World Academy of Science, Engineering and Technology
International Journal of Energy and Power Engineering
Vol:12, No:06, 2018

Load Management Using Multiple Sequential Load Shaping Techniques

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Abstract : Demand Side Management (DSM) is an essential characteristic of current and future smart grid systems. As one of DSM functions, load management aims to control customers' total electric consumption and utility's load factor by using various load shaping techniques. However, applying load shaping techniques such as load shifting, peak clipping, or strategic conservation individually does not provide the desired level of improvement for load factor increment and/or customer's bill reduction. In this paper, two load shaping techniques will be simulated as constrained optimization problems. The purpose is to reflect the application of combined load shifting and strategic conservation model together at the same time, and the application of combined load shifting and peak clipping model as well. The problem will be formulated and solved by using disciplined convex programming (CVX) based MATLAB® R2013b. Simulation results will be evaluated and compared for studying the most impactful multi-techniques model in improving load curve.

Keywords : convex programing, demand side management, load shaping, multiple, building energy optimization
Conference Title : ICSGCET 2018 : International Conference on Smart Grid and Clean Energy Technologies
Conference Location : San Francisco, United States
Conference Dates : June 06-07, 2018