2nd International Conference on

Battery and Fuel Cell Technology

July 27-28, 2017 | Rome, Italy

The development of a decision-making framework for intelligent energy storage system

Jun-Hyung Ryu Dongguk University, South Korea

Statement of the Problem: Energy has become an important issue for process industry. In order to survive under tough competition, energy should be secured for the industry in terms of cost and amount. However, continuously varying energy conditions makes it unprecedentedly challenging. Any approach to mitigate the negative impact of the external and internal variation should be developed and implemented. Recently, Energy Storage System (ESS) has been emerging as a competitive tool. There is much to be done to take the full advantage of ESS in practice. This paper aims to highlight the key issues for the practical implementation.

Methodology & Theoretical Orientation: At first, rigorous decision-making framework should be developed for the operation of ESS. Many reports only mention the potential advantages of ESS without describing specific technologies and methodologies. The framework should be closed incorporated with energy system management. The forecasting of supply and demand should be made. The accurate and reliable forecasting allows the ESS to operate in robust manner. Energy and power saving from the perspective of suppliers can be different. The benefit of ESS should be rigorously evaluated by computing the profit. The profit by using ESS should be computed against the ESS set up cost during the entire economic lifespan. ESS is under development. New technologies are constantly developed and tested.

Findings: This presentation highlights the need to urgently develop decision-making frameworks for the systematic operation of ESS. This can be applied to any type of ESS.

Conclusion & Significance: ESS itself cannot generate energy nor consume it. The impact of ESS can be realized when a proper match between suppliers and demands is made. The rising energy and power cost and increasing waste due to the mismatch indicates the importance of ESS in energy systems. More works are expected to take full advantage of ESS.

Biography

Jun-Hyung Ryu has expertise in Mathematical Programming in the Energy Systems. He has been mainly approached the energy system in the process industry with high energy consumption and concerned with developing the methodology to address multiple energy sources such as renewable energy sources, fossil fuels, and energy storage system. He is an Associate Professor in Department of Nuclear & Energy System Engineering at Dongguk University.

jhryu@dongguk.ac.kr

Notes: