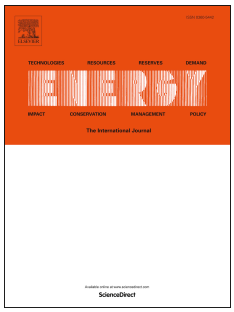
Accepted Manuscript



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PII: S0360-5442(17)30230-X

DOI: 10.1016/j.energy.2017.02.056

Reference: EGY 10349

To appear in: *Energy*

Received Date: 17 October 2015

Revised Date: 7 December 2016

Accepted Date: 10 February 2017

Please cite this article as: Dong R, Xu J, Lin B, ROI-based study on impact factors of distributed PV projects by LSSVM-PSO, *Energy* (2017), doi: 10.1016/j.energy.2017.02.056.

ROI-based Study on Impact Factors of Distributed PV Projects by LSSVM-PSO

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Abstract

A recent upsurge of investment in photovoltaic (PV) industry in China has made outstanding contributions to the adjustment of energy structure. In order to further promote the investment and construction of PV projects, the state has published many fiscal subsidy policies. In addition to unified national subsidy standard, local standards have been developed according to local fiscal revenue. They either have greatly improved return on investment (ROI) or have no significant effect as a result of too many impact factors. This paper utilizes multi dimensional big dates of distributed PV projects to obtain the weight of factors influencing the ROI from the calculation equation of ROI, which is fitted with innovative big data mining method of LSSVM-PSO. Results show that construction cost, sunshine duration, retail electricity tariff and subsidy have the greatest impacts. This study provides decision makers with quantitative basis for more comprehensive understanding on economic aspect of the distributed PV projects.

Keywords:

subsidy; impact factor; distributed PV; ROI; LSSVM-PSO

1. Introduction

Renewable energy was largely ignored about three to four years ago. However, with the increasing oil price on international market, clean, environmental-friendly and inexhaustible solar energy became popular worldwide. At the very beginning, solar cells were expensive; hence, the photovoltaic power generated was mainly supplied to satellite in space. The technical improvement in solar cell lowered the price and PV power generation began to be applied on ground at an increasing scale.

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