**RESEARCH PROPOSAL**

**Title**

Understanding the transformation of the national electricity provider business practices towards sustainability and how it impacts the stakeholders (a case study of Indonesia electricity provider)

**An Overview of the Research**

Electricity is central to society's lives and is the backbone of modern-day activities. (Zohuri, 2019). Although electricity is necessary for modern living, its production can negatively influence the environment. Several negative consequences that is associated with electricity production are greenhouse gas emissions, air pollution, and water pollution (Yu et al., 2019). Due to these negative impacts, stakeholders are switching to renewable energy for a variety of reasons, including long-term economic growth, promoting good health by limiting the release of greenhouse gases and saving the globe up to $4.2 trillion year by 2030 (RSC, 2022).

In recent years, due to climate change issues, several nations are attempting to achieve a 100% penetration rate for the renewable energy (Choi, 2017). Indonesia, one of Southeast Asia's top energy consumers, has a rapidly expanding economy and a heavy reliance on fossil fuels. Therefore, Indonesia set a target to increase the renewable energy mix to mitigate its social and environmental issues. PLN (Perusahaan Listrik Negara), the only state-owned electricity company in Indonesia, became one of the contributors that generate significant greenhouse gas emissions and is struggling to achieve the nation’s renewable energy target. Renewable energy sources should play a bigger part in the the sustainability program, increasing from 9.15% in 2019 to 23% in 2025 and 31% in 2050 as a percentage of the primary energy supply (IEA, 2020). The energy sector is crucial to attaining sustainability, and the electrical sector's shift to sustainable business practices is essential to achieving net-zero emissions.

Current research in renewable energy has discussed different aspects of electricity as a necessity and as a critical part of modern businesses such as El-houari et al. (2020) and Mahmood et al., (2019). Hence ensuring the sustainable practice of electricity and renewable energy became important. Despite the growing importance of understanding sustainable ways to manage electricity especially to reach renewable energy targets, we are still lacking the knowledge to understand the practices of how the primary government agencies manage electricity to ensure sustainable practices for the environment and communities.

This research, therefore, is dedicated to understand the transformation of practices around national electricity management and how it may impact its stakeholders. Attaining sustainability in the energy sector is crucial, one of the main strategy is to achieve net-zero emissions.

**Positioning of the research**

Sustainability can be described as having three pillars or dimensions. They are social, economic, and environmental. Environmental component is one of key components that requires further investigation(Bosselmann, 2010; Kotzé et al., 2022). Therefore, sustainability frequently emphasizes resolving significant environmental issues. These include biodiversity loss and climate change. Along with these are land degradation, a loss of ecosystem services, and air and water pollution. Sustainable living is one example of how the concept of sustainability can inform decisions made at the international, national, and personal levels (Berg, 2020). Sustainability is an important concept in business practice because it incorporates economic, environmental, and social goals into a firm's goals, actions, and strategy with the intention of generating long-term value for the company, its stakeholders, and society at large (Filho et al., 2021). Another definition of sustainability is stated by Harrington (2016), which is "The ability to maintain or enhance the current state and availability of desirable materials or conditions over the long term". People can shift to environmental sustainability in a variety of ways. One of them is supporting new green technology and adopting renewable energy sources while phasing out subsidies to fossil fuels (Ripple et al., 2017). The Sustainable Development Goals (SDGs) were adopted by the United Nations (UN) in 2015 (UN, 2015). These established a 2030 deadline for the world's sustainable development agenda.

Firms' practice in the energy sector to achieve sustainability has been discussed in several ways. Chen et al. (2019) discovered four elements which should be noted within sustainable energy transition pathways: (1) Sustainable energy economics and management; (2) Renewable energy generation and consumption; (3) Environmental consequences of energy systems; and (4) Electric vehicles and energy storage. While Markard (2018) stated that there were significant obstacles for the overall operation and performance of the electricity sector (such as when integrating renewables), complex interactions between various technologies, the decline of established business models and technologies, intensified economic and political struggles of key actors like utility companies and industry associations, and so forth. Grant et al. (2021), for instance, stated that the single largest source of sector-level, anthropogenic carbon pollution is the burning of fossil fuels to provide electricity. Ateba & Jurgens Prinsloo (2019) also studied about the effective strategic management of energy in South Africa. According to the findings, several strategic management blunders and a lack of an integrated strategy have been the biggest obstacles to the sustainability of the nation's energy supply. This study suggests an integrated strategic management framework as a practical means of ensuring the sustainability of South Africa's energy supply. In certain nations, achieving energy mix goals has managerial problems. For instance, Indonesia aims to use 23% renewable energy in the mix of its energy in 2025 and 31% in 2050. Nevertheless, it has been noted that there are obstacles in the way of accomplishing this goal because of a number of things, including regulatory ambiguity, a lack of investment incentives, and a lack of infrastructure (Raharjo et al., 2022).

The business practice of achieving renewable energy is unique for many countries. Each country typically has unique characteristics that make them adopt a certain policy regarding electricity management and energy. Regarding this, Maulidia et al. (2019) discussed about the policies for renewable energy currently in place in Indonesia and the prospects for accomplishing the goals. As a part of a larger investigation of renewable energy goals and the function of the private sector, this study conducted a literature assessment of Indonesia's evolving energy policy landscape. This study contributes on renewable energy policy that already exists and stresses the significance of private sector involvement. A case study in Thailand-Myanmar border by Delina (2021) demonstrate how an energy transition in routine activities like cooking can lead to just, local, sustainable development and emerge as a sociotechnical innovation in rural Thailand. Another study by Zakaria et al. (2021) discussed the Malaysian electricity situation to show that fuel cells are a very viable option as an alternative renewable energy source to meet this nation's energy needs. The most favorable use to be launched for home applications has been identified as the technology in Malaysia for fuel cell-based portable devices and domestic energy resources.

At some cases, firms can have business-to-business (B2B) service networks to reach their sustainability goals. The service network can be defined as "two or more entities which are connected formally or informally that directly provide a range of resources and activities that create value and assist clients in finding solutions either for short or long-term issues" (Morgan & Tax, 2004). Each entity in the network performs service activities that collaborate with the service activities of other enterprises, and each entity in the network communicates directly with clients. The service networks related to energy management towards sustainability target include the national electricity company and the provider of the renewable energy itself. For instance, in order to achieve the net zero goal, rooftop PV companies in Indonesia work with PLN to install rooftop PV in PLN’s customer homes (Haryadi et al., 2020).

The role of business-to-business service in emerging countries such as Indonesia in facing net zero emissions has already been started. Business-to-business services can significantly contribute to Indonesia's effort to attain net-zero emissions by 2060 or earlier . With a net sink in the forestry and land use sectors, Indonesia aims to reach its peak national greenhouse gases emissions by 2030, according to the long-term strategy (IEA, 2022). There are several business services in Indonesia which help the government to reach the sustainability target. For instance, rooftop PV providers in Indonesia that provide rooftop PV installation in their houses (Haryadi et al., 2020) collaborate with PLN aiming the net zero target.

Regarding the stakeholder definition, Freeman & David (1983) offered two stakeholder definitions: a wide term that encompasses both friendly and hostile organizations, and a narrow sense. Stakeholder in the wide sense is any recognized group or person who has the power to influence how an organization achieves its goals or who is impacted by that success. In this sense, stakeholders include public interest organizations, protest groups, governmental entities, trade associations, competitors, unions, as well as employees, customersegments, shareowners, and others. Another definition is the narrow definition of a stakeholder, which defined as any identified group or individual whose survival is essential to the organization. In the restricted sense of the phrase, stakeholders include employees, certain client segments, specific suppliers, important government agencies, shareowners, specific financial institutions, and others. In this research context, we will determine the stakeholder impacts of energy national company in Indonesia and analyze what is the best strategies for both the PLN and the stakeholder to reach net-zero emission target in order to achieve the sustainability. Yudha et al. (2021) made study about explicit the steps used by important players in Indonesia in evaluating the suitability, viability, and dynamics of the renewable energy sector. Extensive evaluations of research materials have revealed the barriers and enablers that are crucial in determining the best renewable energy sources for developing countries for the development of renewable energy. The findings show the country's energy transition prospects and obstacles, as well as assessments of the growth of renewable energy from key players that are involved in the process. It also found that planning and execution issues are the main obstacles to change, as it is also clear that many people in the community do not share the same vision. Another study by Yudha & Tjahjono (2019) provided a stakeholder analysis of actors in the renewable and sustainable energy sector in Indonesia as a whole using a Political, Economic, Social, Technological, Legal and Environmental (PESTLE) analysis methodology. Given that the renewable energy business is still fairly small, particularly in the current environment of declining oil prices, the results have shown that current regulations are not yet perfect.

Despite the growing importance of this topic, very little research was dedicated to investigating on the interaction within B2B service networks run towards the sustainability program, the impact of such practices on stakeholders, as well as the key practices and strategies that can help businesses and communities in emerging markets meet net-zero targets especially in emerging markets like Indonesia. This research aims to fill this gap in the literature by examining the case of the Indonesian electricity provider. This research also aims to make an original contribution to the literature on sustainability and business practices in the energy sector. By identifying the key practices and strategies that can help businesses and communities in emerging markets meet net-zero targets, this research will provide valuable insights for policymakers, businesses, and communities. By assessing the barriers and opportunities to the adoption of such practices, this research will help to inform the development of effective policies and practices for sustainable development.

Therefore, there are several research questions proposed as follows:

1. How does the interaction within B2B service networks run towards the sustainability program?
2. How does such practice impact the stakeholders (including the surrounding communities)?
3. What are the key practices and strategies that can help businesses and communities in emerging markets meet net-zero targets?
4. What are the barriers and opportunities to their adoption?
5. What are the recommendations for the business practices in the Indonesian electricity sector that consider the interests of all stakeholders in order to reach net zero emission target?

**Research design and methodology**

* 1. Research design

This study intends to investigate the current situation of Indonesia's renewable energy sector, more specifically from the B2B service networks interaction and the impact to their stakeholders. A systematic approach to data collection and analysis that is grounded in empirical data will be used in this research (Strauss & Corbin, 1998). The grounded theory method will guide our theorising process inductively using qualitative data that will be obtained from case study (Strauss & Corbin, 1998). Other reference for case studies is Walsham (1995) which discussed philosophical and theoretical problems surrounding the nature of such interpretive case studies, as well as methodological ones affecting the conduct and reporting of such research. Another study by Yin (2014) also addressed case study research design and method. This research will use multiple case studies utilising interviews and focus group discussions.

Case study is suitable for investigating intricate social phenomena in practical settings (Eisenhardt, 1989). The case study for this research project will be focused on Indonesia case study as one of developing countries that has the biggest electricity market in Southeast Asia. Several case study-based qualitative research designs will be used to analyze the qualitative data from the interviews. By using these designs, it can be guaranteed that the data analysis is transparent and systematic, both of which are crucial for creating reliable study results.

* 1. Sample selection and data collection

For qualitative investigations, nonrandom and deliberate sampling is an appropriate method since it enables researchers to gain an in-depth understanding of a particular phenomenon or group of interest. Eisenhardt (1989) asserted that deliberate sampling improves the content validity of a study by guaranteeing that the sample contains people or situations that are most likely to provide rich and varied information relevant to the research subject. Additionally, because nonrandom sampling enables researchers to choose cases that are representative of the larger population of interest, it can improve the generalizability of the results.

A strategic selection of participants include PLN managers and rooftop PV vendors, will serve as the basis for the sample selection in this research project. Other participants, particularly the PLN stakeholder will also be included, such as as well as, surrounding communities who intersect with PLN's sustainability program, investor, and ministry of energy.

The key questions to state-owned organisations will be centred around their management procedures, organizational culture, and decision-making procedures. Publicly accessible documents, including annual reports, mission statements, and company websites, will also be examined and documented to supplement the material from the interviews. This study will offer a more thorough understanding of the management procedures used by state-owned firms in the area by combining primary and secondary sources.

The interviews will be based on a semi‐structured protocol investigating the interaction within B2B service networks towards the sustainability program. They also will be asked the key practices and strategies that can help them achieving net-zero targets, the barriers and opportunities regarding the target achievement of the program. For the stakeholders of PLN, they will be interviewed about how PLN’s sustainability program affect their businesses. However, because the research is exploratory, the interviewees will be free to consider alternative trajectories when responding to the questions rather than being forced to use a predetermined list of inquiries. Potential interviewees will be contacted via email prior to the interviews with a cover letter that describes the research project and offers a list of questions. The interviewees will receive an email inviting them to arrange a call interview with the writers at their earliest convenience. This strategy will make sure that the interviewers have enough time to prepare and can participate in a casual and comfortable environment. All interviews will be recorded and also transcribed.

A focus group discussion (FGD) will be undertaken to get a comprehensive understanding of the comments after the interview stage. The FGD will provide the participants a chance to converse with one another, which may enable them share new viewpoints and insights that were perhaps missed during the individual interviews. Data will be gathered through material provided by state-owned firms during the interviews or made publicly accessible on the corporate websites in addition to the FGD and interviews.

c. Data analysis

During the data analysis phase, several steps will be taken to ensure the accuracy and reliability of the research. For ensuring replicability and objectivity of the research, the data analysis will be done axial coding (Strauss, A., & Corbin, 1994) supported by ATLAS T.I.. All the data and materials collected will be stored in the software and then organized into several categories. Firstly, the terms, discourses, and narratives used by informants will be identified to describe their response regarding the B2B service network interaction towards sustainability program. Finally, we will build first-order and second-order codes based on the empirical data.

This first‐order analysis will attempt to code data by complying appropriately to informant terms, therefore resulting in a number of categories. In the analyses procees, the similarities and differences among the many categories will be explored, and related categories in more abstract will be coded to be second‐order themes (Corley & Gioia, 2004). This second‐order analysis will lead to several theoretical themes that helps in ordering and describing categories in more structured levels. As a result, the researchers will not only classify and code the data using informant terminology, but also examine how various categories differ and overlap in order to find more esoteric, theoretical patterns. Finally, the classified sets of themes and concepts will be examined with the aim of distinguishing second‐order aggregate dimensions and building a data structure that provide a graphical representation of the arrangement in the data analysis. The whole coding process will be done through iterative interpretations and discussions aim at attributing agreed codes to discourses and narratives developed from the data (Corley & Gioia, 2004).

Stakeholder mapping will be done by the researchers at the end of this phase. They will be able to identify and evaluate the many parties involved in the B2B service network interaction for a sustainability program. The researchers will be able to comprehend many stakeholders' viewpoints, interests, and interactions as a result of doing this.

In addition to collecting high-quality data, this study emphasizes ethical issues to guarantee that the research is carried out in a responsible and transparent manner. To that purpose, ethical concerns will be addressed at every level of the data analysis technique. This involves making certain that all participants give informed consent and that their privacy is respected during the study.

Furthermore, the researchers will take precautions to keep all data collected during the study private. All information will be stored in secure locations, with only authorized personnel having access. To further protect participants' privacy, any identifiable information will be deleted from the data prior to analysis.

The researchers will be upfront about the study's approach, including its strengths and weaknesses, to promote transparency and accuracy. This will entail fully describing the study's sampling methodology, data collection procedures, and analysis approaches. Any potential study biases or limitations will be acknowledged, and efforts will be made to minimize their impact on the results. These procedures were put in place to ensure that the study is conducted in a responsible and scientifically rigorous manner by incorporating these ethical considerations into the study design and analysis.

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Proposed timetable of study

|  |  |
| --- | --- |
| Activity | Year 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Literature Review |  |  |  |  |  |  |  |  |  |  |  |  |
| Theoritical - conseptual framework |  |  |  |  |  |  |  |  |  |  |  |  |
| Methodological development |  |  |  |  |  |  |  |  |  |  |  |  |
| Proposal design |  |  |  |  |  |  |  |  |  |  |  |  |
| Complete the Research Training Programme |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Activity | Year 2 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Data collection |  |  |  |  |  |  |  |  |  |  |  |  |
| Data analysis |  |  |  |  |  |  |  |  |  |  |  |  |
| Writing up |  |  |  |  |  |  |  |  |  |  |  |  |
| Publication |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Activity | Year 3 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Data analysis |  |  |  |  |  |  |  |  |  |  |  |  |
| Writing up |  |  |  |  |  |  |  |  |  |  |  |  |
| Participate in Conference |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Activity | Year 4 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Writing up |  |  |  |  |  |  |  |  |  |  |  |  |
| Publication |  |  |  |  |  |  |  |  |  |  |  |  |
| Participate in International Conferences |  |  |  |  |  |  |  |  |  |  |  |  |
| Ph.D defense |  |  |  |  |  |  |  |  |  |  |  |  |

Statement of Motivation

For the past few years, I have been interested in exploring the marketing area. This endeavor of mine came into life since I joined a marketing competition and won the finalist award. Since then, I started thinking that I had a passion and a talent for marketing. Several years after that, I commenced my master's degree in management science in marketing. Those two years of study made me feel excited, especially whenever I learned about research in marketing. In the consumer behaviour course, I conducted a chocolate experiment research related to a paper titled "Shall I tell you now or later? Assimilation and contrast in the evaluation of experiential products". In this research, I was struggling to gather sufficient participants on our campus and analyzed the data using regression analysis. With our determination, my team and I could finish the research timely and improve my research skills.

Afterwards, I also conducted a research during my master's program. My master's thesis project title was "Analysis of the Effect of Overall Advertising Involvement on Brand Attitude and Its Impact on Consumer Behavior". It required me to have a broader insight about research methods in Structured Equation Modelling and Regression Analysis. This research method is essential for my doctoral research. The result shows that overall advertising involvement gives effect to brand attitude and consumer behavior. During this research, I was struggling to study several courses while working simultaneously. Nevertheless, I could handle all of these things to the success of graduation. Reading and analyzing much good literature, making sure all of the literature is coherent with each other, and connecting the dots between all the literature to the analysis point is amazingly challenging. This experience showed me how to synthesize all the literature for thesis writing.

After my master's graduation, I got an amazing opportunity to work as one of the research members in PLN (an electricity state-owned company) Research Institute in Indonesia. I have been pursuing my passion as a head of research team for five years. During my career journey, I led a research about rooftop photovoltaic and electric vehicle consumers in Indonesia. The research demonstrated that the personal and cultural variables, ease of access, and environment have a significant influence on the decision to use EV public charging station. I have never been as enjoyable as my current job: research in marketing.

I also have attended several pieces of training about writing a scientific paper excitedly and upgraded my skills on paper writing. Hence, I have successfully published four research papers about market research in rooftop PV in the top conference proceedings. Moreover, I have published one paper in the same field of research in top international journal as the first author. Doing all things such as writing papers, dissemination and conference in a short period requires me to have good time management. Fortunately, I could handle all of these projects on schedule passionately.

Currently, in order to increase the success of sustainability program in Indonesia, I am learning about renewable energy and its surrounding topics. Indonesia, as the biggest electricity market in Southeast Asia need to fulfill the renewable energy target. However, the research is still lack of the theory of the B2B network service regarding the sustainability program. Therefore, this is essential to learn how the B2B network service interaction and its impact is built in order to support sustainability program and also to give significant contribution to the body of knowledge. Thus, I need to do this research and also I need some courses related to this.

For this reason, I believe that PhD in Business and Managemet at Alliance Manchester Business School provides several courses to improve my knowledge. There are Doctoral Training Programmes which I believe it could develop my skills as a researcher. Additionally, the University of Manchester’s library provides world-class facilities. The university also gives me a chance to enhance my knowledge about my research plan.

Overall, I believe that I could obtain much broader and deeper knowledge in this doctoral program, such as insight about advanced research tools. It could improve my research skill, give me opportunities to disseminate it through conferences, and publishing papers to top journal papers. Therefore, I could contribute to the University of Manchester and my company.