

Abstract of Doctoral Thesis

Title: Longtime Performance Verification of Existing ESCO Projects

Doctoral Program in Advanced Architectural, Environmental and Civil Engineering
Graduate School of Science and Engineering
Ritsumeikan University

タナベ ヨウイチ

TANABE Yoichi

This paper verified the longtime stability of energy-saving performance in Existing ESCO Projects, and inspects the possibility of shortening longtime verification obstructs ESCO-business development.

Only ten and several years have passed after ESCO business start-up in our country, and there are no examples which finished a longtime verification of ESCO projects up to now. Therefore, I inspected the first ESCO project, Osaka Prefectural Government office building's ESCO project the contract term has expired already, In consequence of longtime verification, if heat source equipment are maintained properly, it verified that the other energy-saving method, for example, VAV(variable air volume), VWV(variable water volume), and H_f -lighting were stably performing for longtime.

In the second place, this paper verified the accuracy of the used baseline (It was recorded with BL in the following.) correction formula which differentiates only the ESCO project's effects from influence of climate change and so on. Additionally, I verified the accuracy of BL correction formula made by LCEM tool which calculates an air-conditioning energy consumption. In the result, this used BL correction formula is as accurate as general correction formula, and when a collection period of BL data was 3 years, the precision has no problems on the real use, and LCEM tool was confirmed to be able to utilize as the BL correction formula.

According to these verification, the effects of ESCO projects confirmed to be stable for around 10 years, and if the good energy conservation performance could be confirmed for the first three years, it deduced the good performance for longtime (ten years) on condition of good maintenance of heat source equipment.