smart grid.

Haitham Abu-Rub is a full professor holding two PhDs from Technical University of Gdansk and Gdansk University. He started his academic career with the Technical University of Gdansk and with Gdynia Marine University. In 1997 he moved to Palestine, then to the USA, Germany and Qatar. Since 2006, Dr. Abu-Rub has been associated with Texas A&M University at Qatar, where he is currently the chair of Electrical and Computer Engineering program and the Managing director of the Smart Grid Center – Extension in Qatar. He has long experience in teaching and research at different universities in Palestine, Germany, USA, Poland, UK and Qatar.

His main research interests are electric drives, power electronic converters, renewable energy and smart grid.

Dr. Abu-Rub is IEEE Fellow and is the recipient of many prestigious international recognitions, such as the American Fulbright and the German Alexander von Humboldt.

He is the co-author of over 350 journal and conference papers, five books, and five book chapters.

Currently he is leading many potential projects on power converters, photovoltaic systems, and smart grid.