ALTERNATIVE BUSINESS MODEL

FOR ENERGY SERVICE COMPANY IN INDONESIA

EKA SUDARMAJI

Indonesia's energy demand is increasing as a result of growth in infrastructure and economy. As energy demand grows, opportunities for energy efficiency also expand in various sectors in Indonesia. The green retrofitting is an exception despite the vast opportunity, and Indonesia has multimillion-dollar energy efficiency potential. Nevertheless, only a tiny percentage of this available potential can be attained. Under technological innovation, retrofitting in building sectors is technically feasible and economically viable. New technologies could increase building energy efficiency and energy saving, where some of the techniques needed for retrofitting are already available in the market. However, acceptance among business owners varies across the building, industrial and commercial sectors. It is due to a lack of awareness about the savings potential of the best available technologies (one of the barriers). Hence, the government needs to help and incentivize new energy-saving companies (ESCOs) to enter the building energy efficiency sector. These incentives are necessary to overcome the paradox of the energy gap and let the ESCO enter the building energy performance program.

With the explanation above, the author undertakes this study to learn more about the strategy of the ESCO to gain opportunities and open new markets in the building energy efficiency sector. It can be done by promoting the use of environmentally friendly technology equipment that ultimately aims to keep its performance growing on an ongoing basis. New opportunities that ESCO can do are to offer a Product Service System (PSS) business model in the form of Energy Saving Agreement (ESA) or Energy Saving Performance Contract (ESPC), which is known as the "retrofit" contract. Hence, the purpose of this study are as follow: 1) Investigate ESCO's confidence and tapping potential in energy efficiency business sectors, 2) To explore the retrofit practices and retrofit financing, 3) To analyze and evaluate the driving factors of carbon emissions in Indonesia.

The study explores the relationship between energy consumption, building energy efficiency (BEE) Industry, energy saving, energy conservation services company or energy service company (ESCO), and energy-economic growth relationships. This study helps understand how market barriers are the main problem and affect the organization's energy efficiency development behavior. Understanding the market drivers and nature of the energy efficiency development and the consequences, its new PSS business model, the value of the investment, and new intelligent financing options will benefit all the participants. Energy efficiency retrofitting is viable in Indonesia. However, non-market and market barriers in implementing energy-saving vary across sectors. Thus, again, the energy efficiency retrofitting remains an anomaly. Indonesia requires a comprehensive set of government policies to spurs the building energy efficiency industry and avoid the "energy gap."

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FOREWORD

All praise and gratitude, I pray to Allah SWT, who has given me abundance of grace, health, and opportunities for a better life so that I can complete this book. This Monograph Book can be completed thanks to various parties' help, guidance, encouragement, and attention. I am extraordinary grateful to my beloved wife, Dr. Ismi Nasip, and our three dear daughters, Ananda Tika Sudarmaji, Ananda Mia Sudarmaji, and Ananda Zuraenee Sudarmaji. Thank you so much for the never-ending support, and you have given me endless prayers, and love.

The author realizes that the Monograph Book still needs improvement; hence suggestions and constructive criticism from all parties are expected for the subsequent refinement and advancement. Furthermore, I hope that this Monograph Book can provide meaning and benefit to many parties

.

Jakarta, April 2022

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
AFD	Agence française de développement
AHP	Analytic Hierarchy Process
AI	Artificial Intelligence
ANP	Analytic Network Process
ARDL	Auto Regressive Distributed Lag
Bapenas	Badan Perencanaan Nasional
BAU	Business-As-Usual
BMC	Business Model Canvas
CFL-i	Compact Fluorescent Lamps
DANIDA	Danish International Development Agency
DSM	Demand Side Management
ESA	Energy Saving Agreement
ESCO	Energy Service Conservatism Company (Energy Saving Company)
ESPC	Energy Saving Performance Contracts
FGD	Forum Group Discussion
FSA	Financial Services Authority
GHG	Greenhouse Gas
GIZ	Gesellschaft für Internationale Zusammenarbeit
IFC	International Finance Corporation
JCM	Joint Commission Meeting
KEN	Kebijakan Energi Nasional
LED	Light-Emitting Diode
LCCA	Life Cycle Cost Analysis
MA	Morphological Analysis
MEMR	Minister of Energy and Mineral Resources
ML	Machine Learning
MOEF	Minister of Economic and Finance
MOF	Minister of Finance
MOL	Minister of Labor
MtCO2	Million Tons of CO2
NLP	Natural Language Programming
PB	Pembangunan Berkelanjutan

PSS	Product, Service and System
RK	Rendah Karbon
RUEN	Rencana Umum Energi Nasional
SSM	Soft System Modelling
TOE	Ton of Oil Equivalent
UNIDO	The United Nations Industrial Development Organization

ALTERNATIVE BUSINESS MODEL FOR ENERGY SERVICE COMPANY IN INDONESIA

Eka Sudarmaji

PART 1 | INTRODUCTION

Companies will likely continue to diversify their product offerings to stay ahead of the competition in the LED industry. To that end, companies will typically provide products beyond their core offerings to complement their portfolios. The LED industry is in an oligopoly market, where most companies determine the selling price of their products based on competitive conditions and customer demand, which in turn affects the level of profit. The LED companies are also aware of their competitive environment, mainly when competing firms operate in the same sales area. Since the product structure of each company in the LED industry tends to be similar, companies compete based on price. So these LED companies tend to cut prices and ultimately lead to price competition. This severe competition forced them to create their brands, provide services, discounts or coupons, and product differentiation.

LED companies to compete by offering more extensive, better, faster, cleaner, and newer products– especially one that is different from the competition. Therefore, many LED companies realize that price competition is not practical. They generally rely on non-price competition methods. A more common method of non-price competition is through 'product differentiation. The key for a company is to attract buyers and increase market share while holding the price line. Every company strives to differentiate its products and give customers a reason (besides price differences) to choose its products over competitors.

PART 2 | EMPERICAL STUDY

A. General Case Study Information

Based on general information obtained in data mining on documents collected, MWS focused on B-to-B segments as the manufacturer divided the distributors based on the target market. PT. MWS part of Sriwijaya Group. MSW's complete portfolio includes: 1) Philips Consumer Lighting Solutions, 2) Philips Professional Lighting Solutions, 3) Color Kinetics High Performance LED Solutions, 4) Dynalite and Interact Connected Lighting Systems, and 5) Philips OEM Customization Solutions, PT. Mantra Wira Sriwijaya was committed to providing the best possible solution to all lighting needs. MWS's service included financial provision assistance through LED retrofitting solutions.

PART 3

CASE STUDY
ALTERNATIVE PRODUCT SYSTEM SERVICE BUSINESS MODEL OF ENERGY SERVICE SYSTEM

A. Introduction

It was found that the lack of economic and financial incentives and limited financing options might be the most prominent problem of the promotion of energy efficiency at the current stage in Indonesia. With energy efficiency, Indonesia will gain many benefits such as increasing competitiveness, opening jobs, improving energy security, and reducing energy demand. It can reduce the need for coal-fired power plant construction and help facilitate electricity access targets for people who were not yet electrified. The government has issued incentives and disincentives policies to spur energy efficiency among the industry sectors. Unfortunately, under the Government of the Republic of Indonesia (2009) regulation, the incentives and disincentives were given only to companies that use 6000 TOE (a ton of oil equivalent). Those organizations were qualified for incentives in types of tax facilities, customs duties, and low-loan costs from banking institutions. Organizations that did not actualize the conservation would get disincentives as alerts, media publications, fines, and decreased energy supply. Therefore, there was room to improve energy efficiency by strengthening compliance through the establishment of an ESCO.

The government needs to help new ESCO enter the energy-efficiency sector. The incentives policies were especially useful in overcoming the energy gap and increasing growth in prospect companies and ESCO enter the program. On the other

PART 4

CASE STUDY
ENERGY-SAVING BACKED FINANCE: CREDIT WORTHINESS PREDICTION USING MACHINE LEARNING

A. Introduction

This study explored the impact of an energy-efficiency lighting program on one of the ways of reducing energy usage was by switching to energy-saving lightings. Energy-saving equipment reduces energy costs by 4.5 times and has a 1.5 times longer lifetime (Almeida, Santos, Paolo, and Quicheron, 2014; Bennich, 2015; Polzin, von Flotow, and Nolden, 2016). The payback project period would be impacted by the rise in the number of hours the building operates or the increase in energy cost per kilowatt. The bigger the investment return, the more profitable the ESCO project, and the lower the risk. The figure showed the example comparative measurement between energy-saving and conventional lightings showed in Table 4.1 below.

Table 4. 1. comparative measurement between LED and TLD

No	Description	TLD	LED TUBE
1	Energy Consumption (Watt)	72	16
2	Operational Hours	8	8
3	Electricity Consumption/Kwh Year	210.24	46.72
4	Electricity Bill/Kwh	1,125	1,125
7	**Electricity Cost in IDR**	**236,52**	**52,56**
8	Life Cycle in Hours	10	15
9	Life Cycle in Years	3	5

PART 5

CASE STUDY
NATIONAL POLICY ON BUILDING ENERGY EFFICIENCY

A. Introduction

The main policy failures in building energy efficiency include limited or ineffective use of available instruments, a poor understanding of consumer and investor decisions drivers, poor assessments of instrument cost-effectiveness, and poor instrument assignment across public sector agencies. As a result, government transparency regulations and building rating policies must be implemented to stimulate energy efficiency and energy savings demand (Burr et al. 2016). By valuing energy performance in the building sector, the market will unlock significant potential for energy efficiency via market pricing signals, and the energy-efficient homes are worth more. Furthermore, It increased access to financing for individuals looking to buy a more energy-efficient house (energy-efficient homes enhance borrowers' cash flow since they are less expensive to run) (Adams 2012; Hill & Dunsky 2013).

The signalling component of energy efficiency gains in buildings works through minimizing information asymmetry. According to market signalling theory, an energy performance certificate makes the owners' products more attractive. It may be a vital component of a firm's "nonmarket" strategy in a competitive real estate marketplace. Moreover, knowledge asymmetry about building quality made the underinvestment in building energy efficiency business since builders, owners, and occupiers do not exchange information about energy performance. In contradiction, some of this information must be

PART 6 CONCLUSION

Implementing energy efficiency practices, the new PSS business model for ESCO, and retrofitting financing as new alternative financing in the building industry has become important, given the relationship between energy consumption and economic growth. The literature on energy efficiency development provides insight into improving the implementation of energy efficiency mentioned above. There are vital aspects to promoting energy efficiency policies more effectively, looking into enhancing the rate of implementation of energy-efficient technology. Several strategies could encourage innovation in ESCO, i.e., incentive programs, building rating programs, and financing opportunities. The potential benefits are crystal clear to the companies, government, and environment.

This study gained a deeper understanding of the obstacles in promoting energy efficiency practices in Indonesia's Building Energy Efficiency and ESCO. Therefore, the results of this study have implications for management science, management practices in the company and commercial building industry in Indonesia, and the government as a regulator.

A. Policy Implication

Retrofitting business development in the building energy efficiency industry can create business opportunities for many companies in Indonesia. The Indonesian government can make meaningful adjustments to support retrofitting businesses in the industrial building sectors. These correct policies will be

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BIO NOTE

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The author is an independent entrepreneur and an educator, learning economics and business based on practice, established new business models: e-Stock and e-Health. The author also shares his knowledge by lecturing in introductory business courses, e-business (eCommerce), and entrepreneurship, following his passions tailored to his expertise, drawn from personal experience as an entrepreneur and his educational background. The author has always wanted to contribute to the community, especially to education, through his experience in establishing and managing SMEs based on creativity and innovation. He started with the Chairman of the Incubator Center and currently holds the role of Chair of Accounting and Taxation Science Studies in the faculty of business and economics at the University of Pancasila. The author hopes that his students and his guidance can become entrepreneurs by utilizing Indonesia's competitive advantages compared to their neighboring countries.

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