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Environmentally Friendly Alternative Energy Development Policies in Overcoming the Energy Crisis

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ABSTRACT

This study discusses Alternative Energy Development Policies in Overcoming the Energy Crisis, which are discussed from International Relations. In formulating national policies that include foreign policy, energy is one of the issues discussed because it is related to many people's lives. The energy potential will significantly influence Indonesia's foreign policy. Energy plays a critical role because energy is the driving force for a country's economic sector. Increased development will increase the need for energy as well. Countries that control energy will become strong and superpower. Indonesia is very concerned about the issue of energy supply security given the increasing energy consumption in Indonesia, the scarcity of energy supplies, and the tendency of rising energy prices. This condition is exacerbated because almost a quarter of the domestic oil demand must be imported from other countries. Therefore, Indonesia must find the most appropriate way to ensure the availability of environmentally friendly energy. The research method is a qualitative descriptive method. The conclusion drawn from this research is the interdependence of all world energy actors.

1. Introduction

The projected increase in world population to more than 8 billion people in 2030 from 6.5 billion people today will increase energy consumption to 120 billion barrels of oil equivalent per year. Meanwhile, around 2 billion people have not received modern energy services. They are still in a prolonged cycle of poverty, hampered in access to economic development, water availability, food, and good health services.

More than 80% of the world's primary energy will still be in fossil energy (oil, gas, and coal), and oil is still the primary fuel. By 2030, it is estimated that the world will need 116 million barrels of oil per day, compared to 87 million barrels in 2008. With world oil reserves of around 1.2 trillion barrels, oil supplies will only be available for the next 30 years. The world is increasingly worried because when it is mapped, most of the countries in the world are oil importers.

In reality, only the Middle East, Russia, and a few Africa and Latin American regions have excess oil or exporters. Asia, Europe, and America turned out to be negative in their oil balances, so all eyes were on the Middle East to secure the future of their oil supply. This anxiety increases because when countries like China and India start to be consumptive like the United States, these resources will run out even faster. In recent years, the increase in world reserves has not been fit by an increase in production, so that the production life of reserves will also shrink. It is rare to find significant oil sources, especially in non-OPEC areas such as the North Sea, America, and others (including Indonesia) whose production continues to decline.

Referring to the International Energy Forum in Rome on 21 August 2008, energy ministers from 74 countries and 27 heads of giant energy companies attended a "concert" that sang the "rhythm" of interdependence among all world energy actors. They all agreed on the need for continuous dialogue and joint handling of the world's energy system to obtain an energy market stability that is certain, transparent, and beneficial to all parties.

Indonesia requires large amounts of energy to meet its current economic performance. Indonesia's total energy needs mostly come from petroleum or fuel oil (54.04%) and natural gas (21.94%). Indonesia is currently importing Crude Oil of 400,000 barrels/day and imports of BBM an average of around 400,000 barrels/day, with the majority of imports from the Middle East. The world's oil and gas reserves are concentrated in only a handful of countries. Currently, approximately a quarter of the total oil consumption in Indonesia comes only from Middle East countries. In addition, the price of oil in Indonesia continues to show an increase. With the increasing demand for the two existing energy sources, a surge in price increases in the future seems unavoidable (Maizar Rahman, 2008).

Another issue related to energy is the impact of energy consumption and export (transportation or energy transit) on the environment. Based on data from the Intergovernmental Panel on Climate Change (IPCC), there has been an increase in global temperature of 0.6 degrees Celsius. The IPCC also believes that if there are no significant results in efforts to limit greenhouse gas emissions globally, there will be an increase in the world's average temperature of 1.4 to 5.8 degrees Celsius by the end of this century. This situation will negatively impact the world's economy and ecosystem, particularly Indonesia.

Until 2000, Indonesia was the largest oil producer in ASEAN. However, there has been a decline in production in Indonesia from day today. The peak of ASEAN production, which was reached in 2000, is now declining. In 2008, the area's production reached 2.6 million barrels per day. However, until 2030, the production of ASEAN countries is expected to continue to decline by almost half, or to around 1.4 million barrels per day. Until now, Indonesia's oil production has not shown an increase. Production can only be stabilized at 950 thousand barrels per day with great effort. According to the 2008 Indonesia Energy Outlook study, national production is declining at a rate of 4.4% per year. If that scenario happens, the national oil production in 2030 will only be around 354,000 barrels per day, a very minimal amount when the oil demand continues to swell.

Without a policy to increase production, Indonesia's imports will continue to increase so that by 2030 it will require imports of around 2.7 million barrels per day. This considerable amount requires preparations for securing import sources due to intense competition from other importing countries. Handling its availability cannot simply be left to the market mechanism (Maizar Rahman, 2010).

The biggest threat in realizing energy security is energy prices (oil and gas-based) which tend to be unstable and continue to increase due to the formation of the world oil trading system, which is always characterized by conflicts of interest between oil-producing countries and industrialized developed countries. Developing countries that still import oil and gas. The price of crude oil is highly dependent on the world oil trading system, in which crude oil traded with derivative instruments and psychological factors will significantly influence market behaviour.

The threat to energy security is fundamental. It is feared that it will develop into an energy emergency, further disrupting production and economic activities, eventually creating stagnation, recession, and a global economic crisis. The energy security system also has a close relationship with national, regional, and global defence and security systems. In benign conditions, the supply of crude oil is highly dependent on the sea transportation system, while the sea transportation system requires securing the sea area. In a state of war emergency, the guarantee of energy supply becomes very important and strategic to support military operations and meet the community's basic needs (Maizar Rahman, 2006).

2. Literature Reviews

To ensure legal certainty so that people are aware of preserving their environment, the government has prepared legal instruments, especially environmental Law, to ensnare polluters and environmental destroyers. The laws in question are Law Number 4 of 1982 concerning the Environment (UULH) and Law Number 23 of 1997 concerning Environmental Management (UUPLH) and have been enhanced by the latest Law, namely Law Number 32 of 1997. 2009 concerning Environmental Protection and Management (UUPPLH). The existence of this Law is expected to be reference material for law enforcement officers to take action against parties who have intentionally or unintentionally polluted the environment. Law enforcers can resolve cases of environmental crimes that occur, especially the problem of water pollution by industrial waste, which is often rampant, especially in big cities (Hakim, 2015, p. 117).

One area, which is increasingly attracting attention is environmental politics. Environmental politics began to develop in the late 1960s and early 1970s. According to Paterson in Herman Hidayat, environmental politics is an approach that combines environmental problems with economic politics to represent a dynamic shift in tension between the environment and humans and between various groups in society on a scale from local individuals to transnational as a whole. (Hidayat, 2005, p. 9).

3. Research Method

The research method is a qualitative descriptive method. This method was used because this research is a process of describing the framework of foreign policy. The methodology is not just a collection of research methods or techniques, but rather a whole foundation of values (especially those concerning the philosophy of science), assumptions, ethics, and norms that become the rules used to interpret and conclude research data, including criteria for assessing the quality of research results (Moh. Nazir, 1988).

In this study, the method used is qualitative methods, efforts to adjust the data by analyzing the phenomena that occur and systematically arranged. This research was conducted by conducting a literature study on Alternative Energy Development Policies in Indonesia and collaborating with the international community and stakeholders.

The research method is descriptive analysis, which describes and analyzes a problem. Thus, the research collects as much data as possible regarding the material in this study. Then the data are analyzed to identify what factors influence the policy change (Moh. Nazir, 1988).

Data collection techniques used library research done by reading, analyzing, and studying books, scientific magazines, mass media, internet sites, and other sources related to this research to gain knowledge of the theories and terms and understandings needed. The data collected in this foreign policy study used documentation data such as books, foreign policy journals, or newspapers.

The data and information needed to answer the research problems were collected from two main sources: primary and secondary sources. Primary data were obtained from the results of in-depth interviews and discussions, while secondary data were collected from the processed data of other people in the form of documents, reports, publications, Etc.

Data analysis was carried out simultaneously with the data collection process (ongoing analysis) using data analysis techniques commonly applied in qualitative research. Qualitative data were analyzed using inductive and logical analysis methods (Marshall & Rossman, 1989). This qualitative data analysis procedure contains two main elements: data reduction and interpretation. The process of data analysis in qualitative research includes examining, selecting, categorizing, evaluating, comparing, synthesizing, and completing the coded data, which was carried out cyclically to build inferences, retest the inferences and then draw back-conclusion (Neuman, 1997).

In Neuman (2003), the cyclical analysis method provides the opportunity to continuously conduct concept testing with data and evidence repeatedly to find inferences and new theories called successive approximation. In addition, because the data collection process is carried out using several previously existing concepts about social capital, the data analysis process is also carried out by using the illustrative method in an unconfined sense. With the illustrative method, the researcher tries to apply the theory to a concrete social setting or historical situation or organize data based on the primary theoretical basis (see Neuman, 2003).

4. Results and Discussions

The definition of *energy security*, in general, is a condition where the public's need for energy can be met sustainably based on the principles of availability, accessibility, and acceptability (quality and price). For this reason, efforts to create energy security require support and guarantees for access or energy sources as well as the energy conversion and distribution processes needed to ensure the creation of energy security in the context of the country's survival in the short and long term (Maizar Rahman, 2006).

A world-leading energy expert, Daniel Yergin, defines energy security based on the interests of two types of countries, exporters and importers. For exporting countries, energy security means how to secure the demand for their energy products to ensure the financial income needed for the sustainability of their country. An example of an exporting country is Saudi Arabia, the world's largest oil exporter. Meanwhile, Yergin divides importing countries into developed and developing countries. For importers from developed countries, such as the United States, the European Union, and Japan, efforts to ensure energy security are carried out through energy diversification and trade and investment in world energy-producing regions such as the Middle East and North Africa.

Sustainable development has become a leading concept in the 21st century. Sustainable development describes a development that meets the present generation's needs but does not jeopardize the opportunities for future generations to meet their needs. In Europe, the term comes from the forestry sector, nowadays "sustainable development" has become an important goal for all areas of life such as economy, ecology, and social balance.

The development and shaping of our future have been the subject of international discussion at the Conference in Rio de Janeiro and Johannesburg's summits. Nevertheless, it is also a topic at the national level in various countries. For example, in Germany, the "Enquete-Commission" of the 13 German Bundestag (Parliaments) has enacted a "human and environmental protection" law to explore and work on the needs of sustainable development. In the final report of this commission, four or five rules relating to the need for sustainable development in Germany have been defined. This concept has been accepted by several leading rulers in various fields, both economic and political. However, to put these basics into practice, companies now also need consultants as directors who are competent to implement sustainable development rules in their field.

Sustainable development, also called strong, resilient, or efficient development, was first defined in 1987 by the World Commission on Environment and Development, chaired by Gro Harlem Bruntland, prime minister of Norway. In the commission's final report entitled "Our Shared Future," also called the Brundtland-Report, *sustainable development* is defined as development that meets the needs of the present without compromising the ability of future generations to adapt to their own needs.

Under these conditions, economic cooperation in various world regions is developing towards creating security and energy supplies. Fear of the energy crisis has prompted the European Union to create a standard energy policy that leads to a single EU energy market because the single market will create competition that creates efficiency and lower energy prices. The joint energy policy is a combination of strengths in dealing with the energy crisis, stability of energy supply, energy diversity, and energy prices. Other related issues are also covered in this collaboration, such as environmental protection, prevention of global warming, and the development of more efficient energy technologies (Maizar Rahman, 2006).

With the various definitions of energy security, it can be seen that each country/region has different interests in terms of energy. Nevertheless, the common thread that can be drawn from the issue of energy security is the importance of this issue for the domestic constituents of every country in the world.

Indonesia's foreign policy protects national interests, especially development plans (Susilo Bambang Yudhoyono, 2004). Amid world developments marked by the fullness of the national interests of each country in the negotiation process at the bilateral, regional and multilateral levels, it will be necessary for Indonesia to determine its attitude and place the right and clear position (Maizar Rahman, 2006).

There is "power, government and law" in its implementation at the domestic level. Meanwhile, international politics is "a field of power, struggle, and accommodation" (Waltz, 1979). Targets in foreign policy, both short-term and long-term targets, must be clearly defined beforehand so that the costs and benefits can be more measurable and transparent. The main thing is how to link national development economic strategies and policies with the steps taken at the international level (Susilo Bambang Yudhoyono, 2004).

After the Cold War, the decline in power politics raised hopes for a more stable, peaceful, and prosperous international climate. However, the development of the prosperity of nations is asymmetrical. In the current era of globalization, establishing relationships with other countries to run the wheels of a country's economy is absolute and necessary. Indonesia's diplomacy has become essential in this increasingly globalized condition. We are required to provide explanations about Indonesia to foreign countries. An understanding of the global arena is needed so that we are not trapped in diplomacy and can still show the nationalism of a country amid the increasingly intense pressure of internationalism (Robert Keohane, 1984).

Foreign policy in the energy sector is the policies, attitudes, and steps taken by the Government of the Republic of Indonesia in managing relations with other countries, international organizations, and other international legal subjects in the context of dealing with global energy problems to achieve the national goal of energy security. Diplomacy is a foreign policy instrument to achieve this goal. Energy diplomacy is a way that the Government of Indonesia can secure energy supply.

Energy promotion abroad is quite attractive for investment because Indonesia has several advantages, such as a significant enough energy source (40% of the world's geothermal potential is in Indonesia) and the addition of 35% of Indonesia's population who do not have access to electricity. This situation will attract foreign investors to develop Indonesia's geothermal potential. Foreign investors are needed because investment in geothermal is quite expensive. As an illustration, to produce 1 MW of electricity is required approximately 3 million US dollars. Indonesia also has a rapid growth in energy consumption due to the rapid growth of Indonesia's population, especially a productive workforce. A large number of workers indicates the need for many jobs. The number of jobs indicates the growth of an industry that requires energy.

Energy diversification is needed to ensure sustainable development. The development of alternative energy requires synergy between stakeholders, especially from policy, research, funding, and technology. Indonesia views the importance of energy conservation and conversion as a strategic step to overcome the increasing energy demand and maintain the security of the energy supply. The most important is the political will to direct energy policy from fossil fuel-based to alternative or renewable energy. Therefore, the government has committed to increasing renewable energy development in Indonesia. The position of petroleum will gradually be replaced with other energy sources, namely coal, gas, geothermal, and new and renewable energy, including biofuels. Indonesia's energy mix strategy is the government's commitment to encouraging a green economy and a strategic step to strengthen energy security.

Indonesia's enormous worst energy potential has not yet been appropriately developed, partly because of expensive technological constraints. Therefore, foreign investment is still needed. To encourage investment, this is where diplomacy comes into play. Energy promotion that can be carried out by Indonesian diplomats abroad is quite interesting because Indonesia has several advantages, namely:

A. The energy source is quite large (40% of the world's geothermal potential is in Indonesia) and is added by 35% of the Indonesian population who do not have access to electricity. It will attract foreign investors to develop Indonesia's geothermal potential.

B. Rapid energy consumption is due to Indonesia's population growth, especially a productive workforce. A large number of workers means that many jobs are needed. The number of jobs indicates the growth of an industry that requires energy. This condition guarantees the existence of domestic consumers for foreign investors.

C. The Indonesian government has established an energy mix strategy to encourage a green economy and a strategic step to strengthen energy security. In this case, the government issued Presidential Regulation No. 5/2006 concerning National Energy Policy, followed by Presidential Instruction No. 1/2006 concerning Provision and Utilization of Biofuels as Other Fuels, and Presidential Instruction No. 2/2006 concerning Provision and Utilization of Liquefied Coal as Other Fuels.

The following are several scenarios that Indonesia is currently developing abroad to secure a sustainable energy supply by the Decree of the Minister of Energy and Mineral Resources No. 2280 K/05/MEM/2007 concerning Inter-Unit Coordination within the Ministry of Energy and Mineral Resources in Handling Foreign Dialogue/Cooperation Forums.

• MoU with India: It contains the formation of a Working Group to share information on coal exploration, capacity building, and technology transfer. The meeting form is in the form of a Joint Commission Meeting. The Director-General of Mining and Coal, the Ministry of Energy, and Mineral Resources is the focal point in cooperation with India.

• Japan: Coal Policy Dialogue Forum and Indonesia-Japan Energy Round Table.

In 2004, Indonesia and other ASEAN member countries had agreed on several joint actions plans to increase energy supply security for ASEAN countries. ASEAN countries agreed to support the construction of a gas pipeline across ASEAN (Trans ASEAN Gas Pipeline) and a project to build an electricity transmission network that connects ASEAN countries (ASEAN Power Grid).

• IRENA (International Renewable Energy Agency): Currently, Indonesia is seeking membership in IRENA. The status of this international organization is not yet full-fledged. It requires ratification by 25 countries, and so far, 18 have ratified (members are not the same as ratifiers). The new form of meeting is a preparatory meeting. The latest development is that the Ministry of Energy and Mineral Resources has asked the relevant working groups to discuss membership. The Ministry of Foreign Affairs also requested a cost and benefit analysis from the Ministry of Energy and Mineral Resources. At this stage, it is the obligation of the Ministry of Energy and Mineral Resources to draft a Presidential Regulation regarding membership in IRENA.

• OPEC (Organization of Petroleum Exporting Countries): The Organization of the Petroleum Exporting Countries (OPEC) was founded in 1960 to return control of natural oil resources to the sovereignty of their owners, who are generally developing countries. According to its statutes, this organization aims to unify policies and protect the interests of its members. The organization's efforts are to stabilize prices on international markets and prevent fluctuations, secure steady oil revenues for members while ensuring a regular, efficient, and economical supply to consumer countries, and pay attention to reasonable returns for investors.

Of Indonesia's oil production of less than 1 million BPD (barrels per day), currently, Indonesia only has about 60-70 percent and the remaining portion of production costs and profit-sharing partners' rights. With Indonesia's consumption of more than one million BPD of fuel, 300,000 BPD of crude oil, and 400,000 BPD of fuel must be imported, which means that overall, Indonesia has genuinely become a net importer. Therefore, Indonesia's interests have shifted from a net exporter to a net importer.

• G-20: Indonesia is also actively participating in the G-20 to discuss ways and objectives to create a more conducive environment for oil price volatility. These include priorities for stabilizing the global economic system and providing an effective stimulus to global demand. Indonesia's membership in the G-20 is closely related to energy use. It is because the majority of the G-20 members are developed countries that import energy. The issue currently being discussed is the abolition of energy subsidies because subsidies themselves are a distortion of the economic system. Subsidies do not promote energy efficiency. The provision of subsidies must be adjusted to the economic strata of consumers.

National interest is the total value to be fought for or defended in international forums. Therefore, it can be said that the national interest is the key to foreign policy. According to Couloumbis and Wolfe, foreign policy is a synthesis of national goals or interests with power and capabilities (Thomas Couloumbis and John Wolfe, 1990).

Government officials carry out the implementation of foreign policy. Therefore, government officials influence foreign policy. Besides government officials, socio-political forces, better known as pressure groups, also influence a country's foreign policy. The implementation of foreign policy is preceded by the determination of policies and decisions and must consider considerations accompanied by national factors as internal factors and international factors as external factors. In addition, in the implementation of foreign policy, appropriate techniques and instruments must be chosen to achieve the goals that have been set.

5. Conclusion

The conclusion drawn from this research is the interdependence of all world energy actors. All agreed on the need for continuous dialogue and joint handling of the world's energy system to obtain a stable, transparent, and mutually beneficial energy market for all parties.

Energy independence is a form of implementation of Indonesia's free and active politics. Diversification of oil supply is a form of energy independence for Indonesia to have many choices of energy supply. Dependence on one or two countries is not enough, where Indonesia relies on oil imports from the Middle East region. The potential for cooperation with other countries can be technology, trade, or investment cooperation. The first step should start with trade, especially in this case is oil imports. Some suggestions that need to be considered by the government are:

A. Indonesia must intensify its energy diplomacy with oil-exporting countries outside the Middle East region to obtain long-term supply commitments and establish cooperation in the construction of refineries in Indonesia with oil-producing countries using crude oil from their countries. Indonesia must also be more aggressive in increasing exploration and production activities abroad by Pertamina, and the oil can be brought to Indonesia.
B. The Government of Indonesia should consider membership in the International Renewable Energy Agency (IRENA). In the future, at least countries will be divided into three groups: (i) countries that apply energy mix patterns with different percentages; (ii) oil and gas exporting countries that have begun to pay attention to the development of renewable energy; and (iii) renewable energy technology exporting countries. The discussion in IRENA is expected to reflect the interests of the three groups. Indonesia is expected to be the third category.
C. Strengthening dialogue forums and foreign cooperation, especially with developed countries related to the transfer of knowledge and technology regarding renewable energy sources.
D. Exploring oil trade cooperation with Venezuela and Russia as an oil supply diversification. It is related to energy independence as a form of energy diplomacy that carries Indonesia's free and active political mission in the international energy arena.
E. Adding an oil refinery to take advantage of the international oil trade route via Indonesia. For example, China's oil refining capacity increased by 90 million tons this year. China's oil reserves are targeted at 197 million barrels, of which 50% of China's petroleum is imported from the Middle East. Indonesia can take advantage of this opportunity by adding an oil refinery in the Malacca Strait. It is also possible for Chinese tankers to pass through another Indonesian Archipelagic Sea Lane, such as the Makassar Strait. Therefore, it becomes a good prospect for constructing a refinery in the north of the island of Sulawesi.

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