

# Comparative Analysis of Global Business Strategies on Solar Cell Companies

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## Abstract

The development of technology and industry are directly proportional to the demand of energy. Currently, electrical energy in Indonesia depends on the nonrenewable energy, i.e. coal, natural gas, and petroleum. Alternative sources of energy are necessary to ensure the national energy supply. The alternative source has to be environmental friendly and renewable to prevent the depletion of electrical energy. Solar energy is one of the best options for alternative energy source in Indonesia due to the climate and geography, thus solar cells business has a lot of potential for the industries. This study aims to compare the business strategies of the two Energy Service Companies (ESCOs) providing solar cells: PT Sedayu and PT Wedosolar. By conducting a comparative analysis between the two similar companies based on the framework, This research analyzes the global business strategy for commercializing a technology to compare resources, capability, competitive advantage, attractive industry, and its strategy formulation to obtain above-average returns. The results are recommendations for ESCOs to implement global business strategies, especially in commercializing solar cells.

## Keywords

ESCO, Energy, Solar Cell, Business Strategy

## 1. Introduction

Indonesia is a country on archipelago with more than 2000 islands and almost 300 million populations in 2021. It is very challenging to provide electricity for households and industries in the outmost and least developed regions of archipelago (Santika et al., 2020). Despite of the challenge, Indonesia has sustainable development plan for energy and aimed to be accomplished in 2030.

The government has to support this goal with regulations. There has been some policy to regulate the reduction of emission and nonrenewable energy sources, but in contrary the government continues to prioritize the usage of fossil fuel in pursuit of economic growth (Rahman et al., 2021). For example, the government is planning to increase construction of freeways. It will lead to better economic development for the nation by connecting the cities; on the other it will increase the use of fossil fuel. The utility of fossil fuel for connecting the economics of

the cities are unavoidable thus the government has to reduce the usage of fossil fuel and other nonrenewable energy to generate electricity especially for households.

Energy Service Companies (ESCOs) can help the government to facilitate a small electricity generator for household. In developed regions like US or most countries in Europe, ESCOs were implemented quite successfully for promoting energy efficiency (Nurchayono et al., 2020). In developing country such as Indonesia, ESCOs need more attention, development, and are relatively rare. Developing ESCOs have to define their resources (Seppänen, 2015), capability (Michell, 2014), competitiveness (Herciu, 2016; Palacio & Padilla-delgado, 2019) and business attractiveness (Jong et al., 2021) to commercialize their products and service.

PT Sedayu and PT Wedosolarindo are the two examples of local ESCOs in Indonesia providing solar cell and focus on renewable energy. Both of the companies are in the form of PT (*Perseroan terbatas*) which is the equivalent organization for Inc in US or Ltd in UK. PT is legal company which separates the capitals, rights, and obligations of the owner (the stakeholders) and the company. PT Sedayu and PT Wedosolarindo are developing their business strategies to establish their ESCO business. Observing these ESCOs may lead to better understanding of the ESCO business strategies in Indonesia and many other developing countries with similar characteristics.

## 1.1 Objectives

This research compares the two companies to:

- a. map the strength and weakness of both ESCOs thus it will assist the manager to implement the effective strategies
- b. define the capabilities of the ESCOs by comparing both companies
- c. define the resources of the ESCOs and the competitiveness of the companies
- d. define the business opportunity of the ESCOs to use the resource of the companies

## 2. Literature Review

### 2.1 Developing Business and Business Strategy

Developing business is a specific type of enterprise that aims to develop the existing business model (Blank, 2006). Later, the term “initiate business model” can be translated to create products or services under the condition of uncertainty (Ries, 2011). In summary, developing business is human institution trying to create business without a precise business model.

Business model is a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture and economics are addressed to create sustainable competitive advantage in defined markets (Morris et al., 2005). There is no a single business model that is compatible to all kinds of business, every business has different problem to solve and the business companies have to select the most compatible business model to solve the problems (Foss & Saebi, 2017). ESCOs in developing countries are usually trying to solve a new problems thus there is not any perfect business model to be applied, they have to make their own business model using the previous model as guideline.

### 2.2 Business Resource

Seppänen (2015) mentions that resource and its allocation are the main component of business model. It is at the heart of strategic management of a company due to the causal ambiguity of decisions and actions. Seppänen and Makinen (2007) classify the business resources into seven categories: (1) human resource, (2) organizational resource, (3) informational resource, (4) physical resource, (5) financial resource, (6) legal resource and (7) relational resource.

- a. Human Resource: Human resource consists of personal networks, individual experience, education, and other personal attributes. This resource relies on the quality of employees or company builders.
- b. Organizational Resource: The interaction between two or more people in the company creates culture, teamwork routines, and communication. These products of social interaction are the components of

organizational resource. This resource also includes the structure of the organization, processes, brand and reputation.

- c. Informational Resource: The information about industry, customer, supplier, internal, and product are categorized in the informational resource.
- d. Physical Resource: Any physical assets owned by company to support the business are physical resources: building, land, geographic location, machinery, equipment, raw materials, etc.
- e. Financial Resource: Internal and external funds or any other financial instruments are included in the financial resource.
- f. Legal Resource: Legal resource is any document to legalize the business of a company. It includes agreements, patents, licenses, copyrights, trademarks, etc.
- g. Relational Resource: Relational resource includes any supplier relationship, customer relationships, competitor relationship and external parties relationship.

### **2.3 Business Capabilities**

There are many researches about business capabilities; and some researches even create their own definition about business capabilities. Michell (2014) reviews and compares many researches about business capability. On his comparison, the various definition of many research articles relate business capabilities with work function, behavior, activity outcomes, capacity to use resources, ability to coordinate resources, specific outcome of business processes, and process integration. These relation mainly focused on activities/processes and resources. Thus, Michell (2014) focuses the definition of business capability on how to use resources in certain activities or processes to create outcome.

### **2.4 Business Competitiveness**

The term of business competitiveness have been discussed through many researches since 1980 (Palacio & Padilla-delgado, 2019). A review study on the definitions of business competitiveness by Palacio and Padilla-delgado (2019) concludes that business competitiveness is the construct as a capability, capacity, ability or a result that leads a company to a superior performance, competitive advantage, or to the strategic way to operate in a competitive market.

The business competitiveness of a company is built by the their resources (Herciu, 2016). The business competitiveness also relates to ambidexterity; it is the strategy about exploits the resource or explores the opportunity. Better business competitiveness leads to better opportunity exploration.

In summary, business competitiveness is a strength factor of a company to enable the company competes with other competitor in the same business field. The strength factor relates to their resources or capability.

### **2.5 Business Attractiveness**

There are five important key-trends associated with business attractiveness (Jong et al., 2021): gamification (1), personalization (2), mixed reality (3), data visualization (4) and privacy (5).

- a. Gamification is a strategy to make every business process into pleasant positive experience for customers such that the customers enjoy using the product or service of a certain company as if they are playing a game.
- b. Personalization is a strategy to enable customer to personalize the product or service of a company.
- c. Mixed reality is a strategy to enable customer access both via online and offline service.
- d. Data visualization is service that enable customer to see the information of product, service, or company. The trending strategy about data visualization is to add interactive function to let customer manipulate or adjust the information they want.
- e. Privacy is one of the key-trend related to business attractiveness. Customers need agreement on how much information about themselves they want to share with the company or other customers.

### 3. Methods

This study uses comparative method to compare the strategies of PT Sedayu and PT Wedosolarindo by analyzing the business component based on global business strategy. This process leads to the description of Strength Weakness Opportunity Threat (SWOT) analysis of both ESCOs by comparing the strategic vision, objectives, performance indicator, variable matrix and success benchmark of the corresponding ESCO. The strategy measurement is shown in Figure 1.

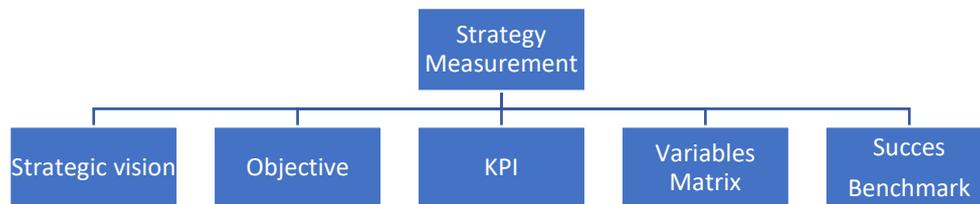


Figure 1. ESCO strategy measurement

The following points are the description of Figure 1.

- a. Strategic vision is manager aspiration about future direction and concrete description about the company in the future.
- b. Objectives have to be clearly determined thus ESCO has specific accomplishable performance by transforming strategic vision to objectives. It is necessary for every unit in the organization has concrete objective such as their performances and contributions are measureable by the organization.
- c. KPIs (Key Performance Indicators) are identified to evaluate the business performance in accomplishing the organizational target. KPIs are also used to define measurable objectives, analyse the trends, and support decision making.
- d. Variables matrix is used to identify necessary ESCOs variables.
- e. Success benchmarks is used to compare the performance of business process and matrices including fund, period cycle, productivity and other qualities used as standard indicator for the best industry or practice.

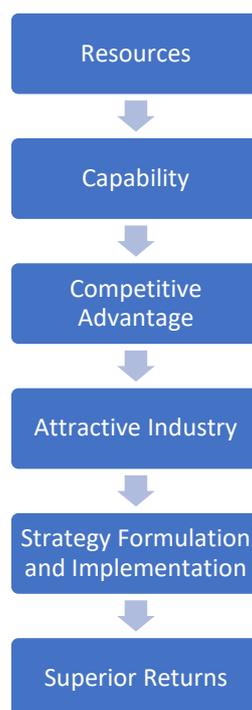


Figure 2. Comparison components and steps

The comparison results of PT Sedayu and PT Wedosolar based on resources, capability, competitiveness, attractiveness and strategy formulation are obtained by employee interviews and published contents in the internet. The comparison components are listed in literature reviews and its flowchart is shown in Figure 2.

Resources: The identification of ESCO's resource by study its strength and weakness compared with their competitors

Capability: How ESCO determine their capability; what do the capabilities allow the company to do better than their competitors

Competitiveness: how ESCO determine the potential of their resources and capabilities in term of competitive advantages.

Attractiveness: How ESCO uses the business opportunity to attract market

Strategy Formulation: How ESCO selects a strategy to that allows the company to utilize its resources and capabilities relative to opportunities in the external environment.

Superior Returns: How ESCO receive above-average revenue.

#### **4. Data Collection**

Table 1 shows the collected data to compare the positive aspect of PT Wedosolar and PT Sedayu. This research collected this data from interview session in both ESCO, and then we compare the interview results by observing the content on the corresponding social media account to validate the data. The obtained data is then classified into six criteria in Figure 2: (1) Resource, (2) Capability, (3) Competitiveness, (4) Attractiveness, (5) Strategy Formulation/Implementation and (6) Returns. Unfortunately, the social media account of both ESCO does not contain any information about quantitative data to provide statistical proof about the interview results.

Table 1. The comparison of PT Wedosolar and PT Sedayu

Comparison	PT Wedosolar	PT Sedayu
Resource	<ul style="list-style-type: none"> <li>• Has complete components to install solar cell</li> <li>• Has instalment license from Indonesia and China</li> <li>• Grade A standard solar cell</li> <li>• Has 3 legal distributors</li> <li>• Has patent for street-lighting</li> </ul>	<ul style="list-style-type: none"> <li>• Has instalment license from Indonesia and Germany</li> <li>• Grade A standard solar cell</li> <li>• Has 3 legal distributors</li> <li>• Has 8 persons for the core team</li> </ul>
Capability	<ul style="list-style-type: none"> <li>• Customable instalment</li> <li>• Street-lighting instalment</li> <li>• Solar cell instalment in three system</li> </ul>	<ul style="list-style-type: none"> <li>• Provide service to calculate the power demand</li> <li>• Solar cell instalment in three system</li> <li>• The instalment of solar cell implementation of appliance</li> </ul>
Competitiveness	<ul style="list-style-type: none"> <li>• Complete components to install solar cell</li> </ul>	<ul style="list-style-type: none"> <li>• More innovation on instalment and implementation</li> <li>• Focuses on solar cell output</li> <li>• The implementation is based on demand</li> </ul>
Attractiveness	Focuses on the instalment component for solar cell and street-lighting	Focuses on solar cell instalment, research, and solar cell implementation on appliance
Strategy Formulation and Implementation	<ul style="list-style-type: none"> <li>• Focuses on street-lighting instalment</li> <li>• Has customable installation components</li> <li>• Sell the instalment component in their retail shop</li> <li>• Solar cell instalment aims the developed region for industrial purposes</li> </ul>	<ul style="list-style-type: none"> <li>• Has mutual relationship with Tesla for research and solar cell implementation</li> <li>• Solar cell instalment aims for the less developed region for household</li> <li>• Imported the German technology</li> </ul>
Superior Returns	<ul style="list-style-type: none"> <li>• Has 18 major corporate partners in Indonesia</li> <li>• Has 5 Distributor solar cell from aboard</li> </ul>	<ul style="list-style-type: none"> <li>• Indonesia's leading Renewable Energy EPC Company</li> <li>• Holding total share of 45% for national solar cell business</li> </ul>

## 5. Results and Discussion

This section discusses the analysis and synthesis from the comparison of both ESCOs. Both ESCOs are the biggest ESCO in Indonesia having installment licensed from Indonesia and abroad: Germany and China for PT Sedayu and PT Wedosolar respectively. Both ESCO has service to improve the value of their company: PT Sedayu focuses on the implementation of solar cell for water pump and PT Wedosolar focuses on the installment components of solar cell. Both ESCO has similar structure costs and facilities based on the SWOT analysis in Table 2.

Table 2. SWOT Analysis Comparison for PT Wedosolar and PT Sedayu

Component	PT Wedosolar	PT Sedayu
Strength	<ul style="list-style-type: none"> <li>• has legal distributors, grade A solar panel, instalment license</li> <li>• Aims the industrial sector</li> <li>• Has patent</li> </ul>	<ul style="list-style-type: none"> <li>• has legal distributors, grade A solar panel, instalment license</li> <li>• have mutual relationship with leading international industry</li> </ul>
Weakness	<ul style="list-style-type: none"> <li>• There is no service to discuss recommendation and specification of solar panel component</li> <li>• Does not have mutual relationship with leading international industry</li> </ul>	<ul style="list-style-type: none"> <li>• higher operational cost</li> <li>• does not have patent</li> </ul>
Opportunity	<ul style="list-style-type: none"> <li>• less additional cost</li> <li>• relatively lower risk</li> </ul>	<ul style="list-style-type: none"> <li>• less competitors in developing regions</li> <li>• relatively higher demand</li> </ul>
Thread	<ul style="list-style-type: none"> <li>• many competitors in developed regions</li> <li>• relatively lower demand</li> </ul>	<ul style="list-style-type: none"> <li>• higher additional cost</li> <li>• relatively higher risk</li> </ul>

Both ESCO has sufficient effectiveness based on their business scheme. Their business schemes are observed by their products, installation, and determined targets for the past five years. PT Sedayu has weakness on the market segmentation: they focus on region which is far from their business location thus they require high operational cost. On the other hand, PT Wedosolar has weakness on service to discuss the recommendation and specification about the component for solar cell and street-lighting installment. The strength of both ESCO is supported by legal distributors, installment license, and grade A solar panel. PT Wedosolar uses the opportunity of having the better access in the developed region while PT Sedayu uses the energy need in developing region to maintain their business. This strategy could bring thread to PT Wedosolar when the energy demand in the developed region is low since the customer would have multiple access to business competitors. On the other hand, high additional cost is the thread for PT Sedayu such as higher insurance, less disaster prevention facility in the developed area, etc.

From the comparison, we suggest that ESCO need to be more eager to create more commercialized technological innovation and propose their innovation for copyright and patents thus their business receive more resources and high potential revenue in the future.

## 6. Conclusions

The main differences of PT Sedayu and PT Wedosolar are their target and the business positioning. PT Sedayu focuses on the east region of Indonesia and applied the solar cell directly to house appliance such as water pump. This region is less developed than the western region and some of them have not received electricity from the government. On the other hand, PT Wedosolar focuses their business on more developed region in Jabodetabek – a region consist of developed cities around the capital city of Indonesia – and do not apply it directly for appliance.

Technology commercialization benchmark comparison suggests that the technology commercialization of PT Sedayu has commercialized final products thus it is noted as successful accomplishment. The patent of this technology commercialization is noted by the number of final product innovation that has been commercialized since 2018.

The limitation of this study is the insufficiency of published data about PT Wedosolar thus the comparison of business strategy of both ESCO might seem to be unbalanced. This research suggests using multiple data collection processes such as interview and questioning form to solve the data insufficiency problem.

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