

## Sharing economy in cyber-physical systems

### Abstract

With the core idea of sharing economy “access over ownership”, “Energy Sharing” can be interpreted as the sharing economy in energy sectors, namely designing incentive-compatible market mechanisms for Pareto improvement by facilitating the utilization of the idle energy resources via advanced information and communication technologies. In recent years, the maturity of various enabling technologies provides a possible commercialization of sharing economy in energy markets, such as California cloud storage factory, PNNL transactive energy, LO3 blockchain-based P2P energy sharing, etc. In this report, we will discuss about the sharing economy in cyber-physical systems and its potential applications.

I am currently an Assistant Professor at North China Electric Power University. I received the Bachelor degree of Electrical Engineering and Economy Management from Tsinghua University in 2014. From 2016 to 2017, I worked as a visiting research at Stanford University. In 2019, I got my Ph.D. degree from Tsinghua University. From my graduation to the end of 2020, I worked as an official in Ministry of Science and Technology of China. My research interests include hydrogen/advanced storage technology, transportation and energy systems integration, cyber-physical system, electricity market and data analytics. Up to present, I have published over 70 journal and conference papers, and 1 book about information technology and disclosure mechanism in electricity markets. In 2020, I published a research paper on Nature Communications as the only first author, which was officially reported by the People’s Daily, Tsinghua News, UC Berkeley, IET, etc. Now I am working as an associate editor of IET Renewable Power Generation as well as Energy Conversion and Economics, and a guest editor of IEEE Trans Industry Applications.