

Alternative Energy Policy Model Based on Local Potential in West Halmahera Regency, Indonesia¹

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Abstract

Alternative energy is needed not only for us today, but also for future generations. There are so many alternative forms of energy available that there are many options for governments to encourage researchers to research and discover new renewable energy or alternative energy types, the number of public pressure for the government to issue a pro-people policy related to this energy makes the government must be careful in reacting, because the current position is starting from the people's choice. Primary energy forms in West Halmahera Regency, among others: geothermal, sea, wind, hydropower and the sun. Based on this and see the importance of source and alternative energy utilization factors in the present time, and the existence of Regulation of West Halmahera Regent Number 16 Year 2015 on West Halmahera Potential Local Alternative Energy Management Plan, this could be the driving factor for other special policies related to the use of alternative energy in West Halmahera either in the form of local regulation, or even it could make the spirit of North Maluku Provincial Government to make special regulation or at least governor regulation about Potential Local Alternative Energy Management Plan in North Maluku Province.

Keywords: model, policy, alternative energy, West Halmahera Regency, Indonesia.

I. Introduction

Energy is one of the basic needs of human, especially in this modern era, energy is very important and human dependence on energy is very big. Not just human in the sense of person to person, but furthermore to a country-also has a very high dependence on energy. In fact, not infrequently a country needs help from other countries to simply explore or request energy from other countries because the energy available in the country can not meet its national energy needs.

Global environmental and energy issues are a hot issue spoken of lately. Starting from the scarcity of fossil energy sources resulting in high oil and gas prices, uneven supply of electricity and not reaching remote areas, to the issue of global warming caused by CO² emissions.² This is important for further discussion, since the discussion of energy is very broad, since there are various forms and classifications of the energy itself, even the talk of energy itself is tantamount to talking about human needs that certainly will not there is no end.

As we understand that a state government will not be able to run effectively without full legitimacy. The state government and its equipment as an instrument of structuring a society which holds the main political power must have legitimacy or justification for the power it exercises so that it can be effective.³ Meanwhile, Hans Kelsen said the nature of the state as the "embodiment of the national legal order" *personificatie van het rectorde* because the existence of the state is visible from the development of the legal system applicable in regulating the life of the community of the nation.⁴ Thus, the state has the task of control and energy management for the fulfillment of the needs of all the people of Indonesia led, in terms of energy needs of the people of Indonesia should be as much as possible can be met by the state, in this case is the Government of the Republic of Indonesia.

The constitutional basis and management of natural resources of mining or quarrying is Article 33 paragraph (3) of the 1945 Constitution of the Republic of Indonesia and the Law of the Republic of Indonesia Number 4 Year 2009 concerning Mineral and Coal Mining.⁵ In the provision of Article 33 paragraph (3) of the 1945 Constitution of the Republic of Indonesia mandates that "Earth, water and natural resources contained therein are controlled by the state and used for the greatest prosperity of the people". The substance of the above provision emphasizes that (a). earth, water and natural wealth contained therein include objects contained in earth and water controlled by the state. (b). the purpose of state control over the earth, water and natural

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² Evan Kamaratul Insani, Diversifikasi Sumber Energi : Kebijakan Pengembangan Energi Alternatif Indonesia, (Majalah Energi, September 24, 2010 Edition), see <http://majalahenergi.com/forum/energi-baru-dan-terbarukan/bentuk-energi-baru/diversifikasi-sumber-energi-kebijakan-pengembangan-energi-alternatif-indonesia>

³ Hendra Nurtjahjo, Ilmu Negara, Pengembangan Teori Bernegara, Jakarta: Rajawali Pers, 2005, p. 19; See also description of Legitimacy Theory proposed by Hendra Nurtjahjo, Filsafat Demokrasi, Jakarta: Pusat Studi Hukum Tata Negara Universitas Indonesia, 2005, p. 31

⁴ See Padmo Wahyono's explanation, Negara Republik Indonesia, Jakarta: Rajawali Pers, 1986, p. 54

⁵ State Gazette of the Republic of Indonesia of 2009 Number 4, Supplement to the State Gazette Number 4959

resources contained therein is to the greatest prosperity of the people.¹ This indicates that the seriousness of the state to manage energy (derived from Earth, water and natural resources contained therein) to be used for the greatest prosperity of the people.

Indonesia is one of the most abundant renewable energy potentials. However, in fact the potential of renewable energy resources is still not utilized optimally. This is because now Indonesia is still dependent on fossil energy sources that clearly presents a big problem. Fossil energy sources whose availability in nature is very limited can also cause air, water and soil pollution, and produce greenhouse gases that contribute to global warming. According to Greenpeace, Indonesia only utilizes renewable energy only about five percent of the total electricity used in Indonesia. In fact, renewable energy in Indonesia is feasible to be developed to meet energy needs and can solve the energy crisis problem and reduce the problem of environmental pollution.²

Presidential Regulation of the Republic of Indonesia Number 5 Year 2006 on National Energy Policy shows that government policy is still less supportive of alternative energy utilization or renewable for 2025 which only about 15%. This can be seen in Chapter II of Article 2 of the Presidential Regulation that the energy consumption target used in Indonesia in 2025, among others:³

1. Petroleum less than 20%
2. Natural gas more than 30%
3. Coal more than 33%
4. Biofuel more than 5%
5. Geothermal more than 5%
6. Other new and renewable energy, especially Biomass, Nuclear, Small Scale Water, Solar and Wind Power more than 5%
7. Other fuels derived from coal liquefaction of more than 2%

Considering the urgency of the use and management of alternative energy as mentioned above, it can be assumed that alternative energy reserves in Indonesia whose potential is very large should have started to be utilized and managed properly, so that later when the current transition of energy to alternative energy can proceed and run well, so the problem of kerosene to gas conversion that became government policy in the past few years is enough to give a valuable lesson for us all how talkative our society when there is a change of policy felt by some of Indonesian people in some region.

To meet the needs of electricity in remote areas that have enormous biomass reserves, this technology is worth considering because it is easy to operate. Basically biomass energy source in North Maluku is very abundant both from agricultural waste and plantation waste such as rice husk, corn cob, and others. The main obstacle to the utilization of biomass energy to generate electrical energy in North Maluku province is the continuity of availability and location of scattered biomass availability. So far, there is no one of North Maluku Province Regulation that regulates specifically about the utilization of alternative energy. Although in fact since 2013 there have been rules that can be made by the provincial government to be used as a reference to seek, develop, utilize the potential sources of alternative energy, the rule is Decree of the Minister of Energy and Mineral Resources of the Republic of Indonesia Number 0459.K/30/MEM/2013 on Assignment of Geothermal Introduction Survey to PT. Star Energy Geothermal Indonesia Mount Hamiding Region of North Halmahera Regency and West Halmahera Regency, North Maluku Province.

In the past year 2011 there has actually been a regulation that deals with energy taxes, although not explicitly regulating the development and utilization of alternative energy sources, the local regulation is Regional Regulation of North Maluku Province Number 12 Year 2011 on Mineral Taxes not Metals and Stones. So at this time indeed there is no provincial rule that can be used as a reference to seek, develop, utilize the potential of alternative energy sources. Currently, there is also no Regional Regulation of West Halmahera Regency and North Maluku Governor's Policy which regulates specifically on the utilization of alternative energy. Based on the exposure, then the problem to be discussed in this paper is how the urgency of alternative energy use? and how solutions can encourage specific policy making on alternative energy use in West Halmahera Regency?

II. Research Method

The type of research used is socio-juridical legal research, using the legislation and conceptual approach.⁴ Technique of collecting data which is done through research of literature by studying and examining some regulation of national law, textbook, research result, legal journals, accompanied by field data, then analyzed

¹ Nam Rumkel, et.al., Laporan Penelitian Prioritas Nasional MP3EI Tahun Pertama dan Tahun Kedua, Pengembangan Model Kebijakan Energi Alternatif Berbasis Potensi Lokal di Kabupaten Halmahera Barat Propinsi Maluku Utara, Ternate: Universitas Khairun, 2014, p. 1

² Widya Oktasari Usefa, Perkembangan Sumber Energi Alternatif di Indonesia, Bisnis Indonesia Writing Contest Year 2015), See http://writingcontest-total.bisnis.com/artikel/read/20150328/404/416883/perkem_bangan-sumber-energi-alternatif-di-indonesia

³ Ibid.

⁴ Peter Mahmud Marzuki, Penelitian Hukum, Kencana Prenadamedia Group Jakarta, 2005, p. 35

descriptively.

III. Results and Discussion

The Urgency of Alternative Energy Use

The use of alternative energy will provide a nation protection on rising fossil fuel prices, as well as reducing dependence on other countries for oil supplies. In addition, alternative energy sources will limit the consumption of non-renewable energy sources such as petroleum and coal, and most importantly, reduce environmental pollution and negative effects on natural resources such as water, air, forests, and others. Increasing the use of alternative energy sources will eventually create new jobs so as to accelerate economic growth.¹ The opening of new jobs related to the development and management of energy can not be separated from the human need for energy, and as well as companies that run their business highly dependent on energy for the machines can produce smoothly.

Alternative energy is a term that refers to all usable energy that aims to replace conventional fuels without unintended consequences of them. Generally, the term is used to reduce the use of hydrocarbon fuels that cause environmental damage due to high carbon dioxide emissions, which contribute greatly to global warming based on Inter-Governmental Panel on Climate Change (IPCC). Over the years, what is actually referred to as alternative energy has changed due to the many choices of energy that can be chosen which different purposes in use.² The development of science and technology makes the diversification of alternative energy into many kinds and many uses so that the purpose of using alternative energy that one with the use of alternative energy is not necessarily the same.

Other human activities in producing goods and transportation and others also require energy derived from energy sources or often called natural resources.³ Energy resources as natural resources is a gift of God Almighty to the people and nation of Indonesia. In addition, energy resources are strategic natural resources and very important for the livelihood of the people, especially in the improvement of economic activities, employment opportunities, and national resilience of energy resources must be controlled by the state and used for the greatest prosperity of the people as mandated in Article 33 of the 1945 Constitution of the State of the Republic of Indonesia. Energy management which includes its provision, utilization and exploitation shall be implemented in an equitable, sustainable, rational, optimal and integrated manner to provide added value to the economy of the nation and the Unitary State of the Republic of Indonesia. The provision, utilization, and exploitation of energy carried out continuously in order to improve the welfare of the people in its implementation must be harmonious, harmonious and balanced with the function of the environment.⁴

Given the importance of energy resources, the Government needs to develop energy management plans to meet national energy needs based on long-term energy management policies. Based on the above, the Law of the Republic of Indonesia Number 30 Year 2007 on Energy is enacted as the legal basis and guideline for regulating and managing the energy sector. The main subject set forth in this law, among others:⁵

1. energy arrangements consisting of control and regulation of energy resources;
2. energy buffer reserves to ensure national energy security;
3. state of crisis and energy emergency and energy prices;
4. the authority of the Government and regional governments in regulating the energy sector;
5. national energy policy, national energy plan, and establishment of national energy council;
6. rights and roles of the community in energy management;
7. supervision and supervision of management activities in the energy sector; and
8. research and development.

The energy management paradigm that has been running puts Energy Resources as an export commodity to generate foreign exchange. This condition resulted in the supply of domestic energy can not be guaranteed properly, the increase of added value is not optimal, and the loss of opportunity to create new jobs so that become one of the source of inhibiting economic growth. Therefore, the Energy Management policy paradigm needs to be changed by making Energy a national development capital. With the above paradigm shift, it is expected to increase state revenues from the Energy sector, some of which can be used to encourage the development of the Energy sector, among others through the search and improvement of fossil energy reserves, the development of New Energy and Renewable Energy, the recovery of the Environment function, and the Conservation of Energy Resources.⁶ Therefore, the Government Regulation of the Republic of Indonesia

¹ Amazine, Ketahui 9 Sumber Energi Alternatif Untuk Masa Depan, see <http://www.amazine.co/21862/ketahui-9-sumber-energi-alternatif-untuk-ma-sa-depan/>

² Wikipedia, Energi Alternatif, see https://id.wikipedia.org/wiki/Ener_gi_alternatif

³ Maskoeri Jasin, Ilmu Alamiah Dasar, Jakarta: Rajawali Pers, 2000, p. 69.

⁴ General Explanation of Law of the Republic of Indonesia Number 30 Year 2007 regarding Energy (State Gazette of the Republic of Indonesia of 2007 Number 96, Supplement to the State Gazette of the Republic of Indonesia Number 4746).

⁵ Ibid.

⁶ Ibid.

Number 79 Year 2014 on National Energy Policy was established to answer the above challenges.

Indonesia has a considerable potential New Renewable Energy (EBT), mini/micro hydro of 450 MW, Biomass 50 GW, solar energy 4,80 kWh/m²/day, wind energy 3-6 m / s and 3 GW nuclear energy. The latest EBT potential data was submitted by the Director of New Renewable Energy and Energy Conservation in the Focus Group Discussion on New Renewable Energy Supply Demand recently held by Pusdatin ESDM. Currently, the development of EBT refers to Presidential of the Republic of Indonesia Regulation Number 5 Year 2006 on National Energy Policy. In the Presidential Regulation, the contribution of EBT in the national primary energy mix in 2025 is 17% with 5% biofuel composition, 5% Geothermal, Biomass, Nuclear, Water, Solar and Wind 5%, and liquefied coal of 2 %. The Government's steps will be to increase the installed capacity of Hydro Micro Power Plant to 2,846 MW by 2025, installed capacity of 180 MW Biomass by 2020, installed capacity of wind (PLT Bayu) of 0.97 GW by 2025, solar 0.87 GW in 2024, and 4.2 GW nuclear by 2024. Total investment absorbed by EBT development until 2025 is projected at 13.197 million USD.¹

The efforts undertaken to develop biomass is to encourage the utilization of agricultural and forestry industrial waste as an integrated energy source with the industry, integrate biomass development with community economic activities, encourage the manufacturing of biomass energy conversion technologies and supporting businesses, and increase research and development of waste utilization including municipal waste for energy. Efforts to develop wind energy include the development of wind energy for electricity and non-electricity (water pumping for irrigation and clean water), developing simple, small-scale wind energy (10 kW) and medium scale (50- 100 kW) technologies and encouraging manufacturers to produce SKEA is small and medium scale in bulk. The development of solar energy includes the use of PLTS in rural and urban areas, encouraging the commercialization of PLTS by maximizing private involvement, developing domestic PLTS industry, and encouraging the creation of efficient funding systems and patterns involving banking.²

The shift in energy use currently dominated by the use of fuel to alternative energy should be immediately made a roadmap by the Government to search and diversify alternative energy sources that can be mapped, as well as seek the best solutions from the weakness or lack of any alternative forms of energy that has been mapped. This roadmap will be a guide for the government in carrying out every policy in the energy sector, whether it is the policy directly from the head of state, coordinator ministers, as well as policies issued by the Minister of Energy and Mineral Resources of the Republic of Indonesia as the responsible of energy sector.

The national energy crisis, continues to be the talk that arises in the midst of our public space. Why, because the current reserves of national energy resources are supposedly abundant as if only an empty pepesan. Facts in the field found many cases of fuel shortages (BBM) that increasingly catapulted commodity prices. Instead of Jokowi-JK government began his government's performance by raising the price of fuel. In addition, the presence of foreign investment in the oil and gas sector in Indonesia, often siphoning the results of oil and gas abroad. The increase in fuel prices in 2014 also caused inflation to increase by 7-8%. This implies an increase in the prices of other goods that weaken the purchasing power and living standards of the community. Certainly, it is increasingly adding to the national energy resource and mineral resources management series. A country has no asset of energy resources but has sufficient energy stock to support the needs of its people at affordable prices, and can support industrial production activities to support its economic growth. Energy sovereignty is the right of every country and nation, by reinforcing its independence in determining the direction, strategy and policy of energy management for the needs of the nation itself and not dependent on foreign parties.³ Therefore, in line with Kusno's opinion that the state energy management policy should be implemented independently.

Policy is the implementation of government politics issued in various forms, but broadly not only the government can issue policy, because the policy in the form of law must be made jointly between the government and the legislative (DPR RI, DPRD, and DPD) so that the legislature also here plays an important role in issuing political policies as a representation of the people of Indonesia, but apart from that all, in the narrow sense of government that has a larger portion of running the organization of the state, because the Republic of Indonesia embrace presidential system. Consumption of high enough fuel and dominant in Indonesia make alternative energy potential must be maximized utilization and eksplorasinya by government, but of course need planning of short term, medium term, and long term, besides appropriate policy also take precedence, meaning that the need for government policy in the energy sector is very high.

Solutions for Making Energy Use Policy in West Halmahera Regency

Mining and Energy Office of North Maluku Province said North Maluku has enormous renewable energy

¹ Administrator ESDM, Potensi Energi Baru Terbarukan (EBT) Indonesia, see <http://www.esdm.go.id/berita/37-umum/1962-potensi-energi-baru-terbarukan-ebt-indonesia.pdf>

² Ibid.

³ Hery Susanto, Recovery Kebijakan energi Nasional, see http://www.kompasiana.com/www.komunal.com/recovery-kebijakan-energi-nasional_54f3a2707455139f2b6c7d10

potential, especially geothermal but has not been fully utilized as a source of energy. "According to the survey results, in North Maluku, geothermal potentials are found at several points such as in West Halmahera, North Halmahera and South Halmahera, each of which can generate about 200MW electrical energy". If the geothermal potential is utilized as a source of electrical energy will be able to meet the needs of electricity in Halmahera and surrounding areas, both household and industry, so that it can replace the dependence of electrical energy generated from electricity sources using diesel fuel fuels such as Power Plants Diesel (PLTD). But unfortunately, the potential of renewable energy that can save the state's financial burden from electricity subsidies to hundreds of billions of dollars per year that until now has not been fully utilized and the cause is at the central level.¹

Actually, there are already a number of companies interested to exploit the potential of geothermal to be Geothermal Power Plant (PLTPB), Actually there are a number of companies interested to exploit the potential of geothermal into a Geothermal Power Plant but to realize the company is constrained by the relatively small purchase price of electricity offered by State Electricity Company (PT. PLN) to the company. According to the Mining and Energy Agency, PT. PLN only offers the purchase of electricity generated by the company that will build the PLTPB amounting to six US cents per KWH, while the company wants an economy price of above 10 US cents per KWH. PT. PLN actually does not lose if buying electricity from companies that build PLTPB is above 10 US cents per KWH, due to the fact that during this time the cost incurred PT. PLN for PLTD operations reached 35 US cents per KWH, but somehow why PT. PLN stands at a price of six cents per KWH. The Mining and Energy Office expects the new government to pay attention to this matter, since the unused geothermal potential in North Maluku is very detrimental to this region, especially in an effort to attract investors to invest. North Maluku has abundant natural resources, especially in the mining, fishery and plantation sectors, but industries that utilize that potential are absent because of the limited electrical energy in this area.²

As mentioned earlier, that by the nature of its availability energy can be divided into two types of energy sources, namely renewable energy resources and non-renewable energy resources. Today most of the energy used commercially is a type of non-renewable energy derived from fossil energy sources. Due to the non-renewable nature of fossil energy reserves, production and utilization are required to be efficiently cultivated and can provide optimal added value. Renewable energy use should be widely encouraged to reduce the use of non-renewable energy and increase local supply independence. This is intended, so that the continuity of the availability of this type of energy can be maintained in a longer time and the benefits can be used optimally. When viewed from the process, energy is categorized into primary energy and secondary energy. Primary energy is a type of energy obtained directly, while the secondary energy to obtain it required the conversion process or transformation. This type of secondary energy is a type of energy that is easier to use. Electric power as one of the secondary energy, its utilization is so easy, so in the era of industrialization and modernization the role of energy, especially electric power becomes very important and can even be categorized as the basic needs that must be met.³

In dealing with the use of energy and electricity continues to increase, it is necessary a policy on the provision of energy and electric power. In policy-making it is necessary to be supported by a study of energy supply considering the factors of availability of energy sources, technology, financing and needs. The energy supply capability should be adjusted to the expected needs for the corresponding energy types in the same period. The study can be done with several scenarios through demand or supply. The sources of energy owned by West Halmahera Regency are quite diverse, whether contained in the earth or on the surface of the earth. Some of these types of energy exist that can be directly utilized in meeting the energy needs and some have to go through the transformation process to be used as final energy.⁴

Primary energy forms in West Halmahera regency, among others: geothermal, sea, wind, hydropower and the sun. Based on this and see the importance of the source and utilization of alternative energy in the current era, and already exist Regulation of West Halmahera Regent Number 16 Year 2015 on Alternative Potential Based Energy Management Plan of West Halmahera Regency, then it should be important factors above can be a solution/encouragement of the making of other special policies related to the use of alternative energy in West Halmahera either in the form of local regulations, or even it could make the spirit of North Maluku Provincial Government to make special rules or at least the governor's regulation on Alternative Potential Based Energy Management Plan in North Maluku Province. However, with the policy of West Halmahera Regent which is directly related to alternative energy regulation, the policy of Regulation of West Halmahera Regent No. 16 of 2015 on Alternative Potential Based Energy Management Plan of West Halmahera Regency needs to be

¹ Interview of journalist Sinar Harapan Daily with Saiful Bahri (Mining and Energy Office of North Maluku Province) Year 2014, *Malut Kaya Potensi Energi Terbarukan*, Khususnya panas bumi, namun belum dimanfaatkan secara maksimal, see <http://www.sinarharapan.co/news/read/140820143/malut-kaya-potensi-energi-terbarukan>

² Ibid.

³ Nam Rumkel, et.al., Loc.Cit.

⁴ Ibid.

appreciated as the first step of the foundation of West Halmahera Regency and interested parties to seek, develop, utilize the potential of alternative energy sources available.

IV. Conclusion

In the future, local governments can formulate and make Regional Regulations of the Province of North Maluku and West Halmahera Local Regulations in accordance with alternative energy characteristics owned by provinces and regency based on Article 33 Paragraph (3) of the 1945 Constitution of the Republic of Indonesia, Law of the Republic of Indonesia Number 33 Year 2004 concerning Financial Balance between Central and Regional Government (State Gazette of the Republic of Indonesia of 2004 Number 126, Supplement to the State Gazette of the Republic of Indonesia Number 4438), Law of the Republic of Indonesia Number 30 Year 2007 on Energy (State Gazette of the Republic of Indonesia Year 2007 Number 96, State Gazette of the Republic of Indonesia Number 4746), Law of the Republic of Indonesia Number 4 Year 2009 on Mineral and Coal Mining (State Gazette of the Republic of Indonesia Year 2009 Number 4, Supplement to State Gazette Number 4959), Law of the Republic of Indonesia Number 9 Year 2015 on the Second Amendment to Law of the Republic of Indonesia Number 23 of 2014 on Regional Government (State Gazette of the Republic of Indonesia Year 2015 Number 58, Supplement to the State Gazette Number 5679), Government Regulation of the Republic of Indonesia Number 79 Year 2014 on National Energy Policy (State Gazette of the Republic of Indonesia Year 2014 Number 300, State Gazette of the Republic of Indonesia Number 5609), Regulation of the President of the Republic of Indonesia Number 5 Year 2006 concerning National Energy Policy, Decree of the Minister of Energy and Mineral Resources of the Republic of Indonesia Number 1456.K/20/MEM/2002 on Guidelines for the Management of Karst Areas, Decree of the Minister of Energy and Mineral Resources of the Republic of Indonesia No. 1457.K/20/MEM/2002 on the Technical Guidelines for Environmental Management in the Field of Mining and Energy, Decree of the Minister of Energy and Mineral Resources of the Republic of Indonesia Number 0459.K/30/MEM/2013 Assignment of Geothermal Introduction Survey to PT. Star Energy Geothermal Indonesia Mount Hamiding Region of North Halmahera Regency and West Halmahera Regency, North Maluku Province, and the spirit of West Halmahera Regent's Regulation Number 16 Year 2015 on Local Potential Alternative Energy Management Plan of West Halmahera Regency can be a driving force for the provincial government in making a similar policy to create synergy between North Maluku Province Government and West Halmahera Regency Government in searching, develop, utilize the potential of alternative energy sources in accordance with regional characteristics.

To encourage the creation of this matter, this paper is expected to be the driving force behind the issuance of all regulations and policies, both at the level of North Maluku Province Government and West Halmahera Regency Government in seeking, developing, utilizing the potential of alternative energy sources in accordance with the regional characteristics.

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