

## Lecture by

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## Perspectives for the Clean Energy Transition

The energy landscape is changing rapidly with far-reaching implications for the global energy industry and actors. While the transformation of the energy system is rapid in certain regions of the world-such as Europe, the speed of the global energy transition remains highly uncertain and there exist a number of socio-technical challenges yet to be solved. Harvesting renewable energies implies decentralization, where many consumers also become producers, who at times export electricity to the grid. To accommodate large numbers of renewable resources, energy distribution and transmission networks need to be adapted and expanded to avoid network congestion and failures. Flexibility options and services have to be also enabled not only at the supply side but also through responsive loads and suitable means of energy storage to maximize the security of supply and the quality of service in the most efficient way. Accelerating the energy transition also requires a rethinking of electricity markets in many aspects, a key one being the adaptation of their design and operation to support higher shares of variable renewables as well as distributed power generation. This talk covers the aforementioned promising areas in green energy transition and discusses the current and future opportunities and challenges exist in this context.

### About the author



Amjad Anvari-Moghaddam received the Ph.D. degree (Hons.) from University of Tehran in 2015 in Power Systems Engineering. Currently, he is an Associate Professor and Leader of Intelligent Energy Systems and Flexible Markets (iGRIDS) Research Group at the Department of Energy (AAU Energy), Aalborg University where he is also acting as the Vice-Leader of Power Electronic Control, Reliability and System Optimization (PESYS) and the coordinator of Integrated Energy Systems Laboratory (IES-Lab). He made a Guest Professor stay with Technische Universität München, Germany during November/December of 2021. His research interests include planning, control and operation management of microgrids, renewable/hybrid power systems and integrated energy systems with appropriate market mechanisms. He has (co)authored more than 250 technical articles, five books and nine book chapters in the field. Prof. Anvari-Moghaddam serves as the Associate Editor of the IEEE TRANSACTIONS ON POWER SYSTEMS, IEEE Access, IEEE Systems Journal, IEEE Open Access Journal of Power and Energy, and IEEE Power Engineering Letters. He is the Vice-Chair of IEEE Denmark and serves as a Technical Committee Member of several IEEE PES/IES/PELS and CIGRE working groups. He was the recipient of 2020 DUO – India Fellowship Award, DANIDA Research Fellowship grant from the Ministry of Foreign Affairs of Denmark in 2018 and 2021, IEEE-CS Outstanding Leadership Award 2018 (Halifax, Nova Scotia, Canada), and the 2017 IEEE-CS Outstanding Service Award (Exeter-UK).