Two stage stochastic programming approach for Energy storage system Operation under uncertainty

유지아, 류준형[1,†], 이인범
포항공과대학교; [1]동국대학교
(jhryu@dongguk.ac.kr[†])

Increasing impact of climate change has been forcing the introduction of alternative renewable energy sources. One major issue of renewable energy output is its variation due to their inherent nature. Recently, there have been active technological developments for manufacturing energy storage system (ESS). Energy can be stored and used again recently without much loss. The energy system consisting of renewable energies can be well managed by installing ESS in spite of varying energy supply and demand. A number of energy storage system(ESS)s are available. It is thereby necessary to develop a good ESS operation strategy for coping with the resulting challenging energy system. As an illustration, this paper proposes a two-stage stochastic programming modeling approach to compute the capacity of ESS against the varying renewable energy supplies as well as external demands simultaneously. The proposed approach allows the decision-makers in process and energy industries to well utilize the potential of renewable energies in practice.