

Preface

The technology transition of the electrical power system, from fossil fired power plants to distributed generation without fossil and nuclear fuels, is one of the persistent big challenges of the next decades.

In the session topics of the NEIS 2016 „Conference on Sustainable Energy Supply and Energy Storage Systems“ (www.neis-conference.com) the complex technical and regulatory transformation processes of a general transition of the electrical power system were represented. The NEIS 2016 took place on 15th and 16th of September as the fourth event of this conference series that is organised by the Chair of Electrical Power Systems of the Helmut Schmidt University/University of the Armed Forces Hamburg as a yearly occasion. In 2016, the NEIS conference language was English for the first time to have a platform for international scientific information exchange. The existing research cluster “Sustainable Power Systems” of the Helmut Schmidt University (<http://www.hsu-hh.de/nev>) offers excellent partners for interdisciplinary scientific discussions.

The keynote speeches were relevant inputs and impulses for the following discussions. Prof. Dr. Ir. Ronnie Belmans of the Catholic University Leuven/Belgium presented the topic “Overview of technologies and market instruments for high level of renewable energy systems”. He introduced the concept and realization of the EnergyVille in Genk/Belgium, in which energy research in the fields of Smart Cities and Building Technology is implemented. Prof. Dr.-Ing. habil. Rolf Hanitsch of the Technical University Berlin/Germany presented the topic “Solar energy systems – selected applications”. Based on his big experience, he described the development of solar thermal and solar electric systems as well as new technical solutions in this fields.

In the six following sessions current developments were introduced. In “Session 1: Electrical Power Grids” power grid design and applications of stationary and mobile power systems were discussed. Grid services and optimization of renewable energies are presented in “Session 2: Wind and Photovoltaic Power Plants”. Regulatory and market aspects were addressed in „Session 3: Regulatory and Market Framework Conditions“. In “Session 4: Energy Storage Systems” technologies of storage systems were described as well as technical demands. Mainly technological approaches for improved grid integration were introduced in „Session 5: Grid Integration“. In “Session 6: Fuel Cell and Battery Systems” technologies and operation capabilities of fuel cells and batteries were presented. I wish you much pleasure during the study of these conference papers.

For the first time we applied the “Energy-Slam” this year. Here the three most convincing concepts of amusing presentation of scientific topics were presented within 10 minutes.

My special thanks go to the keynote speaker, the session chairs and the presenters for their scientific contributions of particular interest. I would like to thank, too, our always very engaged team members of scientists and busy assistants for the organization, preparation and support during the conference. I would particularly like to thank the two persons in charge for the organization of this year’s conference, Mr. Dr. Hauke Langkowski and Mr. Dr. Thanh Trung Do.

Many thanks go to the CEO of the local distribution system operator Stromnetz Hamburg GmbH, Mr. Thomas Volk and his colleagues for the organization of the interesting visit to the modernized 110 kV switchgear in Hamburg-Jenfeld. They explained us the technology and answered competently to the numerous questions.

Detlef Schulz
Hamburg, in October 2016

NEIS Conference 2016

Nachhaltige Energieversorgung und Integration von
Speichern

Schulz, D. (Hrsg.)

2017, X, 227 S. 71 Abb., Hardcover

ISBN: 978-3-658-15028-0