

## Preface

The NEIS conference of 2021 was held under special circumstances. Just like last year, the ongoing pandemic prevented us from hosting our conference the usual way. Even more so, Covid showed us once more the high importance of independent, sustainable and reliable energy supply. For over a year now, we all have been forced to adapt our research and general working environment to new and mostly virtual surroundings. Not only does this result in limited research possibilities, but also the personal exchange and the work in research groups was very restricted. This shows that, now more than ever, we need a safe, flexible and reliable energy supply to secure amongst other things also our further digital research exchange. Surely, we will also continue to have more online communication and less presence than before the pandemic.

In 2013, we started to provide a platform for the knowledge exchange among the parties involved in this process, from young researchers and acknowledged professors at the universities, to a wide variety of industry representatives, such as grid operators, well-established companies in the energy sector but also young startups with innovative new approaches. We named the NEIS event “Conference on Sustainable Energy Supply and Integration of Energy Storage Systems”. This implies that the design of future power system demands a sustainable and systematic approach with contributions and ideas from different application fields and different perspectives.

The 9th NEIS conference in 2021 was organized with the technical support of IEEE PES Germany Chapter, of the IEEE Germany Section and with support from the Cluster Agency Renewable Energy Hamburg and 50Hertz Transmission. For the second time in a row, we had to adapt to the ongoing pandemic by hosting the conference completely online. Even though this way of scientific exchange remains unfamiliar and somewhat impersonal, this format allowed the incorporation of even more keynote presentations and webinars than usual. Also, we were able to attract more research from foreign countries, who might not have been able to attend in person. In the end, we can say that we are once more very grateful for the active participation, the interesting scientific discussions and for the very nice atmosphere that we have grown accustomed to over the years. With careful preparation and detailed planning of all eventualities, we look back on a very successful conference that fulfilled all our expectations.



Like last year, we were able to celebrate with our participants with a virtual toast. This shows once again that the scientific community knows no boundaries when it comes to working together.

The special focus of this year's conference was "Methods and practical approaches for power system planning and management". Four inspiring keynote presentations showed new insights into this topic. Prof. Antonello Monti from the University of Aachen held a presentation on "A modular approach to deploying automation in the Distribution Grid: The role of micro-services and open architectures". Dr. Hendrik Wust (Project Management Jülich) and Dr. Andreas Hauer (Bavarian Center for Applied Energy Research) introduced the topic of "The value of Energy Storage". Both coming from 50Hertz Transmission, Dr. Anne-Katrin Marten and Dr. Bernd Klöckl gave highly interesting insights in „Nuclear and fossil fuel phase out in Germany – Challenges and solutions from system operation perspective for a better, smarter and greener future“. Finally, Dr. Hartmut Huang from Siemens Energy gave his insights on the topic "Power electronics for efficient power transmission". In order to highlight the recent developments in the industry, there were two webinars organized by Mr. Mock from Spitzenberger & Spies and by Mr. Graf from Fraunhofer IGD.

Many thanks go to our keynote and webinar speakers. Their expertise gave great inputs and impulses to the discussions in the conference sessions. I am grateful for the commitment of the session chairs, the reviewers, the scientific advisory board and the presenting authors. They ensured again the quality of the conference contributions and discussions. Our always very engaged team of scientists and assistants guaranteed a trouble-free course of the conference. My special thanks go to Felix Heider and Robert Hankers, who successfully circumnavigated all virtual cliffs of our second online conference. Last but not least, I would like to thank the Cluster Agency Renewable Energy Hamburg for their continuous support over the years and the 50Hertz Transmission, which we were happy to welcome as a new cooperation partner this year.

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