

The Sustainability of Fossil Energy Development in Indonesia: Heading to Awry and Backfires Policy?

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ABSTRACT

Geopolitical risks have threatened oil and gas development in Indonesia since the 1970s when global commitment to the environment was increased. Stakeholders made various efforts to match the SDGs as global community goals with the development of energy security in developing countries that depend on oil and gas. Implicitly, the global community wants all countries to share resources. Developed countries contribute their human resources and capital; while developing countries provide the natural resources and energy they have. In the last two decades after the 1998 Reformation, Indonesia is still struggling with unstable economic growth and its dependence on imported fossil products. This study was conducted through qualitative research by examining various theories and concepts, as well as relevant laws and regulations in Indonesia. In conclusion: the development of energy security in Indonesia faces a delay in its legal system from global change; *het recht hink achter de feiten aan*. However, it creates not only global investment challenges on the one side, but also opportunities to bargain for positions on the other side. A fair legal framework expects a balance of benefits and risks of developing fossil energy so that legal disharmony and high cost economics are eliminated. This conclusion requires a variety of transdisciplinary research to identify legal instruments or structures that embody an ecosystem approach.

Keywords: *oil and gas development, share resources, direct investment, disharmony of law and high-cost economics, transdisciplinary research*

1. INTRODUCTION

Naturally, Indonesia has abundant energy resources, both fossil energy and New and Renewable Energy (NRE) [1]. The problem is the increasing of the domestic fuel consumption is higher than the oil production. The production decline occurred due to the mature oil production wells and the limited new production wells. Meanwhile, before the year of 2019 reserve discovery rate compared to production (Reserve Replacement Ratio, RRR) is 50%. It means that Indonesia is more producing than discovering oil reserve. [2]

The latest good news from the Government is that in 2019, although RRR target is 100%, thanks to the approval of development proposals (Development Plans) in 5 RRR projects, the target can exceed 105% [3]. According to Director General of Oil and Gas at the Ministry of Energy and Mineral Resources Djoko Siswanto, the increase in RRR was supported by POD I approval in five areas consisting of four POD I approvals from PSC Cost Recovery and one POD I approval from Split Gross PSC. The agreed PoD amounts are from: (i) Batanghari Block, Kenanga Barat Utara Field, Operators: PT Gregory Gas Perkasa; (ii) Wain Block, Karamba Field, Operators: PT Pandawa Prima Lestari; (iii) Kasuri Block, Smoke Field, Kido and Merah, Genting Oil Kasuri Pte Operators; (iv) Bukit Barisan Barat Block, Sinarmas Field, Operator of PT

Riski Bukit Barisan Energi; (iv) Blok Sepinggan Timur, Marakes Field, Eni East Sepinggan Ltd. Operator "The total estimate received by the government from five POD approvals is around USD 3.9 billion," Djoko Siswanto said through his official statement on Monday (1/14/2019)) [3]. Meanwhile, based on data from the Directorate General of Oil and Gas at the Ministry of Energy and Mineral Resources, Indonesia's ratio of oil and gas replacement reserves in the past year from 5 POD I approvals reached 542 million barrels of oil (mmbbl) for oil and 555 billion standard feet cubic (bscf) for gas.

Actually, since 2004 Indonesia had become a net importer of oil and gas. One third of Indonesia's oil fuel consumption in 2016 was supplied by imports. If the increase in this oil fuel-dominated demand is not followed by any changes in the pattern of energy consumption, the energy sustainability and security of Indonesia will be disrupted.[4] Indonesia's oil reserves in 2016 were 7,251.11 MMSTB or decreased by 0.74% compared to 2015. Similar to oil, natural gas reserves also decreased against last year by 5.04%. According to data from Special Task Force for Upstream Oil and Gas Business Activities (SKK Migas), oil reserves that have been produced were about 92.1% of total reserves, while natural gas reserves that have been produced amounted to 34.5% of total reserves. Oil production currently stands at 338 million barrels and, with the existing proven reserves, oil reserves will be exhausted in the next nine years. Likewise, the

proven reserves of natural gas with the current R/P condition is estimated to be exhausted within 42 years.[4] Such conditions have a serious impact on not only the national economy, but more important is on the energy security. Compare with what happened was in Iran as an dependent oil and gas country, the situation of financial inequalities and rampant poverty in the country on the early year of 1950s, gave rise to a social movement [5]. Nowadays, Indonesia's economy in the last five years continues to improve along with the consistent infrastructure development that focuses on equitable distribution including energy resources infrastructure. [4] The potential cannot guarantee the target of energy security development yet.

Most of the oil and gas supply is used to meet the local demand of industry, power generation, transportation, household, commercial, and others including city gas, lift and reinjection gas, and own use gas. Besides supplying domestic demand, oil and gas were also use as export commodity. In general, Indonesia is the country with the largest energy consumption in Southeast Asia and fifth in Asia Pacific in primary energy consumption, placed after China, India, Japan and South Korea. High GDP growth, reaching an average of 6.04% per year for the 2017-2050 period, is expected to increase Indonesia's oil fuels demand in the future. This will escalate Indonesia's role both in the world energy market and in efforts to decrease global greenhouse emissions. Meanwhile, Indonesia oil reserve share is only 0.2% from the total world oil reserve [4].

The goals in SDGs are simultaneously propagated based on various universal principles so the legislators will find ambiguity when concretizing the principles. The related legal norms are built un-harmonized and overlapping. These environmental principles have an impact on the dichotomy of legislation in the field of fossil energy development in Indonesia. However, the Government should always promise to maintain the momentum of economic improvement by continuing to promote sustainable development.

Until now there are still pros and cons to the sustainability of this fossil energy. The pros say that oil and gas industry needs a fair legal framework that supports to get all the benefits and to mitigate the risks as well. In recent decades, Indonesia's policy on one hand tend to decrease the utilize of fossil energy but on the other hand the local demand is still high. Moreover, the surplus of oil and gas production will indeed support to cut dependence on imported fossil energy products. The cons argue that oil and gas industry has more risks than benefits especially risks of environmental degradation that leave problem for the future.Regulation related to the fossil energy development should have to balance the benefits and risks. Oil and gas resources development has many potential benefits including employment creation, wealth sharing, and improved service delivery. However, the development of such fossil energy can also lead to economic inequality, displacement, loss of traditional lifestyles, and significant environmental damage [6].

1.1. Our Contribution

This paper presents several supporting aspects that are in line with the deconstruction of Indonesia's fossil energy development. These aspects explain related policies undertaken between the period 1998 to 2018 to attract further direct investment in the oil and gas industry in Indonesia. The main negative impact of these pros and cons is the formation of awry policy and tends to be a boomerang for its stakeholders (backfires policy). The area of concern identified that awry and backfire policies caused not only disharmony laws but also high-cost economies.

1.2. Paper Structure

The rest of the paper is organized as follows. Before explaining further "awry and backfires" policies in the Section 3, the paper describes some legal issues related to the management of fossil energy in Indonesia in Section 2. Section 4 (Disharmony of Fossil Energy Law) and Section 5 (High Cost Economy) are the direct impact of such condition specifically to the incoming investor. Section 6 (Geopolitical Risk) and Section 7 (Transdisciplinary Research) are the "action and reaction" section in order to balance the environmental protection and the development of fossil energy in Indonesia. Finally, Section 8 concludes the paper.

2. THE MANAGEMENT OF FOSSIL ENERGY IN INDONESIA

In order to regulate the use of national fossil energy, the Government of Indonesia issues policies in the form of laws, government regulations, and regulations of the Minister of Energy and Mineral Resources. Nationally, all of these regulations refer to Law Number 30 Year 2007 concerning Energy. As a long-term policy reference, the Government has issued a National Energy Policy as stipulated in Government Regulation No. 79 of 2014 which contains targets to meet national energy needs by 2050 from various existing energy sources.

The basic rules governing the supply and allocation of oil and gas in Indonesia have been arranged hierarchically in several laws and regulations such as: Article 33 of the Basic Law 194, Law Number 22 of 2001 concerning Oil and Gas, Law Number 30 Year 2007 concerning Energy, Government Regulation Number 35 Year 2004 *juncto* Government Regulation Number 55 Year 2009 concerning Upstream Oil and Gas Business Activities, Government Regulation Number 36 Year 2004 *juncto* Government Regulation Number 30 Year 2009 concerning Downstream Oil and Gas Business Activities, Regulation Government Number 79 concerning National Energy Policy.

More technically, related to investments in oil and natural gas, several regulations of the Minister of Energy and Mineral Resources (ESDM) were issued, such as

Regulation of the Minister of Energy and Mineral Resources No. 29 of 2017 concerning Licenses in the Business of Oil and Gas Activities. The purpose of the issuance of this regulation is to improve a more conducive investment climate and to facilitate the implementation of oil and gas business activities. In addition this regulation intends to regulate licensing in oil and gas business activities so that licensing becomes simpler, more transparent, effective and accountable.

In line with the current Government policy regime, the development of oil and gas commodities will then shift from fossil energy to other forms of new and renewable energy. The declining of oil and gas energy potential has encouraged the government to put New and Renewable Energy Potential (NRE) as the main priority to maintain energy security and independence since NRE potential is huge to be the source in national energy supply in the future. One of the regulation in related to the NRE development is Government Regulation number 79 year 2014 governing National Energy Policy. The Energy Source of NRE are Hydro, Geothermal, Tidal, Bio-energy, Solar, Wind and Hybrid, Marine Energy, Shale Gas, and Coal Bed Methane (CBM). The Government has also encouraged the utilization of renewable energy (RE) in power generating sector as regulated in MEMR Regulation No. 12 of 2017 and as a fuel is in accordance to MEMR Regulation No. 12 of 2015.

Further consideration of the importance of NRE utilization, the government has issued Presidential Regulation No. 22 of 2017 concerning the General Plan of National Energy (RUEN) was enacted on March 13, 2017. RUEN was prepared in order to regulate policy harmonization in energy utilization especially industrial zone development, licensing simplification and One Stop Integrated Services, and concerning land use and particular land use license, the NRE development need coordination with Ministry of Environment and Forestry. RUEN also regulate state and national banking support and national industry support with specific mechanism.

To achieve independence and resilience of national energy as stated in its parent regulation, Government Regulation No. 79 of 2014 on National Energy Policy (KEN), RUEN describes the priorities of Indonesia's energy development which includes several things, namely the use of maximum renewable energy by taking into account the level of economy, minimalizing the use of petroleum, optimization the utilization of natural gas and new energy and define coal as a mainstay of supply national energy.

3. "AWRY AND BACKFIRES" POLICY

The development of fossil energy in Indonesia must be supported and enhanced by the formulation and implementation of policies. Various laws and regulations have been enacted since the 1998 Reformation based on previous amendments to the 1945 Constitution (1945 Constitution). Specifically, the Government has established various policies and programs to encourage oil

exploration and exploitation in order to increase national oil reserves.

In line with global community goals, the government of Indonesia has stipulated creating energy security as one of the three main targets in RPJMN (National Medium Term Development Plan) 2015-2019. The energy security is created by increasing the role of renewable energy [7]. In addition to energy security, the government has also set two other targets: (i) Indonesia will move out of the middle income trap and become a high-income country by 2030; and (ii) food self-sufficiency. Similar to SDG, poverty reduction (6% to 8% in 2015 to 2018) and increase in GDP per capita (should be around USD 7000). The main driving factors in the consideration of energy demand include population growth, economic growth, technology development, and energy prices as we have discussed above.

Implicitly, the global community wants all countries to share resources by forcing the issue of renewable energy. The sharing is proceed when developed countries contribute their human resources and invest their capital, while developing countries provide the natural resources and energy they have. Within European countries, the hundreds of different legal tools used with the aim of promoting renewables. While in Africa, Ladan (2018) wrote an article that focused on SDGs and its link with effective domestic environment and climate change law and policy. The article emphasizes on SDGs issue coming from United Nations, policy on climate change and human rights from the local Government, and the cooperation on environmental law. Topics include the effectiveness criteria of law and policy, the role of law and parliaments in the realization of the SDGs, especially in Africa, and alternatives for domestic implementation of the SDG framework. [8]

But the dichotomy is whether the government will support the discovery of NRE or focus on developing fossil energy? Which one is the priority now? On one hand, NRE is in line with the goals of the global community which claims to be environmentally friendly energy; but on the other hand, oil and gas are in line with the goals of the local community who are still struggling with efforts to reduce dependence on imported energy products. It seems that the oil and gas industry will face several awry policies.

Another dichotomy is whether the Government will continue or will stop the oil and gas industry itself? If the main tension is that oil and gas products will poison the air and endanger the area, then the Government tends to stop the development of oil and gas. It should also be noted that since 2015 until now, Indonesia's upstream oil and gas industry has experienced an era of reform from petroleum to natural gas. The development of oil and gas discoveries is dominated by natural gas field findings, especially in Eastern Indonesia. The challenges and obstacles faced today are findings that are located in several marginal and deep sea areas. Relevant policies will be strict on environmental impacts, otherwise they will backfire to damage the environment. It seems that the fossil industry will face several boomerang policies.

It is timely to revisit the development of the fossil legal framework in Indonesia, considering the importance of foreign investment in oil and gas field.

4. DISHARMONY OF FOSSIL ENERGY LAW

The main negative impact of the awry and backfires policy is disharmony of Law. For example the provisions in Article 31 paragraph (2) of Law Number 22 Year 2001 concerning Oil and Gas which states that state revenue in the form of taxes consists of: taxes, import duties, import and excise duties, regional taxes and regional user fees. While paragraph (4) letter b states that the obligation to pay taxes is carried out in accordance with the provisions in the taxation field. This means that the taxation problem in the Oil and Gas field must also refer to Law Number 12 of 1985 as amended by Law Number 12 of 1994 concerning Land and Building Tax, Law Number 8 of 1983, as amended by Law Number 18 of 2000 and Law Number 42 of 2009 concerning Value Added Tax of Goods and Services and Sales Tax on Luxury Goods, and Law Number 28 of 2009 concerning Regional Tax and Regional Retribution.

The problem arises also because there is no strict regulation regarding the synergy of oil and gas mining with environmental conservation. Law No. 22/2001 concerning Oil and Gas has not explicitly regulated planning in synergy with Law No. 32/2009 concerning Environmental Protection and Management. Article, paragraph, letter and number in both laws should contain aspects of environmental protection and management; Must contain and determine the principles of prudent environmental protection and management, prevention of pollution and / or environmental damage, and the polluters pays principle; Must determine the stages of environmental protection and management from the stages of planning, utilization, control, maintenance, supervision, and law enforcement; must contain strict sanctions.

Furthermore, the regulation in Government Regulation Number 23 Year 2015 concerning Collaborative Management of Oil and Natural Gas Resources in Aceh, which is the implementation of Article 160 of Law Number 11 Year 2006 concerning the Government of Aceh, from the viewpoint of hierarchical theory should not deviate from the Law, in this case Law Number 23 of 2014 concerning Regional Government. Then it is necessary to harmonize Article 14 and Article 399 of Law Number 23 of 2014 concerning Regional Government, Article 156 of Law Number 11 of 2006 concerning Aceh Government and Government Regulation Number 23 of 2015 concerning Collaborative Management of Natural Oil and Gas Resources in Aceh.

5. HIGH-COST ECONOMY

The all-round (awry) and boomerang (backfires) policy can also lead to a high-cost economy which in turn will reduce the interest of foreign investors in the oil and gas

sector in Indonesia. Foreign direct investment is very vulnerable to this problem because in practice they have difficulty facing changes in regulations that tend to increase company operating costs. The results of the Fraser Institute survey in the "Global Petroleum Survey 2018" state that Indonesia tends to change with respect to government and ministerial regulations related to the oil and gas industry, which reduces investment decisions. In addition, a poorly designed gross split contract system makes investors disappointed. The indication is that the regulatory process is uncertain and biased. [9] The Ministry of Energy and Mineral Resources in 2018 has indeed begun to make changes to the oil and gas contract system, from what was once a cost recovery system, to a gross separation system. Cost recovery is an investment scheme in which the initial exploration and production costs are borne by the Cooperation Contract Contractor (KKKS), which will then be paid by the government in the form of oil and gas revenue sharing. Whereas in the gross split scheme, all operational costs are borne by the KKKS, which later the government will only get a definite share of profit. [9]

But indeed, this new scheme was launched in 2018, while at the same time, many KKKS were already operating in Indonesia. The gross separation scheme is not directly applied to PSCs that are already operating, but still, changes to the regulations mean that companies must reorganize the operating scheme until the flow of funds. Because at the beginning of investment, profit-loss planning affects the way the company works. Especially if changes in regulation occur when many assets have been built, the calculation at the beginning of the investment will all be wrong. Especially in Indonesia, the rules of employment contracts are only governed by the regulations of the Minister of Energy and Mineral Resources. This means that there is a concern that if the minister changes, the regulations can also change quickly. [9]

There are still a number of problems that must be addressed when implementing a gross split profit sharing contract scheme [10]. This effort will only be considered successful if investment in the upstream oil and gas sector increases. Although the government claims that this scheme provides many benefits for the country which can then be utilized for the prosperity of the people in accordance with the Indonesian constitution. [10]

6. GEOPOLITICAL RISK

National oil and gas industry is relatively vulnerable. The decreasing world oil prices since 2015 toward the point of balance, has an impact on the sluggish investment climate of oil and gas industry in Indonesia. Recorded investment in 2016 decreased approximately 29,18% or US\$ 5,247.97 million compared to 2015. In other words, at a macro level, the oil and gas market depends on the international energy market which is strongly influenced by price volatility. The ability of oil and gas adaptation to prices is largely determined by the availability of infrastructure, contracts

for buying and selling agreements between producers and consumers and the business people involved in them. Under these conditions, the government should have to change the business pattern in the oil and gas industry in Indonesia. [11] The vulnerable price is the first geopolitical risks of Indonesia's oil and gas industry. In addition to vulnerable prices, there is a second geopolitical risk, namely the tension of global environmental problems. Normatively, the problem of global to local environmental governance lags behind science about the seriousness of environmental challenges and the combined development. Governance regimes have developed differently in different issue areas and are often inconsistent and contradictory; then governance innovations in each field lead to new challenges. By examining the nature of governance in the areas of climate change, water and forests, Gupta (2015) concludes that (a) there is a strong normative and architectural inconsistency between fragmented and plural specific issue regimes; (b) that such inconsistencies are inevitable in the 'anarchist' international order; (c) that a degree of normative coherence can be pursued through the adoption of global constitutionalism and the rule of law; and (d) that the current discussion about the goals of global sustainable development is the first step towards creating a normatively consistent global architecture for sustainable development. [12] From the first created, the term "sustainability" requires the integration of the environment into all development strategies and in all countries, not merely imposed on the underdeveloped countries [13]. Instead of criticizing it, many countries prefer to enter into a global agreement for sustainable development and promote respect for human rights for all without distinction as a goal of the global community.

7. TRANSDISCIPLINARY RESEARCH

Due to the tension from some environmental principles, Indonesia's government should have to conduct more research, transdisciplinary research. The concept of socio-ecological systems has been developed in order to provide both a promising scientific gain as well as impact on problems of sustainable development. A close conceptual and methodological relation exists between the analysis of socio-ecological systems, complexity research, and transdisciplinary.

For instance in Canada, a developed country that has abundant oil and gas resources, there is the Fraser Institute which independently conducts research throughout the world. Headquartered in Vancouver, Canada, and has regional offices in Calgary, Toronto and Montreal. Actually, they produce research on government actions in areas that greatly affect Canadian quality of life such as taxation, health care, indigenous issues, education, economic freedom, energy, natural resources, and the environment.[9] On November 29, 2018, the Fraser Institute published the results of its research entitled "Global Petroleum Survey 2018" which showed that oil and gas investigations in Indonesia were hampered by

regulations. The respondent's background used by the Fraser Institute is quite acceptable, given that this position is indeed very involved in determining the direction of company policy. The companies selected in this study are also in line with the research theme, where around 57% of them are actively involved in oil exploration and development activities, while 41% are active in exporting and developing natural gas. In this study, Indonesia is included in the group of regions that have the largest oil and gas reserves, amounting to 21.92 bboe. (billion billion barrels of oil equivalent).

According to this research, Indonesia is less attractive to invest in the oil and gas exploration and production sector compared to most other regions in the world. This research also shows that Indonesia is ranked 71 (10th from the bottom) with a PPI value of 47.16. Indonesia also still lost to Malaysia, which is perched at position 49 with a value of 64.52. PPI value varies from 0 to 100, which is getting bigger, which shows the high interest of respondents to invest. Some of the most dominant causes are domestic oil and gas regulations which tend to change [9]. Indeed, this research does not always mean that Indonesia is not at all interested in investors. But in providing the desired investment climate, the top priority that must be considered are government regulations.

Some other instances of transdisciplinary researches: the treats of oil and gas project to the wilderness, biodiversity, and indigenous peoples in a certain area [14]; long-term gas extraction which induced earthquakes [15]; microbial communities associated with barley growing oil sands reclamation area [16]; negative impact of particulate matter emissions from the expanded oil sands development on the regional air quality and climate change [17]; the consequences of oil and gas development for the distribution of vegetation cover and for species persistence [18]; the impacts of oil and gas operation to the air near the projects that conduct horizontal drilling, hydraulic fracturing, and other drilling and well stimulation technologies which are now used widely in some countries [19]; and the effect of shallow natural gas well structures and associated roads on grassland song bird population declines due to habitat loss and degradation [20]. The aim of those researches are to identify legal instruments or structures realizing an ecosystem approach [21] in responsible experts and policymakers avoiding conflicting approaches to policy-making.

8. CONCLUSION

The sustainability of fossil energy security in Indonesia is highly dependent on geopolitical risks. The main factor is the global-ecological issue which blames oil and gas as non-renewable natural resources, and the industry may poison the water and harm the area. Meanwhile, the sustainability development focuses on propagating renewable-environmental-friendly energy resources. Such developments must be in accordance with the scale of ecological and legal resilience which is online with the global community goals. This condition creates away and

backfires policy in which the concrete form is the disharmony of the law and high-cost economy. Transdisciplinary researches also need to conduct since such research are the ultimate on global environmental issues that have been supported by the meta-principle of sustainable development.

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