

Mustikaningsih, Dewi; Cahyandito, Martha Fani; Kaltum, Umi et al.

## Article

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International Journal of Energy Economics and Policy

## Provided in Cooperation with:

International Journal of Energy Economics and Policy (IJEEP)

*Reference:* Mustikaningsih, Dewi/Cahyandito, Martha Fani et. al. (2019). Building business performance through partnership strategy model : evidence from renewable energy industry in Indonesia. In: International Journal of Energy Economics and Policy 9 (5), S. 297 - 307.  
<http://econjournals.com/index.php/ijEEP/article/download/7780/4522>.  
doi:10.32479/ijEEP.7780.

This Version is available at:

<http://hdl.handle.net/11159/5106>

## Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics  
Düsternbrooker Weg 120  
24105 Kiel (Germany)  
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)  
<https://www.zbw.eu/>

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# Building Business Performance through Partnership Strategy Model: Evidence from Renewable Energy Industry in Indonesia

**Dewi Mustikaningsih\*, Martha Fani Cahyandito, Umi Kaltum, Sri Sarjana**

Doctoral Program in Management Science, Padjadjaran University, Indonesia. \*E-mail: [dewimustika1004@yahoo.com](mailto:dewimustika1004@yahoo.com)

**Received:** 02 March 2019

**Accepted:** 29 June 2019

**DOI:** <https://doi.org/10.32479/ijeeep.7780>

## ABSTRACT

This research was carried out as an effort to encourage performance improvement of renewable energy power plants. The purpose of this study was conducted to measure the level of influence of strategic partnerships in creating better business performance in renewable energy industry companies in Indonesia. Strategic partnerships have an important role in developing business performance, including by encouraging dynamic capabilities, supply chains, and improving the regulatory system owned by the renewable energy business lines in Indonesia. Our previous research model that we published shows that regulation plays a very dominant role, then we modify it by issuing regulatory variables that uncontrollable by management. We try to see the effect of exogenous variables that can be fully controlled. Data related to renewable energy industry is collected and presented in this study for completeness. Test data using partial least square equipped with various supporting data obtained from government institutions and private sector that have sufficient information about renewable energy industry. The findings of this study state that to improve business performance, strategic partnerships need to be carried out optimally through various efforts including strengthening collaboration in aligning the supply chain and developing dynamic capabilities within the organization. For the future, it is expected that all stakeholders involved in the renewable electricity generation industry in Indonesia can improve their business performance so that they can increase electricity supply to remote villages and able to transform use of primary energy sources from fossils to environmentally friendly renewable energy where potential is widely spread throughout region so that sustainable life in the world is more awake.

**Keywords:** Strategic Partnership, Business Performance, Supply Chain Performance, Renewable Energy Industry

**JEL Classifications:** L, Q2, Q4

## 1. INTRODUCTION

Energy increasingly dominates all aspects of human life and becomes basic capital for the development of state modernization (Demirbas, 2016). The reliable availability of energy can guarantee productivity, industrial competitiveness and economic growth. The higher economic development, the greater the energy needs that have an impact on improving people's welfare. Energy has a role not only as a foreign exchange earner but also as a catalyst and the main production factor in economic development (Bappenas - The National Development Planning Republic of Indonesia, 2018). Availability, accessibility, acceptance, and affordability are part of national energy policy as a government effort to ensure

energy security that can be utilized by all levels of society; this is four criteria that are targeted by the Indonesian government in national energy management. However, Indonesia's energy security position has deteriorated in recent years where there is an imbalance in the level of availability and energy needs in the community. Based on data released by the World Energy Council through the Energy Trilemma Index (2018), Indonesia was ranked 71<sup>th</sup> out of 125 countries in 2018. The ranking declined compared to several years before, in 2014 Indonesia was still ranked 69<sup>th</sup> and in 2010 it was still ranked 29<sup>th</sup>. Energy security includes three aspects, namely the availability of energy sources, the affordability of energy supplies, and the continued development of new renewable energy.

Business environment facing the energy industry is currently facing very basic changes. The era of the abundance of fossil energy in the form of oil, gas, and coal will soon be over. This is indicated by the decline in oil, gas and coal reserves. Energy needs for community continue to increase exponentially due to population growth, increasing economic activity and creative industries, development for centers of activity, changes in lifestyle, and increasing demands for human welfare. Data shows that global energy demand growth in 2017 has doubled compared to the previous year. Since 2015 renewable energy is the fastest growing energy source in the world, with an average growth of 2.3 percent per year. In 2016, renewable energy supplies around 24.5% of the total energy needs in the world with details of 16.6% hydro, 4% wind, 2% bio power, 1.5% solar PV. Although renewable energy supplies have grown, fossil energy is still the main foundation of the world's energy sources (International Energy Agency - IEA, 2015). With the condition of petroleum reserves falling further while need continues to increase rapidly so that at the end of the 21<sup>st</sup> century, experts predict that there will be a scarcity of fossil energy sources. On the other hand alternative energy from renewable sources that are environmentally friendly still cannot replace the role of fossil energy. Countries in the world have no choice but to face challenges in creating alternative energy sources to maintain sustainable energy security. A major change in the global energy system is a concern of many countries in the world, especially the transformation of fossil energy use to renewable energy must be increased. The greatest potential for increasing renewable energy supply can be found in potential of energy including water, wind, geothermal, biomass, solar and nuclear light, as well as other energy sources that are still under research.

Indonesia faces challenges in the energy sector as well as in other countries in the world. The data said that energy consumption in period 2010-2016 increased from 165,969 MW to 247,416 MW in 2016 and continued to experience an average increase of 3.2% per year. Along with increasing energy needs, national oil surplus began to decrease since 1998. Indonesia has oil reserves of 3,741 billion barrels (0.2% of world oil reserves) in 2013, daily production of 0.314 billion barrels, while gas reserves of 103.35 trillion cubic feet (TSCF) with the production of 2.98 TSCF per year. The coal reserves are 31.35 billion tons with the production of 0.317 billion tons per year. Coal reserves can bear national energy needs for the next 99 years, but Indonesia's position

as top five coal exporters will accelerate the condition of coal scarcity as has happened in petroleum. This condition eventually led Indonesia to become a net importer of oil in 2004, predicted that Indonesia would become a net importer of energy by 2026 (Ministry of Energy and Mineral Resources of the Republic Indonesia - ESDM, 2018).

Indonesia has the potential of renewable energy resources that are very abundant, diverse, and spread in various regions but electrical energy in Indonesia is still dominated by primary energy sources derived from petroleum, gas and coal. The installed capacity of renewable energy power plants is 6270 MW or 12% compared to the total installed capacity of national power plants which reaches 52,231 MW (Agency for the Assessment and Application of Technology - BPPT, Outlook Indonesia, 2017). Indonesia is the country with the fourth largest potential of renewable energy in the world with a population of 250 million, the largest population in Southeast Asia, which requires large and ever-increasing electricity. Geographically, Indonesia is located in an area that is passed by the Pacific fire ring or commonly called the "ring of fire" that surrounds the Pacific Ocean. Although this area is prone to disasters but contains abundant natural resource potential. In the area passed by the fire, there are many rocks that can accommodate geothermal energy. According to data from PT Pertamina Geothermal Energy, Indonesia has 40% of all geothermal potential in the world with a total of 29,544 MW; energy use is currently only 5.5% (1,438.5 MW). The sources are spread across 299 locations in Sumatra, Java, Nusa Tenggara, Maluku, to the western tip of Papua. The potential for hydropower in Indonesia is around 75 GW. For now, only 4% of the potential for small water that has been utilized is 4010 MW and microhydro 212 MW (Table 1).

Hydropower consists of tidal power (tidal power), warm wave energy (wave energy), and ocean thermal energy (ocean thermal energy). The potential of water resources in Indonesia is very large, with an area of Indonesian waters that is 81% of the total area of Indonesia. It is possible that there are many places in the waters in Indonesia that can be developed into Hydropower. It is estimated that the biomass potential in Indonesia is equivalent to 32,654 MW, while those that have been used are 1717 MW, ranging from 1626 MW (off grid) and 91.1 MW (on the grid) and biosolar 14 MW. The main sources of biomass energy in Indonesia are

**Table 1: Potential and capacity installed renewable energy**

Energy type	Resources	Potential	Installed capacity
Geothermal		29.544 GW	1.438 GW
Hydro power	45.379 GW	75.670 GW	4.010 GW
Mini-Micro hydro	19.385 GW		0.212 GW
Bioenergy		32.654 GW	1.626 GW (off grid) 0.091 GW (on grid)
Solar energy	4.8 kWh/m <sup>2</sup> /day	532 GW	0.014 GW
Wind energy	970 MW (4-6 m/s)	113.5 GW	0.196 GW
Nuclear	3000 MW		0.030 GW
Shale gas	574 TSCF		
Coal bed methane	456.7 TSCF		
Wave energy	17989 MW (practical potential)		
Ocean thermal energy	41012 MW (practical potential)		
Tide and tidal power	4800 MW (practical potential)		

Source: BPPT Outlook Indonesia 2017

very abundant derived from rice residues, rubber tree wood, sugar cane stems, oil palm, plantation residues, and other agriculture. These biomass sources can help in supplying electricity to rural and industrial households. Utilization of renewable energy sources has not been maximized and still requires various efforts so that renewable energy resources can be accelerated to maximize the contribution of renewable energy in the national energy mix.

Policies to develop renewable energy carried out by the Indonesian government are specifically related to the national energy mix starting in 2006. Renewable energy is targeted to be able to change 23% of the total fossil energy available or 21.5 GW in 2025 (Ministry of Research Technology and Higher Education - Ristek Dikti, 2016). The target set by the government is quite realistic, seeing the great potential of renewable energy sources in Indonesia, but the figure is not an easy thing to achieve. Ministry of energy and mineral resources through directorate general of new and renewable energy and energy conservation continues to make various efforts in developing renewable energy. By the plan, in next few years, construction of power plant (PLTA) (hydro), PLTMH (microhydro), PLTP (geothermal), PLTS (photovoltaic), and PLTB (wind) will be intensified. For remote, leading, and disadvantaged regions, the government will provide access to modern energy, especially rural energy development based on micro-hydro, solar, biomass, and biogas. Indonesia can be a model for spreading clean energy while providing a market that developing for renewable energy technology if this target can be realized correctly. Based on observations and tracing of secondary data, it was found that performance of national electricity industry was not yet superior, characterized by high dependence on fossil energy, still not achieving a reduction in the share of primary fuel oil has to impact on the burden of government subsidies. Diversification of energy in reducing dependence on fossil energy supplies is still not optimal, the level of energy mix by developing the potential reserves of alternative energy sources owned is still low. The supply chain of primary energy sources, main engines, energy experts and technology, are still dependent on supply from other countries, lack of coordination and synergy between ministries and other government institutions. Lack of fulfillment for the ratio of electrified villages and the failure to achieve targets for increasing capacity and electricity transmission indicates that supply chain performance is not good.

Stakeholder awareness and paradigms about the national energy crisis are not good enough to dynamically identify and develop alternative energy sources. The energy industry still relies on oil and gas sources which have received a lot of facilities and subsidies so far so that the speed to change towards non-fossil energy is hampered because the price of renewable energy cannot compete with fossil energy. Fossil energy sources such as coal and gas are still considered potential enough to be explored, on the other hand, investors are still considering development in the renewable energy sector because they are considered unprofitable and high risk.

Supply chain performance is one of the most important parts of sustainable process management. The challenge to develop a renewable power plant in Indonesia related to the supply chain mainly occurs in the construction phase of the power plant. The

supply chain of this industry still depends on supply from other countries, in the form of major machines, experts, and technology. This condition makes the supply chain less efficient in generating added value and makes the generating industry highly dependent on imported components. In addition, Indonesia's geography, which consists of thousands of islands with a stretch of 8514 km is a challenge in meeting national electricity supply. National electricity supply has not been evenly distributed, the supply for Java and Bali has been excessive because it is supported by a good transmission and generator system. Whereas in other islands and remote areas there is still a shortage of electricity supply. Limited access to commercial energy has caused energy consumption per capita in Indonesia to be still low. There are still 2500 villages that have not been reached by the national electrification system, most of which are located in Eastern Indonesia, (Performance Report, Directorate General of Electricity, 2017).

Geographically, renewable energy sources are spread in various regions that have not yet been connected to the PT PLN (state electricity company) supply chain. Likewise, the construction and transmission infrastructure available in the area is not sufficient for renewable energy development activities. Judging from the supply chain aspect, fossil power plants require high costs in electricity transmission and electricity distribution to remote areas. The transformation of fossil power plants into renewable energy can streamline the supply chain. However, the challenge of renewable energy is precisely the natural constraints, the nature of discounting some renewable energy sources such as solar and wind, large and long-term investments during development. The efficiency of the supply chain in the renewable energy electricity system not only affects the transmission of electrical energy from power plants to end consumers, but also increases the efficiency of the supply of primary energy sources as fuel for electricity generation. Renewable power plants do not require the supply of primary energy sources because renewable power plants are generated from the potential of local renewable energy.

By the mandate of Article 33 of Constitution, energy resources are natural resources controlled by the state and are used for the greatest prosperity of the people. So that the electricity industry in Indonesia controlled by the government, especially in transmission and sales lines. PT PLN (state electricity company) is a single buyer because only PT PLN (state electricity company) can distribute and sell electricity to consumers. This has an impact on partnership pattern with investors who need guarantees in the form of taking or pay system in the commitment of long-term electricity purchase agreement. The government cannot work alone in meeting the electricity needs that grow so rapidly without developing cooperation with various parties. So that partnership is needed between governments as regulator, various ministries that overshadow energy sector, PT PLN (state electricity company) as BUMN (state – owned enterprises) appointed to manage national electricity, private sector, capital institutions, and technology research and development institutions.

The electricity industry is very complex business entities, no less than eight ministries oversees this industry so that to build and manage the electricity industry requires the support and cooperation



of all stakeholders. To improve industrial performance, it requires same insights, commitment and consistency of stakeholders internally, with suppliers, consumers, and laterals that will become one of the pillars of partnership strategy which then becomes a reference for stakeholders in carrying out their roles as regulators and business. It is expected that these stakeholders can respond to changes in a fast business environment. At present various stakeholders in this industry are still running according to their respective perspectives and have not yet created synergy, integration, and good cooperation. So that supply chain that should be able to improve value chain not functioned effectively and optimally. One of the keys to success is commitment and consistency in implementing programs that have been set in stages and collaborating in an integrated manner. This case is providing convenience for community, cooperatives, and private sector in developing renewable energy in the form of joint investments.

## 2. LITERATURE REVIEW

The dynamic capability was first introduced by Schumpeter (1934) which defined as an innovation-based competition where competitive advantage is based on creative destruction of existing resources and integrating them with new resources and becoming new operational capabilities. The ability of companies to create and use organizations through the use of resources to achieve sustainable competitive advantage (Tseng and Lee, 2014). Lee et al. (2002) refer to dynamic capabilities as a source of new competitive advantage in describing how companies can deal with environmental changes. Dynamic capability is the ability of companies to disseminate new configurations of operational competencies to competition through effective environmental sensing, absorption, integration and innovative activities (Hou, 2008), include good organizational understanding and strategic processes such as alliances and product development that have strategic value on the ability to manipulate resources in value creation strategies (Eisenhardt and Martin, 2000). Dynamic capability as the company's ability to integrate, develop, and reconfigure competencies both internally and externally in the face of rapid environmental change (Teece et al., 1997), company's ability to direct by modifying functional capabilities to pursue economic, environmental and social benefits (Wu et al., 2014), ability of organizations to reconfigure resources in order to respond to changes more efficiently in organizational activities (Masteika and Cepinskis, 2015), ability of organizational convergence activities such as sensing as demands for convergence, integration of resources, coordination of organizational and asset competencies in the environment (Choi and Moon, 2015), ability and process of company to configure resources so as to enable organizations to adapt and develop (Simon et al., 2015). The purpose of dynamic capability is a tool for reconfiguring the existence of operational capabilities in the form of sensing, learning, integration, and coordination capabilities (Pavlou and El Sawy, 2011). Dimensions of dynamic capability include feeling opportunities through identification and evaluation of new markets and technological changes arising from environmental changes, seizing opportunities through initiatives to capture opportunities and adequacy of organizational structures and procedures, managing threats and reconfiguring through sustainable adaptation, renewal and

reintegration of resources towards environmental change (Pervan et al., 2018), includes adaptation, absorption and innovation to continue to be committed to renewing the resources required by new demands from market (Monferrer, 2015), sensing capabilities to help increase the company's competitive advantage through early competition detection, learning capabilities to strengthen organizations by identifying and acquiring needed knowledge internally and externally, reconfiguring capabilities by recognizing and changing knowledge there is a new resource (Chukwuemeka and Onuoha, 2018).

Supply chain defined as set of entities involved directly in the upstream and downstream of products, services, finances and information from source to customer (Mentzer et al., 2001), referring to expanded supply chain activities in meeting end customer requirements, including product availability, on-time delivery, and all inventory and capacity needed in the supply chain to deliver such performance responsively (Hausman et al., 2005). Supply chain includes manufacturer, suppliers, transporters, warehouses, wholesalers, retailers, other intermediaries and even customers themselves (Felea et al., 2013), delivery value of goods and value of final product that customer receives so that good relationship can support effectiveness whereas relationships that do not go well can disrupt the effectiveness of entire supply chain (Janvier-James, 2012), results in cost savings and increased strong partner relationships with various parties (Liputra et al., 2015). Supply chain performance is an activity that crosses company boundaries because it covers the flow of raw materials, components, sub-assemblies, production, and distribution processes through various channels to end customers. It also crosses the lines of traditional functional organizations such as procurement, manufacturing, distribution, marketing, and sales, research, and development. In order to be able to compete in a new environment, the supply chain needs continuous improvement (Hausman et al., 2005). While Turban et al. (2004), revealed three parts of the supply chain, namely the upstream supply chain, internal supply chain management, and downstream supply chain. Given the important position of suppliers in a business process and outcomes (outcomes) of a company in meeting the demands of its customers, in this case, the electricity industry has three interconnected core businesses namely; generating business - electricity transmission and distribution. To illustrate it explained by Laguna and Marklund (2013), introducing a model called the CPS model (customer-producer-supplier).

Furthermore, this approach is useful in solving problems related to process interfaces. This model adopts the view that business processes are a chain of customer groups. Coordination in this process is done by understanding internal and external customer requests. This model is very helpful in explaining the complex processes caused for each interface can be explained by illustrating that the next process is the customer of the previous process and the previous process is the supplier of the process afterwards. Supply chain management is a system that involves the process of producing, shipping, storing, distributing and selling products in order to meet the demand for products, in addition, the supply chain includes all the processes and activities involved in delivering the product to consumers (Wuwung, 2013). According to the resources

based view concept from (Barney and Hesterly, 2015), the analysis of supply chain performance as an organization is seen from the resources owned. The better the resources they have, the better the supply chain. These organizational resources can be seen from tangible assets, intangible assets, organizational capabilities. In addition (Moorhead and Griffin, 2013) add organizational resources, including; financial resources, physical resources, and information resources. If the completeness of resources is a dimension that is evaluated before work performance, then the performance results after collaboration between suppliers and companies are very important because the goal of the cooperation is to obtain work results in accordance with agreed criteria. According to Modi and Mabert (2007), supply chain performance is seen from the work performance that it has. The main dimensions of work performance are Q (quality) which includes the level of stability and availability of supply, P (price) the price of an economical supply, D (delivery), namely the level of timely distribution, S (physical distribution) distribution of products with expected quality efficiently and effective. In the process of cooperation, the relationship between reforms between companies and suppliers (consequence relationship) becomes important to develop (Cravens and Piercy, 2013). Supply chain performance depends on the ability of suppliers to maintain good relationships with companies such as trust commitments. Relationships that benefit both parties and are long-term oriented because they make suppliers and companies open to each other about information, share profits and risks, and try to carry out their duties properly. Research on the quality of this relationship is based on the theory of Commitment-Trust Theory of Relationship Marketing by Morgan and Hunt (1994).

Early research on the concept of partnership strategy was carried out in 1990, pioneered by Porter (1983), defining partnership strategies as long-term agreements between companies that partner to achieve common goals. This form of cooperation includes joint ventures, licenses, long-term support agreements, and other inter-company relations. Partnership strategy is formal, comprehensive, and systematic reciprocal cooperation, to clarify objectives, make decisions, and check progress towards objectives (Agboola and Braimoh, 2009). Partnership Strategy, according to Asher (2003), is defined as the relationship between organizations to achieve goals that cannot be achieved alone. At a high level, the partners in business must form several types of business relationships for exchange. A business relationship can be seen as a business contract for exchange. Dimension strategic partnership included collaborative positions, collections of resource risks and risk sharing, sharing resources and completeness of expertise, learning abilities from partners, creation alliance, weighting in various alliances (Idris and Primiana, 2015). Development of partnership networks can be divided into three stages, such as the contract stage, partnership development phase, and partnership network integration stage (Vanags et al., 2018). Crevens, (2013), argues that the Partnership Strategy is an effort to collaborate with stakeholders. Where currently, the Partnership Strategy is used by many companies that compete throughout the world. The Partnership Strategy includes vertical relationships consisting of relationships with suppliers and customers and horizontally consisting of lateral and internal partnerships. Regarding

partnerships strategic, Wheelen et al., (2015) suggested that the partnership strategy is an effort to create competitive advantage in an industry by collaborating with other companies. Wheelen et al., (2015), divided the partnership strategy into two, namely; collusion and strategy alliance. In addition, (Hitt et al., 2015), define partnership strategies as a strategy between one or more companies collaborating to expand their operations. Cooperative strategies are implemented to create a competitive advantage. Strategic alliances are a form of cooperative strategy where the company combines several resources and capabilities for competitive advantage. Partnership Strategy consists of; joint venture, strategic equity alliance, and non-equity strategic alliance. The partnership strategy is a temporary and contractual relationship between companies that remain independent, aiming to reduce uncertainty surrounding the realization of the strategic goals of interdependent partners by coordinating or running together several activities. Each partner has a major influence on management or policy alliances (Douma, 1997). According to (Walker, 2009), the motivation of a company to cooperate is aimed at (1) technology transfer, (2) market access, (3) cost reduction, (4) risk reduction, (5) industrial structure changes. This cooperation is based on mutual trust, openness to share risks, and benefits in enhancing competitive strategies to produce better performance than if not collaborating.

Business performance is the ability to achieve the objectives of a business unit based on certain standards or in accordance with the objectives with a balanced scorecard approach (Kaplan and Norton, 1996), achievement of financial and non-financial added values that are measured in accordance with what has been determined from changes in all human, material and capital resources to produce better changes in the future (Wade and Recardo, 2001), based on financial indicators which are assumed to reflect the fulfillment of company's economic goals referring to financial performance such as market growth, profitability, earnings per share (Venkatraman and Ramanujam, 1986), result of measurable levels of achievement of organizational goals or measurable results from management on a mechanism to increase the likelihood of success of organization implementing the strategy (Mushref and Ahmad, 2011), achievement obtained by company from business activities it does (Pribadi and Kanai, 2011). Business performance is a measure of how effective and efficient a company is in achieving its business objectives (Nakata et al., 2008), done to evaluate business through sustainability, temporal, and spatial (Elkington, 1998). Dimensions of business performance are based on achieving sales objectives and profit objectives (Martinette et al., 2014), measurement is generally presented in the form of a scorecard that can present comprehensive data to decision makers to identify problems and establish solutions to improve performance if needed (Gawankar et al., 2015). According to (Hubbard and Beamish, 2011), measuring corporate performance emphasises the portfolio aspects of its business units. The characteristics of different organisations require specific ways of measuring performance. Hubbard and Beamish (2011), found that each company has a particular recipe for success so that measurements need to consider the industry in which they operate. In addition to marketing aspects, business performance can be measured through financial performance using size; (1) return on investment/ROI (return on investment), (2) return on capital/ROE

(return of equity) and (3) return on assets/ROA (return on assets), (4) profit (profitability), (5) the level of debt to assets (debt to equity), (6) income per share (earning per share), (7) sales growth and (8) asset growth, (Hubbard and Beamish, 2011). Performance measurement is something complex and needs a multidimensional understanding, so performance measurement should be able to integrate measurement in various aspects (Wiklund, 1999). According to (Kaplan and Norton, 2005), there are four perspectives on performance measurement namely, (1) financial perspective, (2) consumer perspective, (3) internal business process perspective, (4) perspective of learning and growth processes. According to (Wheelen et al., 2014), Performance is the result of activities; it includes the outcomes of the strategic management process. In preparing the strategy contained in the company's objectives, the performance can be considered as a factor used to measure the impact of the strategy applied by the company. The practice of strategic management is justified in terms of its ability to improve organization performance, typically measured in terms of profits and return in investment. From the definition (Wheelen et al., 2014) above, performance implies the results of the implementation of strategic management and can be measured through indicators of sales volume, market share, and profitability.

### 3. RESEARCH METHOD

This research is done through an explanatory survey using a census method for the entire population in order to obtain systematic and accurate data on renewable electricity generation. This research is limited to reviewing the description and influence of variables studied. The unit of analysis in this study is a renewable electricity generation company in Indonesia which are 85 renewable power plants throughout Indonesia covering the islands of Java, Sumatra, (NTB - West Nusa Tenggara), Bali and Kalimantan, based on data from the director general of electricity in 2018. Observation unit in this research is the management of the business units of the renewable energy industry in Indonesia. Cross-sectional is applied in observing data and information carried out in a predetermined period. Causality patterns are applied in selecting the type of investigation in order to get exposure to influences between variables tested in the construction of the research developed. Questionnaires, dept interviews and (Focus Grup Discussion) in renewable power generation companies in Indonesia as primary data sources companies related to the unit of analysis in research, while secondary data sources are obtained from electricity directorate general data, annual reports of companies, private electricity producers and the Indonesian electricity community. Variables that are the focus of study include dynamic capability, supply chain, strategic partnership, and business performance. The model that the author examines is focused on renewable power generation industry in Indonesia. Partial least square is used to analyze and test data that has a multi-laten variables statistical method.

### 4. RESULTS AND DISCUSSION

Analysis of structural model (inner model) shows the relationships between latent variables. Inner model is evaluated by using the goodness of fit model that show the difference between the

values of the result of the observations and the values predicted by the model. This test is indicated by the value of R-square on endogenous constructs and Q-square (prediction relevance) or known as Stone-Geisser's. The value of Q-Square obtained 0.02 (minor), 0.15 (medium) and 0.35 (large), and only used for the endogenous construct with reflective indicator. Refer to Chin (1998), the value of R-square amounted to 0.67 (strong), 0.33 (medium) and 0.19 (weak). Table 2 gives the R square value in the business performance as endogenous variables are in the strong criteria ( $>0.67$  = strong), and Q-square values are in the large criteria, so it can be concluded that the research model is supported by the empirical condition or model is fit.

Analysis of measurement model (outer model) shows the relationship between manifest variables (indicators) and each latent variable. Validity and reliability test is used to measure the latent variables and the indicators in measuring the dimension that is constructed. Cronbachs alpha's value is used to measure the reliability of dimension in measuring variables. The value of Cronbachs alpha bigger than 0.70 (Nunnally and Bernstein, 1994), indicates that the dimensions and indicators are reliable in measuring variables. Composite reliability and Cronbachs alpha  $>0.70$ , show that all of the variables in the model estimated to fulfill the criteria of discriminant validity. Then, it can be concluded that all of the variables has good reliability. Table 3 shows the values of Cronbachs alpha  $>0.7$  and composite reliability  $>0.7$ , so it can be concluded that all variables have reliable dimensions and indicators. Table 3 shows the result of the outer model for each dimension on indicators.

This research model causes the loading factor obtained to be able to explain the relationship between latent variables-dimensions and dimensions-indicators. The outer model of dimensions by its indicators show that the indicators are valid which t-value  $<1.99$  (t table at  $\alpha = 0.05$ ) and  $P < 0.05$ . The result of the measurement model of latent variables on their dimensions shows to what extent the validity of dimensions in measuring latent variables (Figure 1).

Based on the research framework, then obtained a structural model:

$$Y = 0.391X1 + 0.467X2 + \zeta_1$$

$$Z = 0.049X1 + 0.185X2 + 0.672Y + \zeta_2$$

X1 = Dynamic capability

X2 = Supply chain performance

Y = Partnership strategy

Z = Business performance

$\zeta_1$  = Residual

**Table 2: Test of outer and inner**

Variable	Cronbachs alpha	Composite reliability	R square	Q square
Business performance	0.953	0.959	0.727	0.571
Partnership strgy	0.979	0.81	0.609	0.657
Dynamic capability	0.974	0.976	-	0.597
Supply chain performance	0.971	0.973	-	0.581

Source: SmartPLS 2.0



**Table 3: Loading factor of latent variable – dimension - indicator**

Variable-Dimension	Indicator-Dimension	$\lambda$	SE (I)	t-value	P value
Business Performance	KB1 <- Financial Perspektif	0.801	0.040	20.131	0.000
	KB2 <- Financial Perspektif	0.849	0.025	34.158	0.000
	KB3 <- Financial Perspektif	0.860	0.025	33.931	0.000
	KB4 <- Financial Perspektif	0.824	0.034	24.090	0.000
	KB5 <- Financial Perspektif	0.853	0.041	20.711	0.000
	KB6 <- Non Financial Perspektif	0.876	0.027	31.847	0.000
	KB7 <- Non Financial Perspektif	0.870	0.028	31.122	0.000
	KB8 <- Non Financial Perspektif	0.873	0.030	29.264	0.000
	KB9 <- Non Financial Perspektif	0.899	0.022	40.755	0.000
	KB10 <- Non Financial Perspektif	0.879	0.029	30.732	0.000
Dynamic Capability	KB11 <- Non Financial Perspektif	0.763	0.049	15.523	0.000
	KD1 <- Sensing	0.874	0.026	33.770	0.000
	KD2 <- Sensing	0.911	0.017	52.795	0.000
	KD3 <- Sensing	0.889	0.017	53.053	0.000
	KD4 <- Sensing	0.918	0.015	61.119	0.000
	KD5 <- Sensing	0.886	0.022	40.530	0.000
	KD6 <- Learning	0.864	0.025	35.256	0.000
	KD7 <- Learning	0.903	0.018	51.548	0.000
	KD8 <- Learning	0.858	0.041	21.061	0.000
	KD9 <- Learning	0.852	0.027	31.065	0.000
	KD10 <- Integration	0.855	0.031	27.395	0.000
	KD11 <- Integration	0.870	0.024	36.963	0.000
	KD12 <- Integration	0.885	0.021	43.033	0.000
	KD13 <- Integration	0.914	0.017	52.539	0.000
	KD14 <- Integration	0.865	0.029	29.784	0.000
	KD15 <- coordinating	0.883	0.022	40.472	0.000
	KD16 <- coordinating	0.890	0.019	46.798	0.000
	KD17 <- coordinating	0.917	0.016	58.338	0.000
Supply Chain Performance	KD18 <- coordinating	0.874	0.026	33.213	0.000
	RP1 <- completeness	0.788	0.050	15.791	0.000
	RP2 <- completeness	0.866	0.025	34.349	0.000
	RP3 <- completeness	0.869	0.025	34.214	0.000
	RP4 <- completeness	0.858	0.030	28.656	0.000
	RP5 <- completeness	0.856	0.028	30.236	0.000
	RP6 <- completeness	0.757	0.050	15.020	0.000
	RP7 <- completeness	0.836	0.034	24.885	0.000
	RP8 <- work performance	0.912	0.019	48.733	0.000
	RP9 <- work performance	0.841	0.034	24.382	0.000
	RP10 <- work performance	0.845	0.031	27.187	0.000
	RP11 <- work performance	0.824	0.034	24.119	0.000
	RP12 <- work performance	0.810	0.042	19.166	0.000
	RP13 <- work performance	0.881	0.021	42.291	0.000
	RP14 <- relation quality	0.900	0.020	45.965	0.000
	RP15 <- relation quality	0.771	0.044	17.605	0.000
	RP16 <- relation quality	0.846	0.038	22.499	0.000
	RP17 <- relation quality	0.878	0.026	34.278	0.000
Partnership Strategy	RP18 <- relation quality	0.802	0.053	15.175	0.000
	SK1 <- Internal	0.899	0.022	40.054	0.000
	SK2 <- Internal	0.881	0.025	34.977	0.000
	SK3 <- Internal	0.879	0.022	40.136	0.000
	SK4 <- Internal	0.882	0.022	39.942	0.000
	SK5 <- Supplier	0.898	0.019	47.407	0.000
	SK6 <- Supplier	0.920	0.013	70.376	0.000
	SK7 <- Supplier	0.912	0.016	56.630	0.000
	SK8 <- Supplier	0.878	0.023	38.453	0.000
	SK9 <- Supplier	0.874	0.023	37.647	0.000
	SK10 <- Customer	0.934	0.011	83.023	0.000
	SK11 <- Customer	0.933	0.013	73.272	0.000
	SK12 <- Customer	0.872	0.023	37.927	0.000
	SK13 <- Lateral	0.863	0.020	42.408	0.000
	SK14 <- Lateral	0.895	0.020	44.722	0.000
	SK15 <- Lateral	0.884	0.021	41.818	0.000
	SK16 <- Lateral	0.910	0.020	44.446	0.000
	SK17 <- Lateral	0.898	0.020	45.312	0.000
	SK18 <- Lateral	0.828	0.050	16.720	0.000

Source: SmartPLS 2.0



Figure 1: Complete path diagram of research model

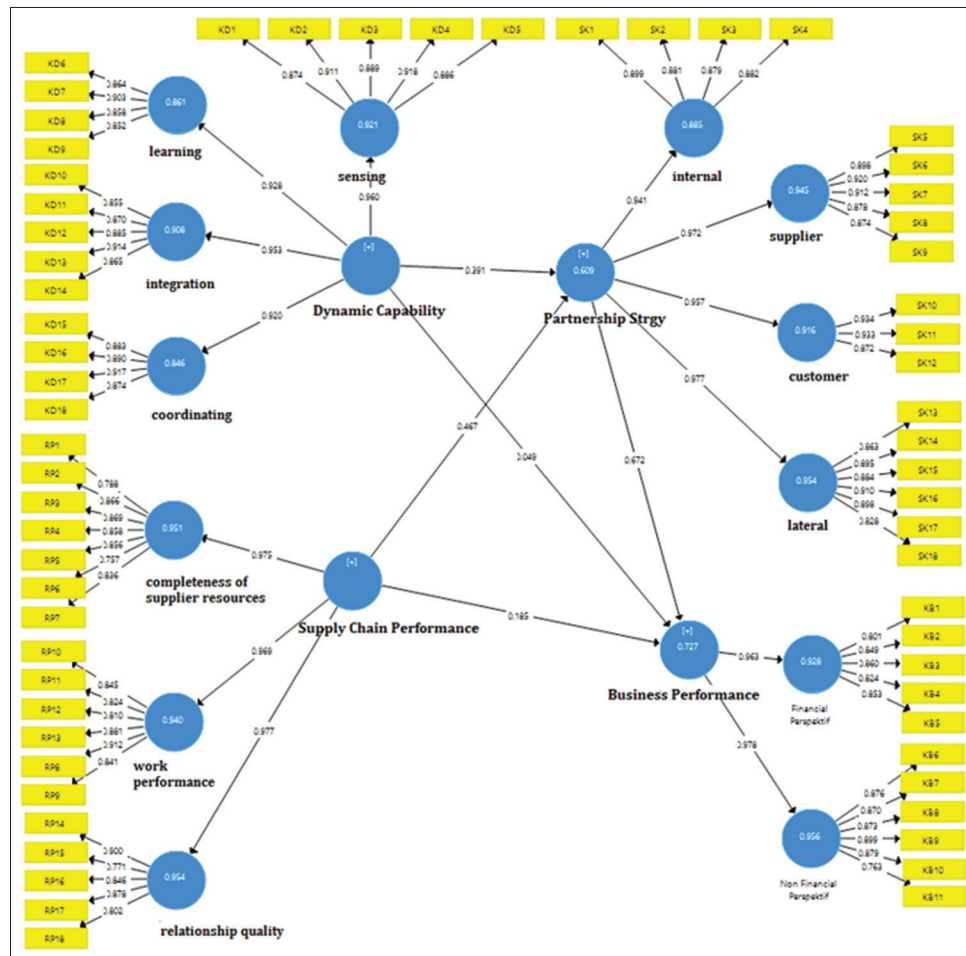


Table 4: Partial testing of hypothesisw

No.	Hypothesis	$\gamma$	SE (g)	t value	P value	R <sup>2</sup>	Conclusion
1	Dynamic Capability and Supply Chain Performance → Partnership Strategy (simultaneously)			F value=63.961**		0.609	Hipotesis accepted
1a	Dynamic Capability → Partnership Strategy	0.391	0.095	4.115*	0.000	0.272	Hipotesis accepted
1b	Supply Chain Performance → Partnership Strategy	0.467	0.105	4.433*	0.000	0.337	Hipotesis accepted
2	Dynamic capability and supply chain performance → business performance (simultaneously)			F value=3.224**		0.049	Hipotesis accepted
2a	Dynamic capability → business performance	0.049	0.135	0.364	0.716	0.008	Hipotesis rejected
2b	Supply chain performance → business performance	0.185	0.090	2.050	0.041	0.041	Hipotesis accepted
3	Partnership strategy → business performance	0.672	0.120	5.601	0.000	0.452	Hipotesis accepted
4	Dynamic capability → partnership strategy → business performance	0.263	0.092	2.866	0.004	0.263	Hipotesis accepted
5	Supply chain performance → partnership strategy → business performance	0.314	0.072	4.383	0.000	0.314	Hipotesis accepted

Source: SmartPLS 2.0. \*Significant at  $\alpha=0.05$  (t table=1.99). \*\*Significant at  $\alpha=0.05$  (F table=3.11)

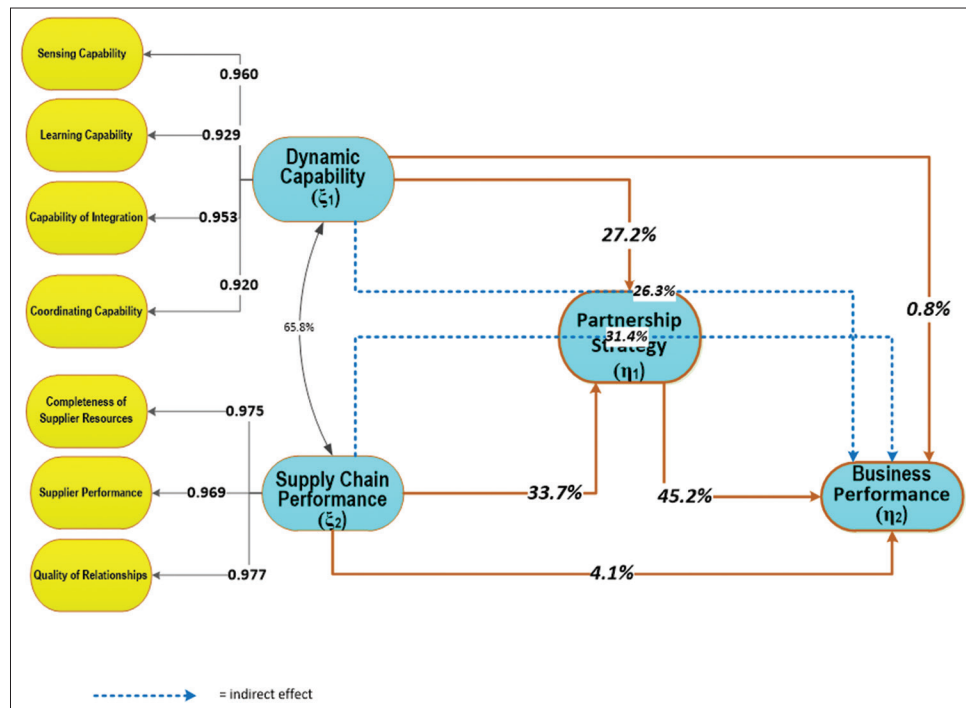
Below is the result of hypothesis testing both simultaneous and partially.

Table 4 shows that partially, dynamic capability and supply chain performance influential significantly to partnership strategy, namely supply chain performance has a greater influence ( $R^2 = 33.7\%$ ) than the effect of dynamic capability on partnership strategy ( $R^2 = 27.2\%$ ). Dynamic capabilities and supply chain performance influential significantly to business performance, namely supply chain performance has a greater influence ( $R^2 = 4.1\%$ ) than the influence of

dynamic capabilities on business performance ( $R^2 = 0.8\%$ ). Whereas the influence of supply chain performance on business performance through partnership strategy ( $R^2 = 31.4\%$ ) has a greater influence than the effect of dynamic capability on business performance through partnership strategies ( $R = 26.3\%$ ). Partnership strategy influential significantly to business performance ( $R^2 = 45.2\%$ ). Based on the results of the study, the findings can be described as follows:

The research findings indicate that supply chain performance has a greater effect than dynamic capability in affecting business

Figure 2. Research findings



performance both directly and through partnership strategies (Figure 2). The interesting finding is that the role of partnership strategy as a variable intervening strengthens the influence of other variables in improving the performance of the renewable power generation industry in Indonesia, where Supply chain performance is formed predominantly by the quality of relationship and completeness of supplier resources. Whereas dynamic capabilities are represented most strongly by the ability to integrate and coordinate. There is support for previous research that corresponds to the findings of this study; there is no significant effect of dynamic capability on business performance. The research by Sipayung (2016) found that dynamic capabilities did not have a significant direct effect on business performance. Research findings from Arifin (2016), verify that the direct influence between dynamic capabilities on business performance is not significant but becomes significant when through variable intervening technology adaption. Prange and Verdier (2011) find a significant and insignificant influence between explorative and exploitative dynamic capability indicators on performance through partnership strategies. Test results show that increase in dynamic capability and supply chain will improve strategic partnership, which then has implications for improving renewable electricity performance in Indonesia, where supply chain performance is most dominant, followed by dynamic capability.

## 5. CONCLUSIONS

Dynamic capability and supply chain have conditions that are not optimal in all variables studied so that they influence the implementation of strategic partnership. The overall application of exogenous variables in the model that is still not good then has implications for business performance, which is also not yet high with the average value. The finding supports the hypothesis

that Supply chain performance and dynamic capability are influential simultaneously and partially to business performance in of the renewable energy industry in Indonesia. Supply chain performance is formed primarily by the quality of relationships and the completeness of supplier resources has the most dominant influence in improving business performance. Superior business performance with of financial and non-financial perspective is expected goal in supporting the sustainability of the company so that renewable electricity generation industries as national electricity supply provider can carry out its role optimally in strengthening national energy security.

In optimal conditions, it is expected that renewable electricity generation industries are able to provide sustainable electricity supply in line with ever-increasing demand, expand electrification reach to remote villages, able to transform the use of primary energy sources from fossils to environmentally friendly renewable energy where potential is widely spread throughout the region. Findings of this study are expected to be a reference for further research relating to the development of strategic partnership model in improving business performance that is influenced by dynamic capability and supply chain as part of premise in preparation of framework.

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