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

# Applying Energy Consumption Schedule and Comparing It with Load Shifting Technique in Residential Load

**Authors :** Amira M. Attia, Karim H. Youssef, Nabil H. Abbasy

**Abstract :** Energy consumption schedule (ECS) technique shifts usage of loads from on peak hours and redistributes them throughout the day according to residents’ operating time preferences. This technique is used as form of indirect control from utility to improve the load curve and hence its load factor and reduce customer’s total electric bill as well. Similarly, load shifting technique achieves ECS purposes but as direct control form applied from utility. In this paper, ECS is simulated twice as optimal constrained mathematical formula, solved by using CVX program in MATLAB<sup>®</sup> R2013b. First, it is utilized for single residential building with ten apartments to determine max allowable energy consumption per hour for each residential apartment. Then, it is used for single apartment with number of shiftable domestic devices, where operating schedule is deduced using previous simulation output results as constraints. The paper ends by giving differences between ECS technique and load shifting technique via literature and simulation. Based on results assessment, it will be shown whether using ECS or load shifting is more beneficial to both customer and utility.

**Keywords :** energy consumption schedule, load shifting, comparison, demand side mangement
**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

Open Science Index, Electrical and Information Engineering Vol:12, No:06, 2018 publications.waset.org/abstracts/91718/pdf