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The Politics of Indonesia's Renewable Energy Policy

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ABSTRACT

Indonesia's natural landscape of land and sea is a very abundant energy resource. Indonesia has enormous opportunities because of its gift of natural resources, which can be used as renewable energy sources. This study comes from secondary data to support arguments, and data collection uses library research by collecting material from books, journals, laws and regulations, and other literature. The data analysis technique uses descriptive language by describing the data, which is then analyzed to describe an explanation of the data. This research explains the potential of Indonesia's energy resources, especially renewable energy, and the politics of Indonesia's renewable energy policy, which targets an energy mix of 44% by 2030. This research concludes that renewable energy policy has obstacles, including weak control. Renewable energy resource exploration technology, expensive machines for exploring energy resources, and the formulation of laws related to new renewable energy have not yet become a priority.

Keywords: renewable energy, energy transition, the politics of policy, energy policy

ABSTRAK

Bentang alam Indonesia dari daratan dan lautan merupakan sumber daya energi yang sangat melimpah. Indonesia mempunyai peluang yang sangat besar karena anugrah sumber daya alam yang dapat dijadikan sumber energi terbarukan. Kajian ini bersumber dari data sekunder untuk mendukung argumentasi, pengumpulan data menggunakan studi kepustakaan dengan mengumpulkan bahan dari buku, jurnal, peraturan perundangan, dan literatur lainnya. Teknik analisis data menggunakan deskriptif, dengan memberikan gambaran data yang kemudian dianalisis untuk mendeskripsikan penjelasan tentang data tersebut. Penelitian ini menjelaskan tentang potensi sumber daya energi yang dimiliki oleh Indonesia terutama energi terbarukan serta politik kebijakan energi terbarukan yang dimiliki oleh Indonesia yang menargetkan bauran energi sebanyak 44% di tahun 2030. Kesimpulan dari penelitian ini adalah kebijakan energi terbarukan tentu mempunyai kendala antara lain lemahnya penguasaan teknologi eksplorasi sumber daya energi terbarukan, mahalnya mesin untuk mengekplorasi sumber daya energi, dan perumusan undang-undang terkait dengan energi baru terbarukan yang belum menjadi prioritas.

Kata kunci: energi terbarukan, transisi energi, politik kebijakan, kebijakan energi

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INTRODUCTION

Indonesia relies mostly on fossil fuels, particularly coal and petroleum, for energy needs (Supriyanto 2023). However, excessive use of fossil energy will impact environmental pollution, especially air pollution caused by exhaust gases produced by transportation, power plants and factories that use fossil energy (Lo and Mah 2024; Newel 2021). Over time, awareness of having a

clean environment and the limitations of fossil energy has made Indonesia transition to renewable energy, one of the best alternatives (Dutt 2022). The Indonesian government should prioritize utilizing innovative and renewable energy sources so that we may stop relying solely on non-renewable fossil fuels (Gornemann, Hildebrand, and Kuester 2022).

According to Article 33 paragraph (3) of the 1945 Constitution, which declares that "earth and water and the natural resources contained therein are controlled by the state and used for the greatest prosperity people," the state is in charge of Indonesia's abundant energy resources (Supriyanto 2020). The 1945 Constitution's Article 33 paragraph (3) has three crucial components: substance (natural resources). Status (governed by the state) and objectives (to increase the populace's well-being). Of course, according to the constitution, the state is responsible for enforcing the presence of rulers and exploiting natural resources, both of which are essential to the country and the state's survival (Basri and Riefky 2023).

The 1945 Constitution, which mandates the state to implement policies *(beleid)*, management actions (*bestuutsdaad*), regulations (*refelendaad*), management (*beheersdaad*), and supervision (*toezichtoudensdaad*) to maximize the prosperity of the people, constructs the people collectively (Azhar and Satriawan 2018). So, to fulfill one of the goals of the Indonesian country, which is improving general welfare, all energy sources must be under state control and utilized and exploited maximally for the greatest prosperity of the Indonesian people (Aditya et al. 2023).

Energy use continues to increase along with economic growth and population growth. The increasingly large development of technology has also triggered an increase in energy needs (Ari and Koc 2021). This instance illustrates how people's everyday needs for electricity are rising (Simshauser 2023). Electricity consumption over the last five years (2018-2023) has increased rapidly, averaging 6.8% per year. Utilizing technology and natural resources to produce electrical energy is a key factor in the nation's ability to meet its development objectives (Susanty, Purwanggono, and Faruq 2022). Electricity is increasingly becoming a primary need for the world community. The future will see a shift from energy demands to people's living needs due to technical advancements like the creation of electric cars, induction stoves, and other equipment to meet needs that need electricity as a fuel source (Ma et al. 2024).

Several tools exist when speaking about ecosystems for renewable energy and management methods. One of them is the government's political will, which proves that it is serious about implementing this new renewable energy policy (Airaudo 2022). Several countries that have implemented renewable energy policies use a combination of direct support, such as funding and tax incentives, as well as indirect support schemes, such as providing achievement targets from the government in the form of competitive renewable industrial construction.

Although issues related to renewable energy have long been a concern regarding the exhaustion of non-renewable fossil resources, especially European countries that are not rich in natural resources that rely on fossil energy from oil and gas-producing countries, especially the Middle East, America, and Asia. Which has abundant oil and gas reserves (Mišík and Oravcová 2022). However, since the 1980s, European Union countries have provided various support to manage and develop renewable energy technology. Each member country of the European Union has its characteristics in creating policies, mechanisms/schemes, and providing incentive funds for research in the field of renewable energy (Konradt and Di Mauro 2023). Currently, most of the electricity needs of European Union countries have been met through photovoltaic-based solar energy generation and succeeded in reducing the energy mix from renewable energy in 2020 to 34.5% oil and petroleum products, 23.7% natural gas, 17.4% renewable energy, 12.7% nuclear energy, and 10.5% solid fossil fuels.

Until now, the question remains as to why a country with abundant renewable energy potential, like Indonesia, has not been able to manage its renewable energy sources so that it can provide energy independence and security for its people. After compiling data from several scholarly publications and print and digital media, I found that Indonesia has enormous potential for

renewable energy. Beginning with the cumulative potential of renewable energy in Indonesia, which stands at 441.7 GW, and considering the country's favourable geographic and geological conditions for the growth of solar, wind, water, and bioenergy resources, let's discuss the potential of the Indonesian market for renewable energy, particularly in the commercial and industrial sectors.

LITERATURE REVIEW

One can classify energy as a basic component of social existence. Every person would struggle to complete everyday tasks without it, which would also affect the overall state of a nation (Cogan et al. 2022). Energy is required to run households, power vehicles, and start the economy on all fronts and scales. These days, as time and technology advance, the presence of energy becomes more and more essential. People are becoming increasingly dependent on the present generation of digital requirements (León-Vielma, Ramos-Real, and Hernández 2022).

Renewable energy is an energy source abundant in nature and has continual usage. Similarly, energy derived from naturally replenishing processes is classified as renewable energy by the IEA. The potential drawbacks of the extensively utilized non-renewable energy sources gave rise to the phrase "renewable energy." In addition, the study's findings demonstrate the detrimental effects of using non-renewable energy, or fossil fuels, for extended periods. Switching from dirty, fossil fuel-based energy sources like wind, water, geothermal, and solar panels to clean, environmentally friendly energy sources like solar panels is known as the energy transition (Cassoret 2021).

In addressing the issues posed by climate change and working toward sustainable national growth, the Institute for Essential Services Reform (IESR) considers accelerating the development of renewable energy to be a necessity. As one of the benchmarks, the Indonesian government has set an aim to increase the primary energy mix to 23% by 2025 under the National Energy Policy (Mafira 2023).

The National Energy Policy (NEP) aims to achieve national energy security and independence that supports sustainable development. As a result, Indonesia must continue to pursue its objective of increasing the proportion of renewable energy in its energy mix (As-sya'bani 2023). The aim for the renewable energy mix must be preserved or even raised during the NEP document update process. A new approach that considers economic growth and technological advancements is required. One such approach would be to accelerate rooftop solar PV as much as feasible during the next two years (Fitrady et al. 2021).

RESEARCH METHOD

The method used is based on secondary data to support the arguments in this article (Xiao and Watson 2019). The data-gathering method uses library research to gather information from books, journals, laws, and other relevant sources (Supriyanto and Saputra 2022). The data analysis method employed in this study is descriptive data analysis, which summarizes the information gathered through phrase parsing to explain the data examined and provide conclusions regarding solutions to current issues.

INDONESIA'S RENEWABLE ENERGY POTENTIAL

With a large area from Sabang to Merauke, Indonesia has various kinds of renewable energy potential from solar thermal energy, water energy, wind energy, geothermal energy, sea waves, and even nuclear energy, which has not yet been developed in Indonesia, which will have great potential when developed significantly. It will produce a maximum energy mix of new and renewable energy.

With mini/micro hydropower of 450 MW, biomass of 50 GW, solar energy of 4.80 kWh/m2/day, wind energy of 3-6 m/sec, and nuclear energy of 3 GW, Indonesia has a considerable potential for new renewable energy. Presidential Decree No. 5 of 2006 concerning National Energy Policy is referenced in the creation of NRE. According to the Presidential Decree, NRE will comprise 17% of the country's primary energy mix in 2025. The remaining 5% will come from fossil

fuels, 5% from biomass, 5% from geothermal, 5% from water, 5% from solar and wind energy, and 2% from liquefied coal. The government will, therefore, take the following actions: micro hydro power plant installed capacity will rise to 2,846 MW in 2025; biomass installed capacity will reach 180 MW in 2020; wind (PLT Bayu) installed capacity will rise to 0.97 GW in 2025; solar power will reach 0.87 GW in 2024; and nuclear power will reach 4.2 GW in 2024. By 2025, it is anticipated that thirteen thousand one hundred ninety-seven million USD would have been invested in the development of NRE.

Table 1. Indonesia's Renewable Energy Potential

No	Types of Renewable Energy	Potency	Utilisation	Location
1	Geothermal energy	23,7 GW	2.343 MW (9,8%)	Sumatera, Jawa, Bali
2	Wind energy	154, 9 GW	23%	Sulawesi, Lombok, Jawa, NTT, Sumatera
3	Waterpower Energy	75.000 MW	7,572 MW (10%)	Jawa, Bali, Sumatera
4	Solar Energy	4,8 KWh/m2 or 112.000 GW	10 MWp	All islands in Indonesia
5	Bioenergy	32,6 GW	10 GW	All islands in Indonesia

Source: ESDM and Dewan Energi Nasional

According to data from the Ministry of Energy and Mineral Resources, the nation would only use 12.3% of renewable energy in 2022 compared to a target of 23% in 2025. According to IESR, the power industry has the most potential to help meet objectives for renewable energy. The General National Energy Plan estimates that by 2025, 45.2 GW of power will come from renewable sources. Nonetheless, the increase in renewable energy has only been modest over the past five years, averaging around 400–500 MW annually. Furthermore, this growth falls well short of the government's goal of boosting renewable energy by 2-3 GW annually during the previous five years (ESDM 2019).

To develop biomass, efforts are being made to support businesses, promote the use of industrial waste from forestry and agriculture as a source of energy in an integrated manner with industry, integrate the development of biomass with local economic activities, and encourage the production of technology for biomass energy conversion. Additionally, research and development on using waste, including municipal waste, for energy is increasing.

In addition, manufacturers are being urged to produce SKEA in large quantities on a small and medium scale (10 kW) and medium scale (50–100 kW) using basic wind energy technology. Efforts are being made to develop wind energy for both electricity and non-electricity purposes (e.g., pumping water for irrigation and clean water).

PLTS usage in both rural and urban regions, maximizing private engagement in PLTS commercialization, growing the domestic PLTS industry, and enlisting the banking sector to support the establishment of effective finance systems and patterns are all part of the growth of solar energy (Sinha et al. 2023).

The government is reaching out to increase public support and is working with other nations to advance technological expertise to produce nuclear energy (Acheampong, Opoku, and Dogah 2023). Meanwhile, the steps taken to develop micro-hydro are integrating the MHP development program with community economic activities, maximizing the potential of irrigation channels for MHP, encouraging the domestic micro-hydro industry, and developing various effective partnerships and funding patterns.

THE POLITICS AND RENEWABLE ENERGY POLICY IN INDONESIA

Renewable energy policy in Indonesia is regulated by Law Number 30 of 2007 concerning Energy. Specifically, regarding renewable energy, the Law mandates that the national and regional

governments increase the supply of New Energy and Renewable Energy (EBT) following their authority.

As a guide for managing national energy with fair, sustainable, and ecologically sound principles to promote energy independence and national energy security, the government and the DPR RI have required the construction of a clear and quantifiable National Energy Policy (KEN). The National Energy Council (DEN) creates and develops the National Energy Policy (KEN). KEN is outlined in Government Regulation (PP) Number 79 of 2014, which the DPR RI approved. KEN intends for EBT to account for at least 23% of the country's primary energy mix 2025 and 31% by 2050. According to data until the end of 2022, the Energy Council National stated that the achievement of the renewable energy mix in the national energy mix reached 12.3%.

As a result of COP 28 activities in the UAE, we can assess that strong funding commitments should accompany these various agreements. In his opinion, reaching these goals could be challenging in the absence of sufficient funding. The USD 85 billion in funding from the COP 28 outcomes might be a big starting point. To make sure that this amount is not only symbolic but rather is used to fund climate action, the public and commercial sectors must make further commitments.

According to this agreement, Indonesia also plans to use the Just Energy Transition Partnership (JETP) framework to attain a 44% renewable energy mix by 2030. Additionally, the Indonesian government must concentrate on pursuing JETP aims, enacting policy changes, and strengthening legislators' will to do so (Galvin 2023).

With a second NDC that is more aggressive and in line with efforts to guarantee that the average global temperature increase is kept to 1.5°C, Indonesia must demonstrate its commitment to this goal. It is my hope that the most recent NDC would adequately address the fair transition idea and demonstrate the pursuit of the global renewable energy capacity objective of doubling while also enhancing energy efficiency.

Some of the proposals that the government can make include, Firstly, a village that is independent of renewable energy with the potential that the village has. For example, the village has a waterfall with a water flow of a certain capacity so that it can be used to run a turbine, or perhaps the area has a wind speed that can drive a turbine to charge batteries to light the streets. It can also diversify energy to produce useful energy.

Second, we can optimize renewable energy resources by assessing the potential of energy resources to maximize every potential of renewable energy in an area. Apart from the potential and optimization efforts, of course, some obstacles need to be considered in managing renewable energy (Swennen 2020), such as the impact of greenflation (Konradt and Di Mauro 2023), namely the increase in energy prices obtained due to the energy transition and the price of expensive materials for exploring energy resources. The next obstacle is the issue of costs for exploring expensive energy resources, so it requires political will from the government to provide incentives for renewable energy research and financing for renewable energy development.

CONCLUSION

Indonesia's abundance of energy resources cannot necessarily be utilized optimally. Several obstacles are technological issues for exploring energy resources, which we have not yet fully mastered. Next is the high price of goods or machines for exploration because most of the goods are still imported even though there are still opportunities to develop them in Indonesia.

The government and the DPR are answering the first problem by formulating the New and Renewable Energy Bill or REN Bill. However, this leads to the second problem, namely that the existing text of the REN Bill cannot answer societal problems, such as the energy trilemma problem and the lack of priority from the government in managing renewable energy sources. Meanwhile, other obstacles come from social problems whose strength is no less powerful than juridical problems. From a social perspective, the first problem arises from a good investment climate not

being created to support funding for managing renewable energy sources. Investment is important in sustainable national development due to the government's limited financial capacity. Investigating this is necessary because no law provides definite regulations regarding what kind of funding scheme will be used, and there is not yet sufficient data for investors to facilitate the flow of investment.

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