

Public Abstract

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Title:An Investigation into the Effectiveness of Energy Savings Performance Contracting (ESPC) Structure: How to Fill the Opportunity to Implementation Gap

This dissertation introduce and empirically verify a structure of Energy Savings Performance Contracting (ESPC) perspective among clients, Energy Service Companies (ESCOs) and governments. The new approach ESPC structure model presented herein is built on the Motivation-Opportunity-Ability (MOA) theory where key influences are identified. An important component of performance contracting, the performance measurement, has been incorporated in the structure to monitor the effect on ESPC implementation success.

The proposed structure and hypothesis were verified as a current ESPC practice in the United States through an online survey. The proposed structure was analyzed to understand relationships between the stakeholders, key factors, barriers and/or practices among the constructs through the structural equation modeling (SEM) approach. Due to the complex relationship of non-normal data and small sample size compared to the number of variables, the Partial Least Square SEM (PLS-SEM) method was chosen. The survey statistical results were used to verify the ESPC-MOA structure, develop an implementation guide and identify the ESPC critical factors to help establish its implementation success.