Abstract: Home Network based User Authentication Mechanism in the Smart Grid Environment

Do-Eun Cho¹, Hee-Jong Shin², Si-Jung Kim³
¹Innovation Center for Engineering Education, Mokwon University, Korea
decho@mokwon.ac.kr
²Internet Information, Daewon University College, Korea
shinhj@daewon.ac.kr
³ATN. co., Ltd., Korea
sjkim6183@hanmir.com

Abstract

With the growing interest in Green IT, Smart Grid businesses have rapidly been carried on to achieve low-carbon green growth completely. In particular, Advanced Metering Infrastructure (AMI), which is a two-way infrastructure to deliver information between power producers and consumers, is a key to the Smart Grid. The convergence of the power grid and IT technology, however, is more likely to make home information appliances misused or targeted by many cyber-attacks, for the appliances have relatively low computing capability. Therefore, for the safe home services of the Smart Grid, it is necessary to control the access to Home Network’s devices and provide an authentication function for safe access. This thesis analyzed the security requirements to be considered in the Smart Grid environment, and proposed Home Network based user authentication mechanism. The proposed authentication mechanism makes possible the configuration of Home Network based AMI in the Smart Grid environment, and the safe remote control of home devices through a remote user’s ID and password.