Assessment of the Effectiveness of Investment Strategy in Solar Photovoltaic (PV) Energy Sector: A Case Study

Xingxing Zhang\textsuperscript{a,*}, Jingchun Shen\textsuperscript{a}, Tong Yang\textsuperscript{a}, Llewellyn Tang\textsuperscript{a,*}, Yupeng Wu\textsuperscript{b}, Song Pan\textsuperscript{c}, Jinshun Wu\textsuperscript{c,d}, Peng Xu\textsuperscript{e}

\textsuperscript{a}Department of Architecture and Built Environment, University of Nottingham, Ningbo, 315100, China
\textsuperscript{b}Department of Architecture and Built Environment, University of Nottingham, Nottingham, NG7 2RD, UK
\textsuperscript{c}College of Architecture and Civil Engineering, Beijing University of Technology, Beijing, 100124, China
\textsuperscript{d}Architectural Engineering College, North China Institute of Science and Technology, Beijing, 101601, China
\textsuperscript{e}School of Environment and Energy Engineering, Beijing University of Civil Engineering and Architecture, Beijing, 100044, China

Abstract

Solar photovoltaic (PV) energy is now promising to offer potential solutions for sustainable development, especially in China. A representative Chinese solar PV manufacturer - Shunfeng International Clean Energy Limited (SFCE) - is therefore assessed in this paper, including (1) investment strategies in China’s recent macroeconomic exposure; (2) the market exposure and vulnerability. The macroeconomic challenges in case of China’s continuous GDP growth would have significant implications for SFCE’s investment strategy. Although SFCE’s vulnerability is high, it has mediated its macro exposure and protect itself by advanced non-pricing competition, product/service differentiation, vertical and horizontal integration, and high-profit diversification etc. The research result is expected to offer useful indications for solar PV companies to adapt and succeed in the future energy industry and simultaneously help the world to mitigate climate change.

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Keywords: PV industry; Economic assessment; Market exposure; Vulnerability

1. Introduction

Solar energy, as a major renewable and eco-friendly energy source with the most prominent characteristic of inexhaustibility, is promising currently to offer potential solutions for sustainable
development. One of the most common solar technologies nowadays is solar photovoltaic (PV), which contributes significant share of energy supply in the world. With continuous technical development, increased installation volume, reduced price, and encouraging legal policies, PV technology will certainly maintain its fast-growing pace and eventually become a significant energy supplier across the world. Asia Pacific, especially China, will become the super markets for Solar PV.

Investment strategy is considered as the core of business, which defines how a company tends to spend time and resources for a profit. An effective investment strategy would create more values by improving the overall competitive strengths from all perspectives [2]. Many literatures of PV investment evaluations have conducted from the aspects of global, governmental, industrial, R&D or even end users [2-6]. It is lack of research from the point of PV companies’ views in different regions. The related assessment of a PV company's investment would benefit its manufacturing decisions, energy management, supplier selection, competitiveness and the performance of the businesses, which, from the other side, drives the sustainable and healthy development of the PV industry.

This paper is thus to conduct a case study of a representative Chinese PV company, Shunfeng International Clean Energy Limited (SFCE), through the examinations of macroeconomic exposure, market exposure and vulnerability.

2. Research Methodology

The case study research method is structured in Fig. 1 with the objective of identifying the effectiveness of PV investment strategy of SFCE. 3. Macroeconomic exposure is evaluated by the dynamic Aggregate Demand and Aggregate Supply (AD-AS) model as well as the primary economic indicative indexes. Market exposure is examined through the Supernormal profit model on basis of its financial statistics. Vulnerability and cost are considered by the ratio of fixed cost (FC) to total cost (TC) and the Short-run average total cost curve (SRATC). Each process is explained to present how the author accomplishes the study step by step.

![Fig. 1: Case study research methodology](image)

3. Macroeconomic exposure

Since SFCE’s main business and market are based in China, a macroeconomic exposure analysis in China context would have significant implications for SFCE’s business strategy. The global economic crisis in 2008 greatly affected China’s economy (especially export sector). China’s real GDP growth fell from 12.7% in 2006 to 9.2% in 2009. The government then implemented an economic stimulus package and loosening monetary policies that boosted domestic investment and consumption. From 2009 to 2011, China’s real GDP growth averaged 9.6%. However, it has slowed in recent years from 10.4% in 2010 to 7.3% in 2014 due to significant decreases in export and fixed investment. Although the IMF projects that China’s real GDP growth will slow to 6.8% in 2015 and to 6.3% in 2016 -2020, it will be still the enormous increase in the economy quantity. According to the dynamic AD-AS model in Fig. 1, increases
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