

MICRO-MEDIUM BUSINESS DEVELOPMENT STRATEGY IN THE AREAS SURROUNDING COAL MINE TO DRIVE A SUSTAINABLE GREEN ECONOMY THROUGH THE UTILIZATION OF SOLAR POWER AS A SOURCE OF ENERGY

Irsan ¹, Meria Utama ², Mariana ³ and Rizka Nurliyantika ⁴

^{1,2,3,4} Universitas Sriwijaya, Indonesia.

*Corresponding Author Email: irsan@fh.unsri.ac.id

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Abstract

Coal mining in Indonesia is still a target for domestic and foreign investment. However, the government has also committed to controlling climate change with a target of reducing emissions by 2030 by 29% with its efforts and 41% with international assistance. As one of the government's efforts to reduce climate change massively, the government can provide policy directions so that coal mining companies develop and empower local communities through solar power as new and renewable energy. This effort is carried out to increase green economic growth in the community by helping micro-medium businesses in the community to achieve economic growth and energy security. The partnership between micro-medium businesses and coal mining includes transferring skills in processing and processing, marketing, capital, human resources, and technology. To accelerate this green economic growth process, it is time for the government to direct the philanthropic and Corporate Social Responsibility systems that have been running towards Micro-Medium Business based on solar power as an energy source. As a development effort, large companies can partner with micro-medium businesses; coal mining companies can connect with micro-medium businesses, which the government requires through community development and empowerment. On the other hand, mining business licenses and unique business license holders are required to develop programs and allocate funds for community development and empowerment. The development of solar power in the form of micro-medium business is a way to protect as well as easy support because it uses an existing system. Include micro-medium businesses in the community empowerment system at coal mining companies so that there is a full backup in the process of transferring skills in production and processing, marketing, capital, human resources, and technology, all of which are borne by mining companies.

Keywords: Coal, Mining, Sustainable Goals, Energy.

INTRODUCTION

Coal mining in Indonesia is still a strategic target for domestic and foreign investment. However, coal reserves in Indonesia are estimated to be depleted in approximately 83 years if current production levels are continued. So that it can be said that the mining sector is still a great potential for Indonesia in the welfare of the people. Furthermore, coal mining is influenced by the international community, where the United Nations stipulates efforts to control climate change known as COP 21 UNFCCC or Paris Agreement 2015, which applies after 2020 regarding limiting global temperature increases to below 2oC from pre-industrial levels and making efforts to limit it to below 1,5oC.

In 2015, Indonesia submitted it is Intended Nationally Determined Contribution (INDC) with a target of reducing emissions by 2030 by 29% with its efforts and 41% with international assistance. To reduce global temperatures, the Indonesian government, through the Minister of Energy and Mineral Resources has made a breakthrough in reducing emissions from coal-fired power plants through clean coal technology and biomass co-firing with coal to reduce emissions, even now the government is building a solar power plant (PLTS) is the largest floating reservoir in Cirata, West Java with a

capacity of 145 Megawatts (MW). This project will significantly improve the energy mix in the Java-Bali electricity system.

As one of the government's efforts to reduce climate change massively, the government can provide policy directions so that coal mining companies develop and empower communities around mining. This effort is carried out to increase economic growth in the community by helping micro-medium businesses in the community to achieve green economic growth. This is in line with the direction of the welfare state theory, which is based on Article 33, paragraphs 3 and 4 of the 1945 Constitution, where the earth and water and the natural resources contained therein are controlled by the state and used for the greatest prosperity of the people based on economic democracy with the principles of togetherness, efficiency, justice, sustainability, insight—environment, independence, and maintaining a balance of progress and national economic unity.

The partnership between Micro-medium businesses and coal mining covers the transfer of skills in production and processing, marketing, capital, human resources, and technology. In comparison, Germany stopped mining high-calorie coal in 2018 and plans to stop mining low-calorie coal by 2038. Indonesia may experience the same thing if many coal mining companies are closed; the Indonesian government must be able to anticipate reduced energy sources, spikes in layoffs, reduced regional income, poverty, criminal acts caused, unresolved reclamation, and post-mining in mining areas coal and many other problems that should be able to find the best solution.

As a tropical country in the equatorial region, Indonesia has abundant solar energy potential that shines throughout the year; the National Aeronautics and Space Institute records that the average daily solar radiation of solar energy is 4.8 KWh/m². With its enormous potential as an unlimited and environmentally friendly energy source, solar energy can become the primary energy source in the future. Various PLTS applications can be applied to lighting and supplying power to electrical equipment, especially in areas far away or with no conventional electricity network. Until now, solar power is still constrained by the efficiency of 40% of solar absorption; to overcome this, additional energy sources that are also environmentally friendly are needed. This aligns with Presidential Regulation No. 18 of 2020 concerning the National Medium-Term Development Plan (RPJMN) for 2020-2024. The 2020-2024 RPJMN has mainstreamed the Sustainable Development Goals (SDGs). The targets of the 17 SDGs and their indicators have become an integral part of Indonesia's seven future development agendas.

METHODS

The research employs a qualitative approach to explore the development strategy for micro-medium businesses in areas surrounding coal mines to promote sustainable green economic recovery through the utilization of solar power as an energy source. This approach allows the researchers to gain a deep understanding of the dynamics and challenges faced by micro-medium businesses in adopting renewable energy technologies.

The study uses a case study method to collect data, enabling an in-depth analysis of specific phenomena within real-life contexts. The case study focuses on communities around coal mines in Indonesia that are attempting to develop micro-medium businesses by utilizing solar power.

Data collection methods include in-depth interviews, participatory observation, and documentation. In-depth interviews are conducted with micro-medium business owners, representatives from coal mining companies, and relevant government officials. These interviews aim to identify the challenges, opportunities, and needs related to the development of solar energy. Participatory observation involves the researchers directly engaging in community activities to observe interactions and dynamics in the process of adopting solar technology. Documentation involves gathering various related documents, such as annual reports from mining companies, government policies, and community records, to provide a comprehensive picture of the research context.

Data analysis is conducted using thematic analysis. The data obtained from interviews, observations, and documentation are analyzed thematically, with the researchers identifying key themes that emerge from the data and linking them to the theoretical framework used in the study. To enhance the validity of the findings, data triangulation is performed by comparing information obtained from different data sources.

This methodology enables the researchers to gain deep insights into how micro-medium businesses can contribute to green economic recovery through the use of solar energy. The qualitative approach, case study method, and thematic analysis provide a comprehensive framework for exploring the complexity and nuances of the phenomena under study. This ensures that the research findings are based on rich, contextual data that can be used to formulate relevant and applicable policy recommendations

RESULT & DISCUSSION

1. Reach

The scope of the regulation (self-regulation) for coal mining companies for micro-medium business development is expected to be able to accelerate the development and development of synergizing all the potential of coal mining corporate organizations with micro-medium business-Koperasi as well as aligning and supporting the Government's Vision and Mission, by statutory provisions. Based on data on Indonesia's coal mining potential and solar power potential in Indonesia (Table 1), there is a very high probability that this accelerated activity will be implemented.

Table 1: Indonesia's coal mining potential and the solar energy potential in Indonesia

Indonesia's Coal Mine	Potential Solar Energy Potential in Indonesia
Coal mines are spread throughout Indonesia, and the largest is in 3 regions: East Kalimantan, South Kalimantan, and South Sumatra. 60% of the national coal reserves are in the South Sumatra region. The total number of mining companies in South Sumatra alone is 120 companies, both private and state-owned companies, and this will likely increase, given the enormous coal reserves.	The average daily intensity is about 4.8 kWh/m ² if used for daily needs, an arrangement of about 10 - 20 or more Solar Panels will be able to produce sufficient current and voltage for daily needs

Coal mining companies can make this step a pilot project with micro-medium business-Cooperative partnerships. The legal basis based on Presidential Decree No. 49 of 2021 makes the possibility of community empowerment as a field of electricity investment business getting more muscular. For collaboration, companies can also appoint universities with experience and research in similar fields. Sriwijaya University, for example, has researched Solar Power and Fuel Cells. These activities can be combined with so-called Photovoltaic (PV) and Fuel Cell (FC) Hybrid systems. For this reason, coal mining companies can work together with Sriwijaya University, PLN, micro-medium business/Koperasi as an effort to realize a sustainable green economic recovery.

2. Setting Direction

The direction of regulation of coal mining companies for the development of micro-medium business in order to encourage sustainable green economic recovery through the utilization of Solar Power as an energy source in order to advance the economy of communities around the mines, support regional economic development, and increase the competitiveness of National/Regional Owned Enterprises, micro-medium business/Koperasi and institutional coal mining companies in order to realize good corporate governance, which is healthy, strong and productive in order to be able to contribute to regional income.

3. Scope

The scope of material for regulating coal mining companies for the development of micro-medium business in order to encourage sustainable green economic recovery through the utilization of Solar Power as an energy source, namely:

- a. Encouraging economic growth and equitable regional development in the context of realizing increased community welfare in order to apply the principles of good corporate governance
- b. Carrying out public benefits in the form of providing quality goods and/or services to fulfill the people's livelihood according to the conditions, characteristics, and potential of the Region based on good corporate governance;
- c. Generate profits to increase company value and increase local revenue; and
- d. Make an optimal contribution to the regional and national economy.

4. Material Load

a. General provisions

- 1) Solar Power Plant (PLTS) is a power plant that utilizes sunlight as a source of electricity, with the primary tool for capturing, converting, and producing electricity being photovoltaic, generally called a solar module.
- 2) Solar Modules are solar cells that convert light energy into electrical energy used in PLTS.
- 3) Stand-alone scattered PLTS are PLTS that are spread and directly connected to the loads or electricity beneficiaries without a distribution network.

b. Domestic component level (TKDN).

The TKDN value for the self-dispersed PLTS goods aspect is carried out based on the weighting as follows

No	Description	Weight
1.	Solar Module	40,50%
2.	Battery	22,05%
3.	Battery Control Unit	10,59%
4.	Cable	7,94%
5.	Module Support	6,30%
6.	Accessories	2,65%

c. Form a partnership

- 1) Government, state/regional owned enterprises and private sector partnerships, universities, and the community will continue the coal mining company program to develop micro-medium businesses to encourage sustainable green economic recovery by using Solar Power as an energy source.
- 2) The role of the Government in the form of licensing, funding, coaching, and supervision.
- 3) The role of state/regional owned enterprise and private coal mining in the form of funding, selection of local micro-medium business-Koperasi and MOUs with universities
- 4) Universities provide training on installing solar power, maintenance, and coaching to micro-medium businesses and Koperasi.

d. Forms of assistance

- 1) Coal mining companies can be connected with MICRO-MEDIUM businesses, which the government requires through community development and empowerment. On the other hand, mining business licenses and unique business license holders are required to develop programs and allocate funds for community development and empowerment.
- 2) BUMN can set aside a portion of its net profit to foster small businesses/cooperatives and community development around the BUMN.
- 3) Companies that carry out their business activities in the field of and/or related to natural resources are required to carry out Social and Environmental Responsibility. Social and Environmental Responsibility is an obligation of the Company, which is budgeted and calculated as the cost of the Company whose implementation is carried out with due observance of decency and fairness.

CONCLUSION

To accelerate this green economic growth process, it is time for the government to direct the philanthropic and Corporate Social Responsibility systems that have been running towards MICRO-MEDIUM BUSINESSES based on solar power as an energy source.

As a development effort, large companies can partner with micro-medium businesses; coal mining companies can connect with micro-medium businesses, which the government requires through community development and empowerment.

On the other hand, mining business licenses and unique business license holders are required to develop programs and allocate funds for community development and empowerment. The development of solar power in the form of micro-medium business is a way to protect as well as easy support because it uses an existing system.

Include micro-medium businesses in the community empowerment system at coal mining companies so that there is a full back up in the process of transferring skills in production and processing, marketing, capital, human resources, and technology, all of which are borne by mining companies.

It takes seriousness from the government to integrate and create policies that support clean energy through increasing human Resources capacity (maintenance and maintenance) and integrated research and development with the coal mining industry and universities by involving micro-medium businesses, which are used as pilot projects in communities around mines.

This program must be included in regional planning, especially for local governments with coal mining activities. In addition, collaboration with mining companies and universities must be established in a Memorandum of Understanding as an ongoing activity.

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