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Quo Vadis of Sustainable Development of The Energy Sector in Indonesia

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A B S T R A C T

Sustainable development in the energy sector is a necessity, because the need for energy remains constant if not increasing due to population growth. This phenomenon also applies to Indonesia, which unfortunately has not yet properly implemented the concept of sustainable development in the energy sector. This research finds the urgency is because Indonesia does not yet have a clear direction in sustainable development in the energy sector. Using normative research methods with an evaluative approach, this research discovered the fact that the direction of sustainable development in the energy sector in Indonesia does not yet have a legal basis that regulates it comprehensively. Apart from that, population planning factors and providing energy subsidies are an integral part that cannot be separated in order to achieve successful implementation of sustainable development in the energy sector.

Keywords: *Energy, Sustainable, Development, Legislation, Quo Vadis.*

INTRODUCTION

It cannot be denied that Indonesia still depends on energy sourced from non-renewable fuels. As one illustration, the energy sector in electricity in Indonesia up to 2018 had a total power of 64.5 GW. It is still dominated by fossil fuel power plants such as coal at 50%, then natural gas at 29%, fuel oil at 7%. Meanwhile, only 14% of renewable energy electricity generation is available. (Suharyati, 2019)

This certainly shows how unsustainable the energy sector in Indonesia is. As explained previously, in the electricity sector, Indonesia still relies on 86% non-renewable energy. This dependence will of course have the potential for a crisis, where the crisis arises when there is a scarcity of the non-renewable energy itself.

You can imagine, if the condition of dependency on coal is 50% as a source of electrical energy, alternative solutions will not be found. So, when coal runs out there will be a shortage of electric power supply of 50% of national needs. This condition then refers to the state of unsustainable development in the energy sector.

The issue of sustainable development in the energy sector then becomes very critical, especially when referring to the national policy framework. By 2050, Indonesia is targeting a new and renewable energy mix of 31% (Suharyati, 2019). This is of course very small when referring to the time period spent to achieve it. However, this figure is a realistic figure to achieve the national energy mix level.

Therefore, proactive efforts are needed to be made in formulating the direction of national energy policy. Where the direction of national policy in the energy sector is of course aimed at implementing sustainable development in the energy sector. The foundation for sustainable development in the energy sector is achieving a mix of energy sources, between fossil energy and new and renewable energy, which has a greater percentage of new and renewable energy.

On this basis, the author is then interested in raising a research theme regarding the quo vadis of sustainable development in the energy sector in Indonesia. It is hoped that this scientific work can provide conceptual and strategic views on sustainable development in the energy sector. In particular, regarding the sustainable nature of the use of environmentally friendly energy in the form of new and renewable energy.

Based on said introduction, number of problems can be formulated that will be discussed in the following scientific work, namely:

a. How is sustainable energy development in Indonesia currently?
b. What should sustainable energy development in Indonesia look like?

METHODS

In preparing this scientific work, the type of research used is normative legal research, namely legal research carried out by examining library materials or secondary data (Soekanto, Mamudji, 2009). Then, the research approach that will be used is qualitative with the aim of producing descriptive data from the results of searching literature analysis and statutory regulations.

The form of research that will be carried out is evaluative where this research will outline the concept of sustainable development, regulations for the development of the energy sector in Indonesia. Then, it describes the conditions that should be implemented to achieve conditions for sustainable energy sector development. Apart from that, the data source for this research is secondary data, where the secondary data will consist of primary legal materials, secondary legal materials and tertiary legal materials.

Furthermore, the data collection tool in this research is literature study or document search. The results of the literature study will be followed up with qualitative data analysis. The purpose of qualitative data analysis is to group and select the data obtained to organize it systematically, then study it using deductive thinking methods. In the end, the analysis will lead to conclusions that answer the research problem formulation that has been prepared.

RESULT AND DISCUSSION

Concept of Sustainable Development

Before discussing it further, it would be better to understand the concept of sustainable development. Because, the concept of sustainable development is the fundamental basis for the discussion that will be carried out. It is very important to be able to understand and lay down these fundamentals properly and correctly.

The terminology of sustainable development is an idea that began to grow since the 1980s. It can be said that the broad development of the concept of sustainable development has occurred since the World Commission on Environment and Development (WCED) published a report entitled Our Common Future. In the opening section of the report, an idea is outlined in the form of:

> "The Earth is one but the world is not. We all depend on one biosphere to sustain our lives. Yet each community, each country, strives for survival and prosperity with little regard for its impacts on others. Some consume the Earth's resources at a rate that would leave little for future generations. Others, many more in number, consume far too little and live with the prospects of hunger, squalor, disease, and early death." (Azapagic, Perdan, Clift, 2004)

The conditions described in the WCED report then encouraged WCED to initiate the concept of sustainable development. Where, WCED itself interprets sustainable development as a development concept that meets the needs of the present without reducing the ability of future generations to meet their own needs. (Azapagic, Perdan, Clift, 2004)

Apart from that, WCED also recommends 7 (seven) important actions that are useful for reversing the situation of unsustainable development. The seven actions include:

1. Revitalize growth;
2. Changing the quality of growth;
3. Meeting essential needs for work, food, energy, water and sanitation;
4. Ensuring sustainable population levels;
5. Preserve and increase the resource base;
6. Reorient technology and manage risks; and
7. Incorporate and combine environmental and economic considerations in decision making (Azapagic, Perdan, Clift, 2004).

Sustainable development can be said to be a terminology chosen to bridge development and the environment (Rogers, Jalal & Boyd, 2008). Between development and the environment there is always a gap which is called the maximum sustainable yield limit, or in the original language it is called the maximum sustainable cut. This terminology is related to traditional conceptions regarding ideas about the limitations of natural resources, for example how many trees can be cut down in a forest that can still grow and develop.

Mohan Munasinghe explained that there are at least three approaches to sustainable development including (Rogers, Jalal & Boyd, 2008)

1. Economical, maximizing approach by maintaining or even increasing capital resources;
2. Ecology, maintaining the resilience and robustness of biological and physical systems; and
3. Socio-cultural, maintaining the stability of social and cultural systems. (Rogers, Jalal & Boyd, 2008)

Meanwhile, Rogers and Jalal proposed at least 9 (nine) ways to achieve sustainable development including:

1. Leave everything in its pristine state, or return it to its original state.
2. Development is carried out so as not to burden the system's carrying capacity.
3. Sustainability will run its course as economic growth continues.
4. Polluters and victims can reach efficient solutions on their own.
5. Let the market take care of it.
6. Internalizing externalities.
7. Let the national economic accounting system reflect defensive spending.
8. Reinvesting rents for non-renewable resources.
9. Leave future generations the option or capacity to have conditions as good as ours. (Rogers, Jalal & Boyd, 2008)

Therefore, the concept of sustainable development is something dynamic, meaning that sustainable development practices will always change following changes in the world (Blewitt, 2008). Then, referring to various ideas regarding the concept of sustainable development that have been put forward previously. Thus, there is a common thread that can be drawn to understand

the concept of sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their own needs (Marten, 2001). Meanwhile, how to achieve this can be done through several approaches.

Regulation of the Energy Sector in Indonesia

After understanding the concept of sustainable development, the explanation that will be carried out now is related to the regulation of the energy sector in Indonesia. Where, through this description it is hoped that it can provide an overview of the conditions of national policy for development in the energy sector. In this regard, Indonesia is currently still under the legal umbrella of the Energy Law which has been in effect since 2007. Then, the Energy Law (Marten, 2001) it has a number of derivative laws and regulations, including:

1. Presidential Regulation concerning the Establishment of the National Energy Council and Procedures for Screening Candidates for National Energy Council Members;
2. Government Regulations on Energy Conservation;
3. Presidential Regulation concerning Guidelines for Preparing a General National Energy Plan;
4. Government Regulations on National Energy Policy; And
5. Presidential Regulation concerning the General National Energy Plan.

These six statutory and regulatory instruments are the main instruments in developing national energy policy. However, in reality there are very few efforts to encourage sustainable development in the energy sector through legislative products. Referring to the results of the author's analysis, the Law on Energy only formulates 2 (two) paragraphs which can be directly said to be efforts to implement sustainable development in the energy sector. Namely, the provisions that regulate the obligations of the central government and regional governments to increase the supply of new and renewable energy according to their authority. Then, provisions regarding the provision of facilities and/or incentives for business entities, permanent establishments and individuals who provide new and renewable energy by the government and/or regional governments according to their authority for a certain period of time until the economic value is achieved.

Unfortunately, these regulations which have the spirit of the concept of sustainable development in the energy sector have not been properly elaborated in other laws and regulations. For example, the regulation regarding incentives in the Government Regulation on Energy Conservation, actually only regulates incentives for saving on the use of non-renewable energy.

Only later, through the Government Regulation on National Energy Policy, were affirmative regulations implemented for the implementation of sustainable development in the energy sector. Where, this is manifested through regulations regarding the provision of fiscal and non-fiscal incentives for the development of renewable energy. However, this arrangement has not been implemented wholeheartedly because the provision of fiscal and non-fiscal incentives is not clearly regulated. Instead of these regulations being carried out rigidly, the a quo Government Regulation actually delegates its implementation to comply with the provisions of statutory regulations (Marten, 2001).

However, there are several other legal policies that have been implemented to support the implementation of sustainable development in the energy sector in Indonesia. Primarily, this policy is carried out through the process of establishing regulations that support the development of new and renewable energy. Among them is through the formation of:

1. Presidential Regulation on the Acceleration of Electricity Infrastructure Development,

1. the a quo Presidential Regulation provides provisions that enable the government and/ or regional governments to provide incentives and/or facilities in accelerating electricity infrastructure that prioritizes the use of new and renewable energy;
2. Presidential Regulation concerning Second Amendment to Presidential Regulation no. 61 of 2015, the a quo Presidential Regulation provides legal provisions that require the use of biodiesel for PSOs and non-PSOs;
3. Regulation of the Minister of Finance concerning Exemption from Import Duty on Imports of Goods for Upstream Oil and Gas and Geothermal Business Activities, the existence of the a quo Minister of Finance Regulation has provided relaxation for the development of geothermal utilization business activities which are included in new and renewable energy;
4. Regulation of the Minister of Finance concerning Procedures for Processing and Accountability of Geothermal Fund Facilities, the a quo Minister of Finance Regulation again provides encouragement for the use of geothermal energy so that it can be said to be affirmative towards sustainable development in the energy sector;
5. Regulation of the Minister of Energy and Mineral Resources concerning Amendments to Regulation of the Minister of Energy and Mineral Resources No. 10 of 2017, the a quo Ministerial Regulation perfects the provisions in the previously existing Ministerial Regulation. Thus, these improvements are also affirmative towards sustainable development in the energy sector;
6. Regulation of the Minister of Energy and Mineral Resources concerning the Utilization of Renewable Energy Sources for the Supply of Electric Power, the a quo Ministerial Regulation encourages the formation of a sustainable, stable and efficient business climate and encourages the establishment of reasonable and affordable electricity prices; And
7. Regulation of the Minister of Energy and Mineral Resources concerning the Use of Rooftop Solar Power Generation Systems by Consumers of PT Perusahaan Perusahaan Perusahaan PerusahaanEL Negara (Persero), the a quo Ministerial Regulation encourages and provides opportunities for PT PLN consumers to switch to using new and renewable energy in the form of solar power.

Based on the description above, it can be seen that in a number of regulations at the ministry level, affirmative efforts have been made to implement sustainable development in the energy sector. However, a number of these regulations are still forms of affirmative efforts that are fragmented from each other and not a unified whole. Thus, the existence of this regulation is not something that is comprehensive, systematic or planned even though it has an affirmative nature towards implementing sustainable development in the energy sector.

Strategic Steps in Sustainable Development in the Energy Sector

Based on the discussion that has been carried out previously, it can be realized that there are 3 (three) things that need to be considered in developing sustainable development in the energy sector. These three things include those related to population planning, subsidy policy, and legislative development. These three things can be considered as central points in determining the success of sustainable development in the energy sector.

First, population planning is an important factor in determining the success of sustainable development in the energy sector. This is important, because it refers to the concept of sustainable development, which is a concept that bridges development. This concept is also closely related to the maximum sustainable cut from new and renewable energy sources.

For example, in 2018 the national electricity demand reached 64.5 GW with Indonesia's population reaching more than 200 million people. Meanwhile, the potential for renewable energy in Indonesia as a source of electricity generation is as follows:

Jenis Energi	**Potensi**
Tenaga Air	94,3 GW
Panas Bumi	28.5 GW
Bioenergi	PLT Bio: 32,6 GW dan
	BBN: 200 Ribu Bph
Surya	207,8 GWp
Angin	60,6 GW
Energi Laut	17,9 GW

Figure 1. Potential Renewable Energy Sources in Indonesia
Source: Indonesian Energy Outlook, 2019.

Referring to this potential, the electric power that can be produced from renewable energy sources in Indonesia is a total of 441.9 GW if the use of all these sources is optimized to 100%. This total power of 441.9 GW then becomes the maximum sustainable cut from renewable energy sources in the electric power energy sector. The Indonesian government must, as far as possible, plan a population growth rate that does not exceed the maximum sustainable cut. Moreover, population growth towards the maximum sustainable cut also has the potential to degrade environmental quality (Rogers, Jalal & Boyd, p. 53). Resulting in population planning being a very important factor in determining the success of sustainable development in the energy sector.

Second, subsidy policy is also a determining factor in the successful implementation of the concept of sustainable development in the energy sector. Moreover, if massive subsidies for non-renewable energy such as oil are still provided, there will be 3 (three) logical consequences that might occur. Where, the three logical consequences include (Asefa, 2005)

1. These subsidies encourage wasteful domestic consumption, thereby reducing the country's oil and gas reserves and its potential export earnings.
2. Too low energy prices encourage the use of private transport, adding to urban congestion and air pollution.
3. An industry that promotes cheap energy that does not meet the needs of the country. Thus, industry players and consumers have little incentive to adopt energy-saving technologies.

Based on this description, it clearly shows that providing subsidies for the use of non-renewable energy sources is directly proportional to environmental pollution. Apart from that, providing subsidies for the use of non-renewable energy sources also accelerates the achievement of maximum sustainable cut conditions. Where, the supply of non-renewable energy sources will be increasingly eroded by increasingly high consumer demand. Especially in the absence of adequate population growth planning.

In addition, the existence of subsidies will effectively negate the fiscal and non-fiscal incentive function of developing new and renewable energy sources. In extreme cases, such as Indonesia, which has not even clearly regulated fiscal and non-fiscal incentives, it still provides massive subsidies for the use of non-renewable energy sources. Of course, this is not a form of happy news, but rather something that should be avoided.

The condition that should occur is the existence of fiscal and non-fiscal incentives provided by the government to business actors who develop new and renewable energy sources. Apart from that, to encourage consumer behavior patterns to shift from non-renewable energy sources to users of new and renewable energy. So, the government must also intervene in the form of providing incentives or subsidies for consumers. Only then if these conditions are met will the application of the concept of sustainable development in the energy sector have a good future.

Third, legislative development also plays an important role in the successful implementation of the concept of sustainable development in the energy sector. As explained in the previous section, although Indonesia already has a number of derivative legislation and regulatory products in the energy sector. However, the existence of these various legal products is not comprehensive or capable of forming a unified policy that encourages sustainable development in the energy sector.

The existence of various laws and regulations has actually become a national legal policy that is fragmented from one another. Thus, efforts to encourage sustainable development in the energy sector become thematic depending on the legal objects regulated in each of these laws and regulations. In fact, legislative development should be able to become a means of social engineering in implementing sustainable development in the energy sector.

Moreover, the fact that the state, manifested through its government, is the ruler of the energy sector, and can also be called the main investor in energy development (Bradbrook, 2005). Therefore, the state should be obliged and able to develop legislation in the energy sector that encourages the concept of sustainable development. In essence, legislative products must be able to present comprehensive regulations and become a unified document in providing regulatory direction regarding planning, development, management and evaluation of sustainable development in the energy sector.

Thus, these three factors have an important role in the successful implementation of the concept of sustainable development in the energy sector. Population planning, providing subsidies, and developing legislation are like manifestations of economic, ecological and socio-cultural paradigms in the concept of sustainable development in general. So, efforts to fulfill the needs of these three sectors have become an unavoidable necessity.

CONCLUSION AND RECOMMENDATION

Based on the description presented in the discussion, the problem formulations in this research can be concluded as follows:

a. The direction of development policy in the energy sector has not properly implemented the concept of sustainable development, the government actually emphasizes non-renewable energy conservation rather than thinking about systematic ways to develop new and renewable energy; And
b. The development of legislation in the energy sector should be carried out comprehensively and completely to develop sustainable development in the energy sector. Namely, prioritizing the development and sustainable use of new and renewable energy. Of course, to achieve this, it is necessary to harmonize policies in the field of population planning and the direction of providing subsidies in the development and utilization of energy.

In connection with the conclusions that have been successfully formulated, suggestions can also be formulated for policy makers to immediately form legislation in the energy sector that is affirmative towards new and renewable energy. This affirmation is realized through regulations regarding incentives and convenience in the comprehensive and complete use and/or development of new and renewable energy. Apart from that, it is also necessary to carry out population planning to support the implementation of sustainable development in the energy sector in order to avoid the maximum sustainability cut. Then, planning a national energy subsidy policy that mainstreams subsidies in the use and development of new and renewable energy.

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