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The Green Investment Effect on the Regulation of Idle Well Management Cooperation Contract Schemes

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Abstract

This research delves into legal issues surrounding the impact of green investment on cooperation contracts managing idle wells in Indonesia, Malaysia, and Equatorial Guinea. In alignment with green investment principles, the Indonesian Government has implemented various schemes to enhance the effectiveness of exploration and exploitation activities in the oil and gas sector. Presently, efforts to boost oil and gas production involve reactivating idle wells, yet there is a regulatory gap concerning the transfer of this work to cooperation contract contractors. To address this, the study compares how Malaysia and countries in the Guinea Region, adopting green investment practices,

manage idle wells. Employing a socio-legal methodology, the research draws on field research, legal sources, articles, journals, and related news. The findings highlight the crucial role of acknowledging the ongoing significance of oil and gas while recognizing the imperative to transition sustainably, exemplified by Indonesia's commitment and the potential application of the Production Sharing Contract (PSC) scheme in shaping the future of non-fossil energy sources in the realm of upstream oil and gas investment.

Keywords *green investment, idle well, upstream oil and gas*

Introduction

Indonesia is a country with immeasurable natural wealth. As a country blessed with this wealth, it is only fitting that the Indonesian people take advantage of this wealth in good management for the welfare of its people. The management of natural resources in Indonesia has been regulated explicitly in the 1945 Constitution of the Republic of Indonesia, namely precisely in article 33, paragraph 3, which in outline reads that all-natural wealth in Indonesia is fully controlled by the state, which is used to provide welfare to people of Indonesia.[1] Regulated by the state in this case further illustrates that the Indonesian Government has complete control over the affairs of natural wealth management in Indonesia. One example of Indonesia's natural wealth, which has a vital role, especially in the country's economy, is oil and gas wealth. The largest source of state revenue is in the oil and gas sector, with the realization of upstream oil and gas investment in 2023 expected to reach USD 13.7 billion, equivalent to approximately IDR 210 trillion. This marks the highest recorded figure since 2016.

[1] Muhammad Fajri, "Analisis Hukum Skema Kontrak Gross Split Terhadap Peningkatan Investasi Hulu Minyak Dan Gas Bumi," *Jurnal Hukum & Pembangunan* 50, no. 1 (July 13, 2020): 54, https://doi.org/10.21143/jhp.vol50.no1.2482.

Furthermore, non-tax state revenues (PNBP) from the upstream oil and gas sector in 2022 are projected to total US$18.19 billion or around IDR 269 trillion.[2] Therefore, Indonesia pays extra attention to this sector because apart from being the most significant contributor to state revenues, it is also a vehicle for meeting the energy demand both domestically and abroad. Law Number 22 of 2001 on Oil and Gas stated that the Government has the authority to oversee and conduct upstream oil and gas operations through various cooperation agreements such as production sharing or other forms of contracts. These agreements in oil exploration or exploitation should prioritize the Government's profitability to ensure economic fairness and the well-being of local communities. [3]

The strategy adopted by the Government to achieve this target is to optimize existing field production through the reactivation of idle wells, which are wells containing oil and gas that cannot be developed economically.[4] Idle wells have been inactive due to prolonged production shutdowns or fluid injection. In the economic sector, the reactivation of idle wells will have a positive impact. As we know, oil and gas are among the most significant state revenues, so the reactivation of idle wells can produce more oil and gas.[5] In 2022, Indonesia will have 10,398 wells under the idle well criteria out of 41,514 existing wells.[6] The Government's energy policy will significantly influence the

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[2] N.A Wahyudi, "Top! Penerimaan Negara Dari Hulu Migas 2022 Tembus Rp269 Triliun," 2023, https://ekonomi.bisnis.com/read/20230118/44/1619462/top-penerimaan-negara-dari-hulu-migas-2022-tembus-rp269-triliun.

[3] Abu Syafaat and Erni Ekawati, "Analisis Perbandingan Penerapan Cost Recovery Pada Pengelolaan Industri Hulu Migas Di Indonesia Dan Malaysia: Studi Pada XYZ" (Universitas Gadjah Mada, 2015).

[4] Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, "Lebih Jauh Tentang Eksplorasi Dan Produksi Migas," Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, accessed February 20, 2024, https://migas.esdm.go.id/post/read/Lebih-Jauh-Tentang-Eksplorasi-dan-Produksi-Migas.

[5] M.A Nizar, "Dampak Fluktuasi Harga Minyak Dunia Terhadap Perekonomian Indonesia," *Buletin Ilmiah Litbang Perdagangan* 6, no. 2 (2012): 189–210.

[6] Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, "Tingkatkan Produksi Migas, Pemerintah Dorong Reaktivasi Idle Well," Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, accessed February 20, 2024, https://migas.esdm.go.id/post/read/tingkatkan-produksi-migas-pemerintah-dorong-reaktivasi-idle-well.

development of upstream oil and gas activities. The Government continues to encourage the transition from fossil-sourced energy to new, renewable energy.[7]

Utilization of clean energy cannot be done immediately. The process is slow but sure because the widespread implementation of green energy still requires a transition process.[8] In this transition process, natural gas plays an important role. The Indonesian Government is not just abandoning fossil-based energy sources because the Indonesian Government still has a big target for this energy in 2030, namely producing one million barrels of oil per day (bpd) and a gas target of 12 billion standard cubic feet per day (*bscfd*).[9]

The reactivated well is a production well or an injection well that has been inactive for six consecutive months and does not include forecasted production as a production well. In addition, to develop the activities of the oil and gas sector, the Indonesian government has engaged in a lot of cooperation. In Indonesia's oil and gas sector, collaboration is facilitated through contractual arrangements. The approach to these contracts has shifted from Product Sharing Contract Cost Recovery to Gross Split Production Sharing Contract[10] This

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[7] Kementerian Koordinator Bidang Perekonomian Republik Indonesia, "Pemerintah Terus Mendorong Percepatan Transisi Energi Di Dalam Negeri Guna Mencapai Target Net Zero Emission Pada 2060," Kementerian Koordinator Bidang Perekonomian Republik Indonesia, accessed October 20, 2023, https://ekon.go.id/publikasi/detail/4996/pemerintah-terus-mendorong-percepatan-transisi-energi-di-dalam-negeri-guna-mencapai-target-net-zero-emission-pada-2060.

[8] Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, "Ini Peran Penting Migas Dalam Transisi Energi," Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, accessed December 20, 2023, https://migas.esdm.go.id/post/read/ini-peran-penting-migas-dalam-transisi-energi.

[9] Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, "Permen ESDM 35/2021 Dukung Pencapaian Produksi Migas 2030," Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, accessed February 20, 2024, https://migas.esdm.go.id/post/read/permen-esdm-35-2021-dukung-pencapaian-produksi-migas-1-juta-bopd-dan-12-bscfd.

[10] Havidh Pramadika and Bayu Satiyawira, "Pengaruh Harga Gas Dan Komponen Variabel Terhadap Keuntungan Kontraktor Pada Gross Split," *PETRO: Jurnal Ilmiah Teknik Perminyakan* 7, no. 3 (January 12, 2019): 113–17, https://doi.org/10.25105/petro.v7i3.3817.

transition aims to enhance domestic production despite encountering various fiscal challenges including operational risks, low oil prices, regional competition, uncertain business environment, and high tax rates. To tackle these obstacles, the Gross Split Production Sharing Contract was adopted based on thorough evaluations of profitability and sensitivity, tailored to specific field conditions. Analysis indicates that the Gross Split Production Sharing Contract offers superior economic indicators compared to the Cost Recovery Production Sharing Contract.[11] Under this scheme, profits are derived from production and are divided between the company and the Government, typically contingent on oil prices and average well productivity.[12]

Idle wells are wells that are included in production wells that can still be processed by cooperation contract contractors, but there are no regulations that specifically regulate whether they can be transferred to other partners. So, the management must be carried out by the cooperation contractor. If green investment affects upstream oil and gas, it will affect cooperation contracts and the regulation of idle wells. Therefore, this study will compare the effect of green investment in managing cooperation contracts of idle wells in three countries: Indonesia, Malaysia, and Equatorial Guinea.

Therefore, the legal issues discussed in this paper are related to the effect of green investment in managing cooperation contracts in idle wells in Indonesia, Malaysia, and Equatorial Guinea.

The implementation method used is inseparable from the research method. In this research, the socio-legal method is used, which is presented by presenting various perspectives to answer problems in research related to the management of idle wells based on gross split production sharing contracts and still reviewing the legal principles of their management, although on the one hand, it is also planning to make energy regulations that use the concept of green investment, the legal issues that will be discussed in this paper are related to comparisons

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[11] Saptianta Aribawa Sabaris, Asri Nugrahanti, and Dwi Atty Mardiana, "Comparative Analysis of Indonesia Gross Split PSC with Fiscal Terms of Several Southeast Asian Countries," *Journal of Earth Energy Science, Engineering, and Technology* 3, no. 3 (October 5, 2020), https://doi.org/10.25105/jeeset.v3i3.7964.

[12] M.A.B.P. da Hora et al., "Decision Making to Book Oil Reserves for Different Brazilian Fiscal Agreements Using Dependence Structure," *Energy Strategy Reviews* 26 (November 2019): 100377, https://doi.org/10.1016/j.esr.2019.100377.

of cooperation contracts in the management of idle wells in other countries, that is Indonesia, Malaysia, and Equatorial Guinea. Then, this study uses a conceptual approach so that the primary data collection and processing will be carried out through the stages of analyzing and reviewing laws and regulations and various sources of literature that examine related issues. Based on this, multiple works of literature directly and indirectly related to the research being conducted need to be collected, which will then be carried out in a comparative study in the country that is the research object.

Idle Well Management Cooperation Contract Schemes in Indonesia

Concerning the activities of the Oil and gas sector, in carrying out activities in the oil and gas sector there are 2 (two) types of activities, including[13] exploration which conducted to gather geological data aimed at locating and assessing oil and gas reserves within a specified area of operation and the second one is exploitation which cover all money mining activities aim to produce oil and natural gas from a predetermined place. In this case, the activities consist of drilling and completing wells and building facilities for transportation, storage, and processing to separate and purify the existing oil and natural gas in the area and other activities that support it.

Exploration and exploitation of land is one of the business activities that provides significant income; this is also very much needed in the world economy, primarily because the world economy has struggled to discover more effective alternatives. Therefore, the oil industry has received particular attention, which can support the economic sector by providing world energy for transportation and agriculture and as a source of income for most oil-exporting countries.[14]

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[13] Edy Soesanto et al., "Kebijakan Pemerintah Dalam Penentuan Kontrak Gross Split Sektor Minyak Dan Gas di Indonesia.," *Bhara Petro Energi*, 2023, 8–14.

[14] Didik Sasono Setyadi, Deti Mulyati, and Azeem Marhendra Amedi, "The New Public Finance Implementation In The Production Sharing Contract Scheme For Exploration And Exploitation Of Oil And Gas Resource In Indonesia," *National Journal of Law* 3, no. 2 (October 4, 2020), https://doi.org/10.47313/njl.v3i2.920.

In carrying out oil and gas business activities in Indonesia, the Government continues to strive to create programs that will benefit the state for the prosperity of its people; therefore, a Production Sharing Contract (PSC) system is formed, which is regulated in PP No. 35 of 2004 on Upstream Oil and Gas Activities as an old system and later developed a gross split system controlled in the Minister of Energy and Mineral Resources No. 8 of 2017 on Gross Split Production Sharing Contracts as a new system. The main difference between the old (PSC) and the new (Gross Split) system is in the cost recovery section. [15]

Production Sharing Contract is a method of cooperation agreement used in oil and gas business activities in Indonesia that aims to increase state revenues from natural resources and attract investors from within and outside the country to invest in Indonesia.[16] PSC was first implemented in Indonesia between Pertamina and the Indonesia America Petroleum Company (IIAPCO) in 1966. The Government chose the PSC because it provides a compromise and, at the same time, satisfactory conditions for investment. PSC emphasizes the interests of the parties between the Government and the IOC as contractors by binding both parties who have good faith together.[17] Adopting the Gross Split system in oil and gas exploration yields higher state income than the Cost Recovery model. This enables the Government to alleviate pressure on the state budget (APBN) as operational expenses are now borne by the contractors instead of being charged to the state.[18]

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[15] Patricia Audrey Ruslijanto, Ms Ikaningtyas, and Rika Kurniaty, "The Effect of Cost Recovery Mechanism in Production Sharing Contract (PSC) in Oil and Gas Industry in Indonesia," in *Proceedings of the 2018 International Conference on Energy and Mining Law (ICEML 2018)* (Paris, France: Atlantis Press, 2018), https://doi.org/10.2991/iceml-18.2018.55.

[16] Sang Ayu Putu Rahayu and Rahayu Fery Anitasari, *Hukum Pertambangan: Pengelolaan Sumur Idle Di Indonesia (Perspektif Kontrak Kerjasama Migas)* (CV. Gita Lentera, 2024).

[17] Fakharsyah Hanif Sugiyartomo, "The Legality of Oil & Gas Production Sharing Contract Gross Split Scheme," *Indonesian Journal of Energy* 2, no. 1 (February 28, 2019): 29–37, https://doi.org/10.33116/ije.v2i1.33.

[18] Novianita Rulandari et al., "Valuation of Production Sharing Contract Cost Recovery Vs Gross Split in Earth Oil and Gas Cooperation Contracts in Indonesia and The Aspect of Public Service," *Journal of Physics: Conference Series* 1114 (November 2018): 012132, https://doi.org/10.1088/1742-6596/1114/1/012132.

The emergence of the PSC was first announced to overcome problems that arose due to the limited capital, technology, and human resources that Pertamina was currently facing, especially in exploring and exploiting natural oil and gas mining business activities. In this arrangement, the host country possesses its natural resources, yet the profits are divided between the host country and the oil corporation. Typically, these agreements span from twenty to thirty years. During the exploration phase, foreign oil firms are not obligated to cover recovery expenses if oil is not discovered. Upon oil discovery, a segment of the overall revenue will be designated to contractors to cover oil expenses.[19]

Along with its development, PSC experienced renewal. In PSC Cost Recovery, operating costs, the Government is responsible for the cost incurred and generated during the implementation of natural oil and gas activities, which will be reimbursed by the Government or in Recovery. However, in its development, the PSC Cost Recovery concept raised debate, which was considered detrimental to the country. Therefore, the Government finally designed a new concept where the new scheme no longer included a Cost Recovery component so that the cooperation contractor would bear all operating costs arising from oil and gas business activities.[20]

The new scheme developed by the Government is the Gross Split scheme, which is regulated by the Minister of Energy and Mineral Resources No. 8 of 2017 on Production Sharing Contracts which has the objective of creating effectiveness and efficiency in exploration and exploitation activities, eliminating complicated government bureaucracy, and encouraging PSC contractors to be more flexible in carrying out their activities. The main difference is that no gross split recovery cost must be incurred, so this scheme was ultimately formed to reduce the budgetary burden that the Indonesian Government must

[19] Kasman Arifin and Dina Hidayat, "Cost Recovery Analysis In Production Sharing Contract In Upstream Oil And Gas Industry (Study On Gas Upstream Industries Indonesia)," *Dinasti International Journal of Economics, Finance & Accounting* 1, no. 6 (February 3, 2021): 1023–47, https://doi.org/10.38035/dijefa.v1i6.356.

[20] Seksi Informasi Hukum – Ditama Binbangkum, "Perbandingan Production Sharing Contract (PSC) Cost Recovery Dengan PSC Gross Split," Seksi Informasi Hukum – Ditama Binbangkum, 2022.

incur; this occurs because the initial production burden has become the Contractor's responsibility.[21]

This PSC scheme has been widely applied in various countries that explore and exploit oil and natural gas. As producers of oil and natural gas, most developing countries use production-sharing contracts for their operations because it gives a sense of sovereignty over their petroleum resources. This production-sharing contract has not been universally agreed upon, so it does not have the same characteristics, but each country designs a production-sharing contract according to the primary needs of its country. It should be noted that this arrangement makes national companies of a country not take risks or consider minimal risks in development activities in the field.[22]

In contrast to many other developing countries, Indonesia has an extensive background of discovering oil and gas within its borders. The initial commercial oil discovery in what was then the Dutch East Indies, now Indonesia, occurred accidentally in 1883 when a Dutchman named Aeilko Jansz Zijlker stumbled upon oil near a tobacco field in Langkat, North Sumatra. Following these significant discoveries, which yielded commercially viable quantities of oil, mining regulations were established, and numerous International Oil Companies (IOCs) sought to enter the nation's oil industry. The Royal Dutch Company was founded on June 16, 1890, to extract and refine oil in the region, marking the beginning of operations conducted entirely within Indonesia. Subsequently, the government implemented a concession system, and in 1960, the Indonesian Petroleum Act No. 44 was enacted to govern mineral exploration for oil and gas. Under this act, all international oil companies holding concessions were transitioned to 30-year work contracts to continue production in the areas covered by the old concessions.[23]

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[21] Fajri, "Analisis Hukum Skema Kontrak Gross Split Terhadap Peningkatan Investasi Hulu Minyak Dan Gas Bumi."

[22] Victor D. Ola et al., "Comparative Analysis of Nigeria and Malaysia's Production Sharing Contract (PSC)," *European Journal of Business and Management Research* 6, no. 1 (January 7, 2021): 11–17, https://doi.org/10.24018/ejbmr.2021.6.1.678.

[23] Zakia Vonna, Sri Walny Rahayu, and M Nur, "Compatible Concept of Contract Law with Oil and Gas Production Sharing Contract in Indonesia," *The Social Science Journal* 24, no. 9 (2019): 10–21.

Production-sharing contracts in Indonesia have become popular since they were first introduced in 1960 in Venezuela by Ibnu Sutowo. He introduced this production-sharing contract based on his thinking that, at that time, Indonesia had very abundant oil and gas deposits but did not yet have the financing capability to invest in upstream oil activities, did not have adequate technology for these upstream oil and gas activities and did not have a competent workforce. In 1971, the Indonesian state company, namely PT Pertamina, was established to carry out upstream activities independently so that the natural wealth that was successfully produced could be wholly entered into the state treasury and utilized as much as possible for the prosperity of the people. This was not immediately successful, but in its development, changes have resulted in new schemes that will benefit the state.[24]

Indonesia manages its oil through NOC Pertamina, which carried out regional oil and gas operations until 2001, when BAMIGAS was established to assume control over the Government's upstream oil and gas activities, with defined oversight and supervisory responsibilities. BAMIGAS now manages Cooperation Contracts or Production Sharing Contracts, activities previously handled by PERTAMINA, and currently carries out PSC agreements with twenty-eight companies. Similarly, NNOC (later renamed Nigerian National Petroleum Corporation, NNPC) primarily serves as an intermediary to advance government policies and objectives, negotiating and executing petroleum contracts on the government's behalf. The PSC has evolved into a Gross Split PSC, potentially offering greater profitability for both parties involved.[25]

To increase oil production, the Indonesian Government is currently reactivating idle wells, which are then developed using the PSC to manage these inactive oil and gas wells. The reactivated well is either a production or injection well that has remained inactive for six months and excludes anticipated production as part of the production

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[24] Topan Meiza Romadhon, "Pengaturan Production Sharing Contract Dalam Undang-Undang Minyak Dan Gas," *Jurnal Hukum Ius Quia Iustum* 16, no. 1 (2009): 88–105, https://doi.org/10.20885/iustum.vol16.iss1.art6.

[25] B.R. Anjani and I. Baihaqi, "Comparative Analysis of Financial Production Sharing Contract (PSC) Cost Recovery with PSC Gross Split: Case Study in One of the Contractor SKK Migas," *Journal of Administrative and Business Studies* 4, no. 2 (April 18, 2018), https://doi.org/10.20474/jabs-4.2.2.

well's activity. Currently, no regulations specifically regulate whether they can be transferred to other partners. So, the management must be carried out by the cooperation contract contractors. If green investment affects upstream oil and gas, it will affect the cooperation contracts and the regulation of idle wells. The cooperation contract contractors can still reactivate it, as idle well is their area of work, but since there are still no regulations that regulate it, it cannot be handed over to third parties. In this context, it is advisable for the government to consider utilizing a production-sharing contract (PSC) framework for the administration of dormant oil and gas wells.

Green Investment Effect on the Regulation of Idle Well Management in Indonesia

Green investment is a form of government support for the energy transition,[26] but in Indonesia, the energy transition still cannot eliminate investment in fossil source energy. Green investment entails investing in companies or investment opportunities that prioritize conserving natural resources, developing alternative and renewable energy sources, executing clean air and water projects, and engaging in environmentally-friendly investment activities.[27] Policies supporting green investment both on a national and regional scale are needed not only for environmental responsibility in realizing a green economy but also for the principle of benefits for the business world and investors. Environment, Social, & Government principles as a fundamental foundation in the implementation of green investment that can protect the environment through selective funding need to be operationalized into a set of rules and governance.[28]

Green investment promotes involvement from different societal strata in investing in environmentally conscious assets, ranging from

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[26] A. Marke, *Transforming Climate Finance and Green Investment with Blockchains* (Elsevier, 2018), https://doi.org/10.1016/C2017-0-01389-7.

[27] Dinas Penanaman Modal & Pelayanan Terpadu Satu Pintu Provinsi Jawa Tengah, "Penerapan Green Investment Pada UMKM," Dinas Penanaman Modal & Pelayanan Terpadu Satu Pintu Provinsi Jawa Tengah, 2023.

[28] Medani P. Bhandari and Shvindina Hanna, *Inequality – The Unbeatable Challenge* (River Publishers, 2021).

bonds, mutual funds, ETFs, to stocks or green bonds. This initiative aims to cultivate an investment-savvy generation and position Indonesia as an environmentally, socially, and sustainably governed investment hub. This potential further extends to the aspect of green funding from various sources that expect the distribution of funds to environmentally friendly sectors. At this stage, Bank Indonesia and Bappenas have implemented a strategic plan to accelerate green financing for green businesses. This condition is a potential that still needs to be explored, especially to accelerate the investment climate in Indonesia. The development of various green investment potentials is an important part of encouraging the creation of sustainable businesses.

In terms of the mining business sector, the perspective of green investment will correlate with energy use, in this case, especially energy derived from fossils. This is contradictory to the energy transition because the energy transition itself is a process of changing the use of fossil-based and environmentally unfriendly energy sources into the use of clean and environmentally friendly energy such as solar, water, geothermal, and wind panels. Indonesia has long relied on the oil and gas sector as one of the pillars of its economy.

However, with the increasing need to do business with good ESG principles, the transition to new renewable energy (EBT) or more sustainable and environmentally friendly energy sources is becoming increasingly urgent. In the face of this challenge, Indonesian oil and gas companies are taking steps to achieve net emission targets. In Indonesia's efforts in an effort to carry out the clean energy transition, the Government of Indonesia issued a set of rules starting from Law Number 30 of 2007 on Energy, PP Number 79 of 2014 on National Energy Policy, Presidential Regulation Number 22 of 2017 on the General Plan of National Energy (RUEN), and Presidential Regulation Number 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Supply, which is then followed by a set of technical regulations at the level of relevant ministries/institutions such as the Ministry of Energy and Mineral Resources (ESDM).

Furthermore, the birth of Law Number 16 of 2016 on the Ratification of the Paris Agreement to The United Nations Framework Convention on Climate Change means that the Government of Indonesia has agreed to carry out a commitment to limit the earth's warming temperature to no more than 2 degrees Celsius, which was

later revised in the 2021 Glasgow Climate Pact to 1.5 degrees Celsius. To maintain this joint commitment, the Government of Indonesia in the RUEN makes clean energy development a priority by targeting the use of clean energy/new renewable energy (EBT) at least 23% in 2023 and 31% in 2050.[29]

This clean energy transition process is not an easy thing to achieve. Referring to data from the Ministry of Energy and Mineral Resources, until 2022, the portion of clean energy (EBT) use in the national energy mix has only reached 11.31% in 2020, 12.2% in 2021, and 12.8% in 2022. This percentage is a big job if we are to achieve the clean energy mix target of 23% by 2050. Therefore, there are two ways that the Government of Indonesia can try to achieve the target of a clean energy mix of 23 % by 2025 and a target of zero carbon emissions by 2060. First, there needs to be a government commitment to encourage the development of clean energy / EBT infrastructure, such as renewable power plants (PLT), such as solar power plants, waterpower plants, geothermal power plants, and bio power plants. Second, collaboration with the private sector and the international community.[30] The transition to clean energy requires substantial funding. During budget constraints due to the post-COVID-19 pandemic recovery and the impact of the Russia-Ukraine war, the government needs to cooperate with the private sector in funding clean energy development.

At the 2022 G20 Summit in Bali, several developed countries committed to helping finance the energy transition program in Indonesia through the Just Energy Transition Partnership (JETP) scheme. In this JETP scheme, the government received a funding commitment of around USD20 billion or around Rp 310 trillion, which will be mobilized by International Partners Group (IPG) countries.[31] This funding value is still far from being able to finance all

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[29] A.K. Pakpahan, "Menuju Transisi Energi Bersih," accessed February 20, 2024, https://koran.pikiran-rakyat.com/opini/pr-3036485118/menuju-transisi-energi-bersih.

[30] Agus Eko Setyono and Berkah Fajar Tamtomo Kiono, "Dari Energi Fosil Menuju Energi Terbarukan: Potret Kondisi Minyak Dan Gas Bumi Indonesia Tahun 2020 – 2050," *Jurnal Energi Baru Dan Terbarukan* 2, no. 3 (October 21, 2021): 154–62, https://doi.org/10.14710/jebt.2021.11157.

[31] T. A. Surya, "Pendanaan Transisi Energi Melalui Skema JETP," Pusat Analisis Keparlemenan Badan Keahlian Setjen DPR RI, 2023.

energy transition needs in Indonesia to achieve zero emissions or net zero emissions by 20. Still, it is quite helpful in early infrastructure development. The total financing or investment needed for the energy transition until 2060 is estimated to reach USD 1 trillion, in line with the target of more aggressive use of renewable energy.

Furthermore, the Government of Indonesia needs to find alternative sources of funding other than funding under the JETP scheme for energy transition needs. Although there are currently other funding schemes besides the JETP funding scheme, such as the Energy Transition Mechanism (ETM), Mentari Program, and Green Bond, the value is still much smaller than the JETP funding scheme. Furthermore, the government needs to show stronger dedication to advancing renewable energy as part of the energy transition program, particularly by crafting policies favoring environmentally friendly development and regulations that support and benefit all stakeholders.

Oil and gas companies in Indonesia can reduce their emissions to net zero by taking the following steps:[32]

1) Utilization of Business Intelligence: Companies can use their knowledge and experience in the industry to innovate toward low-emission operations or provide renewable energy supplies. By adopting connected and intelligent systems, companies can optimize their data to make better decisions about capital allocation, investment, and operations.
2) Capital Strategy: Companies can capitalize on investor interest in energy security and energy transition by allocating capital to low-carbon solutions, such as carbon capture, utilization, and storage (CCUS) or sequestration. This will increase investor interest in the company.
3) Energy Portfolio Diversification: Companies can invest in renewable energy sources, such as solar, wind, and bioenergy, as part of diversifying their business portfolio. By reducing dependence on fossil fuels, companies can reduce greenhouse gas emissions.

[32] M. Zulkifli, "Kesiapan Perusahaan Migas Indonesia Mengimplementasikan Net Zero Emission 2050," Kompas, 2023, https://www.kompas.id/baca/opini/2023/11/01/kesiapan-perusahaan-migas-indonesia-mengimplementasikan-net-zero-emission-2050.

4) Technology Innovation and R&D: Companies should encourage technological innovation and conduct R&D to create more efficient and environmentally friendly solutions. The use of technologies such as carbon recovery, the use of low-carbon fuels, and renewable energy in oil and gas operations will help achieve net emissions.

Indonesian oil and gas companies face major challenges in achieving net emissions. Major investments in green technologies, the transition to renewable energy, and business restructuring are complex. However, there is a great opportunity to become a leader in the sustainable energy transition. By adopting ESG practices, complying with regulations, and diversifying business into renewable energy, companies can strengthen operational sustainability, reduce environmental impact, and build trust.[33] Regulatory support and sustainable infrastructure will drive companies to achieve net emissions goals. With mutual awareness and commitment, the company can become a pioneer in the industry and make an important contribution to the environmental and economic sustainability of Indonesia.

The national oil and gas production target of 1 million barrels per day by 2030 is inversely proportional to current global conditions that switch to clean energy.[34] This impacts the lack of financing facilities and funding for upstream oil and gas projects. The investment and energy transition perspective in the mining area cannot be in line because one side of Indonesia needs investors for economic growth, and one side is in the energy transition process. Energy transition has become one of the global issues affecting the world's oil and gas industry. Many countries, including Indonesia, have committed to reducing carbon emissions in the Kyoto Protocol, Paris Agreement, or other international agreements. Several well-known oil and gas companies

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[33] Anetta Kuna-Marszałek and Agnieszka Kłysik Uryszek, *CSR and Socially Responsible Investing Strategies in Transitioning and Emerging Economies* (IGI Global, 2020).

[34] Mediana, "Industri Hulu Migas Masih Diperlukan Pada Masa Transisi Energi," Kompas, 2021, https://www.kompas.id/baca/ekonomi/2021/09/01/industri-hulu-migas-masih-diperlukan-pada-masa-transisi-energi.

have incorporated carbon emission reduction into their portfolio strategies.[35]

Energy policy will significantly affect the development of upstream oil and gas investment, including idle well cooperation amid the issue of green investment in the name of clean energy, especially without fossil energy, such as oil and natural gas, which are part of fossil energy. The development of oil and gas exploration and exploitation activities will be significantly affected by the existence of national energy policies. Undeniably, the Government also agrees that the need for oil and gas for energy needs is still substantial, and energy transformation still takes a long time, so it will affect upstream oil and gas investment activities in the future. The energy transition is a step towards transforming the global energy sector with zero-carbon targets. A sustainable energy transition will be urgent to achieve a decent life in the future. Oil and gas are essential in supporting the transition to national energy. In the contemporary era, temperatures continue to increase due to the combustion of fossil fuels like coal, oil, and other non-renewable resources, leading to climate change and escalating toward a climate crisis. This circumstance urges us to shift from dependence on fossil fuels to embracing renewable energy alternatives.[36] The Indonesian Government has also started to leave fossil fuels behind by focusing more on green investment in the upstream petroleum industry. The move from fossil fuel to green energy requires energy security because, without energy security, there cannot be an energy transition. Therefore, the fulfilment of energy needs, as well as efforts to reduce carbon emissions, must go hand in hand to help efforts to reduce global warming. From the perspective of the form of cooperation in oil and gas management, the cooperation scheme has not been affected by green investment; it's just that green investment affects upstream oil and gas activities; namely, in the future, the focus of green

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[35] Sugiharto Purnama, "SKK Migas Paparkan Potensi Migas Dalam Isu Transisi Energi Di OGA 2022," Antara, 2022, https://www.antaranews.com/berita/3115737/skk-migas-paparkan-potensi-migas-dalam-isu-transisi-energi-di-oga-2022.

[36] Yulinda Adharani et al., "Renewable Energy Development in Indonesia From New Normal to Better Normal: Environmental Law Perspectives," *PADJADJARAN Jurnal Ilmu Hukum (Journal of Law)* 10, no. 3 (2023): 431–52, https://doi.org/10.22304/pjih.v10n3.a7.

investment targets is energy that is not entirely produced from fossils such as oil and gas.

The Effect of Green Investment on the Regulation of Idle Well Management Cooperation Contract Schemes in Malaysia and Equatorial Guinea

As a comparison, Malaysia is one of the countries considered to have the best national oil company in the world. In 2016, Malaysia pledged its commitment to the Paris Agreement, joining global endeavors to limit the global temperature increase to well below 2 °C, with a target of 1.5 °C. This underscores Malaysia's dedication to curbing its national emissions and mitigating the effects of climate change. As part of this accord, Malaysia has set a goal to decrease the intensity of greenhouse gas (GHG) emissions per unit of GDP by 45% by 2030 compared to 2005 levels. This reduction comprises a 35% decrease on an unconditional basis and an additional 10% decrease on a conditional basis, subject to support from developed nations such as climate financing, technology transfer, and capacity building. An essential challenge now lies in how Malaysia can effectively lower its CO2 emissions. Addressing this challenge necessitates a thorough examination of Malaysia's emission reduction strategies and their potential ramifications.

Understanding Malaysia's capacity to reduce emissions is increasingly vital for policymakers to strike a balance between climate mitigation efforts and sustainable development goals. Currently, based on the research from Raihan, et al, the results suggest that as economic growth rises, environmental sustainability tends to decline. This is attributed to the predominant use of fossil fuels in Malaysia's industry and agriculture sectors, which contribute to both economic growth and

environmental harm.[37] The reliance on fossil fuels explains the positive correlation between economic expansion and CO2 emissions.[38]

Currently, the Malaysian government is actively developing the Renewable Energy Transition Roadmap, with the goal of reaching a national target of 25% renewable energy. This involves enhancing current renewable energy initiatives and exploring innovative methods to expand renewable energy projects.[39] The application of this new method is oriented toward ensuring the sustainability of the energy supply of the country while reducing the environmental impact associated with its heavy dependence on fossil fuels for energy generation. This country holds a crucial position in the global energy market due to its substantial oil and natural gas reserves, which focus on green investment. Recognizing the significance of green investment, Malaysia emphasizes effective risk management and sustainability practices in the upstream oil and gas industry.

This approach addresses emerging risks and fosters greener growth, contributing significantly to the nation's sustainable development goals. It underscores the pivotal role of oil and gas companies in aligning their corporate strategies with environmental protection and long-term economic resilience. The significance of green investment in Malaysia's upstream petroleum sector is underscored by the crucial role of sustainable business performance, where organizational learning culture and digital organizational culture play pivotal roles, necessitating policymakers and managers to consider and adopt best practices to maximize the benefits and efficiency improvements associated with green technologies and practices.

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[37] Asif Raihan et al., "Relationship between Economic Growth, Renewable Energy Use, Technological Innovation, and Carbon Emission toward Achieving Malaysia's Paris Agreement," *Environment Systems and Decisions* 42, no. 4 (December 19, 2022): 586–607, https://doi.org/10.1007/s10669-022-09848-0.

[38] Rawshan Ara Begum, Asif Raihan, and Mohd Nizam Mohd Said, "Dynamic Impacts of Economic Growth and Forested Area on Carbon Dioxide Emissions in Malaysia," *Sustainability* 12, no. 22 (November 11, 2020): 9375, https://doi.org/10.3390/su12229375.

[39] Fairuz Suzana Mohd Chachuli et al., "Transition of Renewable Energy Policies in Malaysia: Benchmarking with Data Envelopment Analysis," *Renewable and Sustainable Energy Reviews* 150 (October 2021): 111456, https://doi.org/10.1016/j.rser.2021.111456.

The implementation of the National Energy Policy, spanning from 2022 to 2040 (DTN), underscores the government's dedication to transitioning towards cleaner energy sources. The DTN initiative leads a practical shift towards a greener energy mix by stimulating heightened demand, fostering the development, commercialization, and adoption of sustainable technologies, and enhancing the skills of the workforce in alignment with the future industry's requirements. Moreover, the DTN aims to cultivate an appealing investment environment, emphasizing increased adherence to environmental, social, and governance (ESG) standards across key energy sectors, including upstream oil and gas. As a result, idle well management, falling within the purview of upstream oil and gas, will be influenced by forthcoming energy transition policies, given the comprehensive reach of energy policy across various sectors.'

Since before gaining independence, the government has endeavored to extract oil and natural gas, albeit without achieving commercial viability. However, the subsequent discovery and exploitation of accessible oil fields in Sarawak led to a significant increase in oil output. From 1967 to 1973, crude oil production soared from 1000 barrels to around 99,000 barrels. AG Petronas indicates that Malaysia has 37 oil fields in various locations under development and is actively involved in oil production in 24 countries. PETRONAS was established to replicate PERTAMINA's consolidation model, which unified the state government's petroleum interests into a single entity. This entity negotiates production-sharing contracts and implements policies oriented toward expanding downstream activities such as refining and marketing.

In Malaysia, the National Oil Company, PETRONAS, oversees exploration, exploitation, development, and production activities, operating under a production sharing contract (PSC) framework regulated by the Malaysian Petroleum Act of 1967 and the 1976 Oil Income Tax Amendment Law. Through this PSC framework, exploration and exploitation endeavors have led to the identification of 163 oil fields and 216 gas fields. In 1997, a new PSC concept called "revenues over costs" (RC/PSC) was introduced to encourage additional investment in Malaysia's upstream sector. This RC/PSC model enables contractors to accelerate cost recovery once specific cost benchmarks are

met. The primary objective of the RC/PSC concept is to establish an optimal fiscal structure that maximizes government revenue while fostering investment, evaluated through the R/C£ index, which gauges the ratio of the contractor's cumulative revenue to their cumulative costs.[40]

At present, Malaysia is undertaking the revival of its inactive wells, driven by challenges brought about by the COVID-19 pandemic. The pandemic has profoundly affected the oil and gas sector, resulting in a sharp decline in oil prices. In response to this situation, Mulk Oil & Gas Synergy Sdn Bhd (MOGS) has entered the Malaysian market, offering its expertise in rejuvenating inactive oil wells in Malaysian waters. Founded in May 2020, MOGS aims to introduce innovative advanced technological solutions alongside exceptional service. The company seeks to partner with Production Sharing Contract (PSC) operators as part of its initiative to reactivate underutilized wells in Malaysia. This underscores Malaysia's adoption of the PSC scheme for well reactivation, which is considered more economically beneficial.[41]

To introduce another country with the development of green investment in upstream oil and gas sector, Equatorial Guinea stands out as a country experiencing significant development, largely propelled by the rapid growth facilitated by the discovery and exploitation of substantial offshore oil reserves. Historically, agriculture, particularly cocoa, coffee, and timber, formed the backbone of Equatorial Guinea's economy. However, pivotal offshore oil discoveries since 1995 have supplanted cocoa as the primary export commodity. Notably, the country witnessed a remarkable increase in gross domestic product (GDP) of 15.4 percent in 2005, followed by a growth of approximately 6.9 percent in 2006. Equatorial Guinea ranks as the third-largest oil producer in sub-Saharan Africa and the sixth largest in Africa overall. Its oil production surged from a mere 17,000 barrels per day in 1996 to its peak in 2004, reaching 321,796 barrels. Exploration efforts

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[40] N.A. Babajide et al., "Comparative Analysis of Upstream Petroleum Fiscal Systems of Three (3) Petroleum Exporting Countries: Indonesia, Nigeria and Malaysia," *International Journal of Sciences Basic and Applied Research (IJSBAR)* 5, no. 2 (2014): 99–115.

[41] MREM Operations, "Yayasan Pesara Kerajaan Malaysia Acquires 30% In Oil & Gas Start Up MOGS – BERNAMA," Operations, MREM, accessed February 20, 2024, http://www.namnewsnetwork.org/?p=107828.

commenced in 1965 through joint ventures but yielded no success. Despite unsuccessful exploration activities by joint venture groups like Total, Elf, and Hamilton Oil Co. (later known as BHP Petroleum) in the 1980s, significant discoveries were made in the late 1990s. Subsequent to these successful discoveries, the government sought to play an active role in the country's oil development. Consequently, in 2001, the state-owned company GEPetrol was established by presidential decree, serving as the principal state agency responsible for the downstream sector of the oil industry.

Compared with other countries, Equatorial Guinea, part of the Guinea region, has undergone rapid economic growth, transitioning from a low-income economy to one of the thriving economies in Africa, primarily attributed to the discovery and exploitation of significant offshore oil reserves. Oil exports constitute 97 percent of total export earnings, propelling the country's rapid economic expansion. In 2005, Equatorial Guinea's real GDP surged by 15.4 percent, followed by a 6.9 percent increase in 2006 (EIA, 2014). It is the third-largest oil producer in sub-Saharan Africa and the sixth-largest in the entire continent, exemplifying a remarkable development trajectory. The Government took an active role in the oil sector, establishing the state company GEPetrol in 2001 to oversee downstream oil activities.[42]

The country engages in production-sharing contracts and joint ventures with various companies, and the dominant players in Equatorial Guinea's oil and gas industry are three major US companies: Exxon Mobil, Amerada Hess, and Marathon Oil. These companies and others like Devon Energy, Noble Energy, and Energy Africa contribute to the country's oil output. Amerada Hess, Exxon Mobil, and Marathon Oil manage day-to-day operations, underscoring their strategic importance. In implementing the Guinea Current Large Marine Ecosystem (GCLME) Strategic Action Programme (SAP) development project, the United Nations Industrial Development Organization (UNIDO) closely collaborated with the International Maritime Organization (IMO) and The International Petroleum Industry Environmental Conservation Association (IPIECA) is the worldwide

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[42] S. Saidu, "A Comparative Analysis of Production Sharing Contracts of Selected Developing Countries: Nigeria, Indonesia, Malaysia and Equatorial Guinea," *Journal of Finance and Accounting* 2, no. 2 (2014): 34–40.

organization that speaks for the oil and gas sector regarding environmental and social matters concerning contingency and spill response planning within the GCLME.. Major players in the oil and gas sectors operating in Western and Central Africa actively participated in these initiatives. This collaboration is an optimal foundation for expanding the current partnership to involve upstream oil and gas industries in the GCLME region, fostering proactive engagement through the International Association of Oil and Gas Producers (OGP).

This extended collaboration aims to work collectively with governments to prevent spills from the growing offshore exploration and production facilities.[43] The collaborative efforts with the IMO, IPIECA, and key players in the oil and gas industries in Western and Central Africa provide a foundation for extended cooperation through the OGP, emphasizing proactive measures and potentially aligning with green investment principles to prevent environmental hazards from offshore exploration and production facilities in the GCLME region.

In Mauritania, Senegal, The Gambia, Guinea-Bissau, and Guinea-Conakry within the Guinea region, the MSGBC region has positioned itself as a compelling hub for global energy investments, driven by abundant oil, natural gas, and renewable resources, a favorable business climate, and rising energy demand. As significant players exploit untapped gas reserves and embark on new licensing rounds, the region's commitment to exploration and investor-friendly policies underscores its goal of achieving energy security and becoming a key exploration destination. Adopting competitive fiscal terms, sustainability measures, and local content frameworks enhances its attractiveness to global investors. Moreover, the region's proactive approach to renewable energy, exemplified by Mauritania's green hydrogen projects, aligns with the global shift towards sustainable practices. Proximity to European markets further bolsters the region's appeal, presenting significant opportunities for gas monetization. The upcoming MSGBC Oil, Gas & Power Conference & Exhibition in November 2023 is poised to play a pivotal role in uniting stakeholders,

[43] Jacques Abe and Bradford E. Brown, "Towards a Guinea Current Large Marine Ecosystem Commission," *Environmental Development* 36 (December 2020): 100590, https://doi.org/10.1016/j.envdev.2020.100590.

fostering collaboration, and advancing deals that contribute to the region's sustainable development and energy transition.[44]

Equatorial Guinea, Nigeria, and Angola are countries with relatively lower resilience in their oil resources and economies heavily dependent on oil and gas production. Such countries could explore implementing strategies to enhance the cost competitiveness of their resources. This may involve optimizing fiscal terms, addressing factors contributing to cost premiums, and improving the business environment.

Additionally, initiatives to decarbonize existing oil and gas operations and promote investment in lower-carbon energy infrastructure, like gas pipelines, could bolster the resilience of their resources, potentially mitigating the risk of stranded gas assets. To diversify energy revenues, these countries could foster an enabling environment to facilitate the expansion of renewable energy projects. This approach would not only open avenues for new energy revenue streams but also contribute to ensuring energy security.[45]

Conclusion

The future trajectory of upstream oil and gas investment is intricately linked to the evolving global energy landscape, emphasizing green investments and a shift towards cleaner, renewable energy sources. Governments worldwide, including Indonesia, acknowledge the continued importance of oil and gas in meeting current energy needs but also recognize the urgency of transitioning to sustainable energy practices to address the climate crisis. Indonesia's commitment to green investments in the upstream petroleum industry, evident in the idle well reactivation program for production and injection wells inactive for six

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[44] Energy Capital&Power, "Positioning the MSGBC Region as an Attractive Energy Investment Destination," Energy Capital&Power, accessed February 20, 2024, https://energycapitalpower.com/msgbc-attractive-energy-investment-region/.

[45] McKinsey & Company, "The Future of African Oil and Gas: Positioning for the Energy Transition," McKinsey & Company, accessed March 20, 2024, https://www.mckinsey.com/ma/~/media/mckinsey/industries/oil%20and%20gas/our%20insights/the%20future%20of%20african%20oil%20and%20gas%20positioning%20for%20the%20energy%20transition/the-future-of-african-oil-and-gas-positioning-for-the-energy-transition.pdf.

consecutive months, aligns with this global shift. Striking a balance between ensuring energy security and actively reducing carbon emissions is crucial in this transition. When comparing the approaches of developing countries like Indonesia, Malaysia, and Guinea Region, including Equatorial Guinea, Mauritania, Senegal, The Gambia, Guinea-Bissau, and Guinea-Conakry, it is evident that green investment influences idle well management in cooperation contracts. The potential use of the Production Sharing Contract (PSC) scheme for managing idle wells becomes apparent, reflecting the broader global trend of focusing green investments on non-fossil energy sources for the future of upstream oil and gas activities.

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