

# Self-Learning Mechanism for Prediction of Energy Consumption and Generation

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**Abstract**— This paper relates to a technique for predicting energy usage and power generation through self-enhancement learning using a big data platform. The energy management system should predict the future energy use and generation amount for the optimal operation of ESS based on the measured energy amount, renewable energy production amount and energy usage, and establish the operation plan. For this, ESS charge / discharge scheduling is established through an optimal control engine, and the service is managed and supervised by the administrator.

**Keyword**— energy management, energy big data, energy information collection

**(Pt8)First A. Author** (M'76–SM'81–F'87) and the other authors must include biographies. This author became a Member (M) of IEEE in 1976, a Senior Member (SM) in 1981, and a Fellow (F) in 1987. The first paragraph may contain a place and/or date of birth (list place, the date). Next, the author's educational background is listed. The degrees should be listed with type of degree in what field, which institution, city, state, and country, and year degree was earned. The author's major field of study should be lowercased.



Tai-Yeon Ku is PhD student in Computer Science and Engineering from Chungnam National University, Korea, and received the B.S. and M.S. degrees in computer engineering from Pusan National University, Korea, in 1999 and 2001. She works ETRI (Electronics and Telecommunications Research Institute) as a senior researcher. Her research interests include to manage energy big data platform and IoT data. And she has interests in micro-grid technology based on community energy system (CES).



Wan-Ki Park received the B.S. and M.S. degrees in electronics engineering from Chungnam National University, Korea, in 1991 and 1993 respectively and Ph. D. degrees in information Communication Engineering from the same university in 2006. He had been a researcher in ADD from 1993 to 2000. In 2000, he joined ETRI (Electronics and Telecommunications Research Institute) as a senior and principal researcher. His research interests include to optimize energy usage in customer domains including home, building and community and to provide innovative energy services using cooperative and interactive ICT technologies of in Smart Grid. He is in charge of a project leader of R&D program of micro-grid technology based on community energy system (CES).



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