

## **Ecological Justice: Optimizing Financing for the Transition to New and Renewable Energy Through Green Financing**

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### **Abstract**

The transition to renewable energy became a current issue following the drafting of the New and Renewable Energy Bill. One problem with this transition is related to funding, which requires large funds, making it not possible to depend on funds derived from the state budget. Therefore, this article will analyze the optimization of funding from the private sector through green financing schemes. This is normative research through statute, conceptual and comparative approaches. The results show that reflecting on the implementation of green financing in China and South Africa, the formulation of Articles in the Draft Bill on Renewable Energy should explicitly mention green financing instruments such as green bonds and green sukuk as one of the sources of funding for the transition. The Draft Bill must also involve elements from the Financial Services Authority in its technical implementation. Moreover, the Financial Services Authority has issued POJK Number 18 of 2023 which can be linked to other funding sources for the transition to renewable energy.

## **1. Introduction**

Nowadays, the issue of energy transition from fossil fuels to New and Renewable Energy (EBT) has become one of the main issues related to environmental law. After the implementation of the G20 in Bali in 2022, Indonesia as the host and member countries of the G20 have agreed on one point related to the environment, namely the acceleration of sustainable energy transition.<sup>1</sup> In line with the points of agreement at the G20, the Indonesian House of Representatives together with the Government are discussing the Draft Law on New and Renewable Energy (RUU EBT).

The energy transition certainly requires a huge amount of funds. Based on calculations from the Ministry of Energy and Mineral Resources (Kemen-ESDM), around US\$ 1 trillion (One Trillion US Dollars) is needed for investment in the New and Renewable Energy sector in Indonesia.<sup>2</sup> Based on the draft of the EBT Bill, it is projected that most of it will use a budget sourced from the State Budget (APBN) and the Regional Budget (APBD), in addition to using financing sources outside of that.

Looking at the last few years, there is awareness in society about the importance of environmental sustainability. This can be seen from a number of movements of society that are engaged in environmental issues, either through seminars, counseling or real movements

<sup>1</sup> Kementerian Energi Dan Sumber Daya Mineral, "Pemimpin Negara G20 Sepakati Deklarasi Bali, Ini Poin Penting Kesepakatan Sektor Energi," 2022, <https://migas.esdm.go.id/post/read/pemimpin-negara-g20-sepakati-deklarasi-bali-ini-poin-penting-kesepakatan-sektor-energi>.

<sup>2</sup> Fikri Hadi, Budi Endarto, and Farina Gandryani, "Aspek Hukum Green Bond Sebagai Pembiayaan Energi Baru Terbarukan Di Indonesia," *Jurnal RECHTS VINDING* 11, no. 3 (2022).

in the field. In the legal field, this awareness is also seen constitutionally through the amendment of the 1945 Constitution which has given birth to new thinking in the environmental field, which has changed the new paradigm related to the organization of the state such as the national economy with environmentally aware principles as stated in Article 33 paragraph (4).<sup>3</sup>

This awareness also occurs in the financial services sector, where currently there are a number of environmentally-based financial instruments such as green investment, green bonds, green sukuk and so on. Even during the 2021 pandemic, the Ministry of Finance of the Republic of Indonesia noted that the collection of green sukuk funds was worth IDR 5 trillion (five trillion rupiah).<sup>4</sup> This shows the enthusiasm of the community regarding environmental issues.

Observing the high public enthusiasm for environmental issues coupled with the high cost of energy transition to New Renewable Energy, then the public should be involved in the energy transition process. Reflecting on the environmental-based financial instruments currently available in Indonesia and the high cost of transition to EBT, a study is needed regarding the optimization of these financial instruments as one of the EBT financing schemes other than the state financing scheme. Therefore, this study will examine the form of optimizing green financing as one of the sources of financing for the transition to EBT. This article will also discuss financial instruments that can be used by the public in the context of EBT financing.

The purpose of this study is to provide an overview of the form of green financing as a financing scheme for the transition to EBT. From the purpose of the study, it produces benefits both theoretically in the form of knowledge references related to capital market law when associated with the environment, as well as providing practical benefits that are expected so that this study becomes one of the references, especially for the DPR-RI which is currently drafting the EBT Bill together with the Government, especially related to the financing of the energy transition.

Other studies that have been conducted related to this issue include research in the form of a policy paper by Marsya Mutmainah Handayani, Adrianus Eryan, Dyah Paramita and Adam Putra Firdaus published by the Indonesian Center for Environmental Law (ICEL) entitled "*Membangun Kembali Kerangka Keuangan Berkelanjutan Indonesia*".<sup>5</sup> This article found that Indonesia's sustainable finance framework is not yet complete and guarantees funding for sustainable activities/businesses. Therefore, there needs to be a revision of regulations related to sustainable finance in Indonesia. Another research is a book by W. Ridwan Tjandra, Ifdhal Kasim and Jalal entitled "*Keuangan Berkelanjutan di Indonesia: Harapan dan Tantangan*"

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<sup>3</sup> Sodikin Sodikin, "Gagasan Kedaulatan Lingkungan Dalam Konstitusi Dan Implementasinya Dalam Pelestarian Lingkungan Hidup," *Masalah-Masalah Hukum* 48, no. 3 (2019), <https://doi.org/10.14710/mmh.48.3.2019.294-305>.

<sup>4</sup> Kementerian Koordinator Bidang Perekonomian Republik Indonesia, "The Importance of Green Financing in the Enhancement of Renewable Energy," (2022).

<sup>5</sup> Marsya Mutmainah Handayani et al., "Membangun Kembali Kerangka Keuangan Berkelanjutan Indonesia," 2024.

published by *Transformasi Untuk Keadilan Indonesia*, 2017.<sup>6</sup> One of the studies is related to the Sustainable Finance Roadmap when linked to the Sustainable Development Goals initiated by the UN. The latest research is a book by Budi Endarto et al., entitled “*Karakteristik, Arah Kebijakan, & Politik Hukum Pengembangan Green Bond Di Indonesia*”, published in 2022.<sup>7</sup> This book explains the concept of Green Bonds as a financial instrument in the capital market and its implementation in Indonesia.

The similarity of this article with the three articles above is that all of them discuss the concept of green financing in Indonesia. The difference is, this article is more specific in discussing the financing of New and Renewable Energy through the green financing mechanism. This article is more about the level of green financing practices in Indonesia.

## 2. Methods

This research is normative research with an exploratory research type, namely research that is intended to explore a new phenomenon that may not have been or rarely been the object of previous research,<sup>8</sup> in this case, green financial instruments are one of the objects that are still rarely discussed in the study of Indonesian Capital Market law. Therefore, this research is also a typology of research that is oriented towards reform. The typology of legal research is a type of research in order to evaluate the adequacy of existing regulations and propose changes to these legal regulations with parameters based on legal principles, principles or theories.<sup>9</sup>

The approach in this research is a statute approach and a conceptual approach regarding theoretical doctrines that are relevant to the topic of this research such as the concept of green investment and financing. This research also uses a comparative approach by comparing green financing practices in South Africa and China.

## 3. Results and Discussion

### 3.1. Ecological Justice

The utilization of natural resources must be planned in a manner that ensures long-term benefits are provided, to align the economic benefits sought with social and environmental aspects. The principle of intergenerational justice imposes three fundamental obligations on the present generation with regard to nature conservation. These are: (1) Conservation of option, so that future generations can choose the quantity of natural resource diversity, (2) conservation of quality, which is to maintain the quality of a sustainable environment, and (3) conservation of access, which is to ensure that future generations at least have the same access as the current generation to the natural resources created by God Almighty.<sup>10</sup> This spirit can be associated with ecological justice.

The concept of ecological justice regulates the relationship between humans and the rest of the universe. Nature is comprised of humans, animals, plants, biotic and abiotic objects, all

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<sup>6</sup> W. Ridwan Tjandra, Ifdhal Kasim, and Jalal, *Keuangan Berkelanjutan Di Indonesia: Harapan Dan Tantangan* (Transformasi Untuk Keadilan Indonesia (TuK Indonesia), 2017).

<sup>7</sup> Budi Endarto, Fikri Hadi, and Nur Hidayatul Fithri, *Karakteristik, Arah Kebijakan, & Politik Hukum Pengembangan Green Bond Di Indonesia* (Yogyakarta: KYTA Jaya Mandiri, 2022).

<sup>8</sup> Irwansyah and Ahsan Yunus, *Penelitian Hukum : Pilihan Metode & Praktik Penulisan Artikel* (Sleman: Mirra Buana Media, 2021).

<sup>9</sup> Terry Hutchinson, “Developing Legal Research Skills: Expanding the Paradigm,” *Melbourne University Law Review* 32, no. 3 (2008).

<sup>10</sup> Ahmad Redi, *Hukum Sumber Daya Alam Sektor Kehutanan* (Jakarta: Sinar Grafika, 2014).

of which are deserving of fair treatment. In the concept of earth democracy, as proposed by Vandana Shiva, a philosopher and environmental activist from India, every element in nature is deemed to possess intrinsic value, necessitating respect and appreciation for its existence<sup>11</sup>. The dignity of human beings is not solely contingent upon their conduct towards their fellow humans; it is also contingent upon their conduct towards the entirety of the cosmos. Ecological justice strives to acknowledge the intrinsic value of the environment for the entire ecosystem of creatures.

In the contemporary era, there is a growing prevalence of exploitative activities that pose a threat to the preservation of the natural world. It is therefore imperative that ecological justice become a collective consciousness, encompassing a broader and more integrated scope. In order to achieve this, it is essential to consider several key criteria, including:

1. All people are afforded the opportunity to participate in decisions that affect the environment.
2. Input from the community constitutes an essential element in the decision-making process, particularly with regard to the formulation of regulations by relevant institutions or parties.
3. It is imperative that the decision-making process incorporates public attention to environmental issues that affect daily activities.
4. Those responsible for formulating policy should proactively seek and facilitate public involvement in matters that may affect them<sup>12</sup>.

The concept of ecological justice is inextricably linked with the emergence of ecocracy in Indonesia. During the 1970s to 1990s, there was a notable increase in the number of issues related to environmental concerns. In consequence, the United Nations (UN) convened the United Nations Conference on Human Environment on 5 June 1972 in Stockholm, Sweden (subsequently commemorated on 5 June as World Environmental Day). The success of the conference was followed up with a special conference on environment and development, known as the Earth Summit, which gave rise to several conventions on the environment.

In the 1990s, the term 'ecocracy' (environmental sovereignty) was frequently discussed in several international forums and in the mass media. In Indonesia, the concept of ecocracy was introduced by Jimly Asshiddiqie in his book *Green Constitution*.<sup>13</sup> However, Asshiddiqie notes that the discourse on ecocracy remains largely confined to the domain of examining the relationship between economic development and ecology. It has not yet been fully recognized

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<sup>11</sup> Bernadus Wibowo Suliantoro, "Konsep Keadilan Sosial Yang Berwawasan Ekologis Menurut Vandana Shiva: Kajian Dari Perspektif Etika Lingkungan," *ICSSIS (The 5th International Conference on Indonesia Studies: "Ethnicity and Globalization")*, 2013.

<sup>12</sup> Antonius Glendnaldy Hendrysusanto and Carolus Borromeus Mulyatno, "Memperbaiki Hubungan Antara Manusia Dan Alam Melalui Pemikiran Daisaku Ikeda," in *PROCEEDINGS OF THE NATIONAL CONFERENCE ON INDONESIAN PHILOSOPHY AND THEOLOGY* (Fakultas Teologi, Universitas Sanata Dharma Yogyakarta, 2024).

<sup>13</sup> Nuruz Zakiyyatul Mufidah and Miftachur R. Habibi, "Konsep Ecocracy Sebagai Perlindungan Hukum Lingkungan Terhadap Pelanggaran Reklamasi Paska Penambangan," *Simposium Hukum Indonesia* 1, no. 1 (2019).

as a concept that is equally relevant and comparable to other established concepts in the field of political theory, such as democracy, nomocracy, and theocracy.<sup>14</sup>

The concept of environmental urgency has been reflected in Indonesian constitutional law since the amendment of the 1945 Constitution. Article 28H, paragraph (1) of the 1945 Constitution of the Republic of Indonesia, states the following:

“Every person shall have the right to live in physical and spiritual prosperity, to have a home and to enjoy a good and healthy environment, and shall have the right to obtain medical care.”

Moreover, Article 33, paragraph (4), which constitutes part of the Fourth Amendment, states the following:

“The organisation of the national economy shall be conducted based on economic democracy upholding the principles of togetherness, efficiency with justice, continuity, environmental perspective, self-sufficiency, and keeping a balance in the progress and unity of the national economy.”

The incorporation of environmental considerations into the 1945 Constitution marked a pivotal shift in Indonesia's national development trajectory, prompting a shift in focus towards environmental concerns. Indonesian legislation also underwent a process of alignment with the constitutional tenets pertaining to the environment. This culminated in the enactment of Law Number 32 of 2009 concerning Environmental Protection and Management, which introduced a more sophisticated array of environmental protection instruments compared to previous environmental regulations.<sup>15</sup>

### 3.2. Ecological Justice

Nowadays, various countries in the world are actively developing the concept of sustainable development. This is also driven by the 17 points of the Sustainable Development Goal's (SDG's) initiated by the United Nations.<sup>16</sup> From this concept of sustainable development, the term known as green financing was born. According to Hühne, Green Financing is a broad term that can refer to financial investments in sustainable development projects and initiatives, environmental products, and policies that promote sustainable economic development.<sup>17</sup> Yoshino defines Green Financing as "a financial instrument that provides funding for projects that address climate change and improve environmental performance."<sup>18</sup>

From the definition above, in general green financing can be defined as the procurement and use of funds in the framework of activities or projects that aim to protect the environment and provide fair returns for lenders or investors. Green finance is green investment funding in both the public and private sectors. Green finance projects generate economic benefits that promote a sustainable environment. From the definition, it is clear the difference between

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<sup>14</sup> Jimly Asshiddiqie, *Green Constitution: Nuansa Hijau Undang-Undang Dasar Negara Republik Indonesia Tahun 1945* (Jakarta: Rajawali Press, 2016).

<sup>15</sup> Rispalman, "Sejarah Perkembangan Hukum Lingkungan Di Indonesia," *Dusturiah* 8, no. 2 (2018).

<sup>16</sup> Budi Endarto et al., *Potret Hukum Kontemporer Di Indonesia* (Yogyakarta: KYTA Jaya Mandiri, 2022).

<sup>17</sup> Niklas Hühne et al., "Greenhouse Gas Emission Reduction Proposals and National Climate Policies of Major Economies" (Bilthoven, 2016).

<sup>18</sup> Farhad Taghizadeh-Hesary and Naoyuki Yoshino, "The Way to Induce Private Participation in Green Finance and Investment," *Finance Research Letters* 31 (2019), <https://doi.org/10.1016/j.frl.2019.04.016>.

green financing and conventional finance or commonly known as traditional finance. The concept of green finance development emphasizes ecological protection and sustainable development. Various efforts to introduce green finance as a financial instrument that is developing as a new financial instrument are useful for controlling environmental pollution and balancing the relationship between the economy and ecological protection as much as possible. With the existence of green financing, hopefully, financial institutions will not only pursue profits by ignoring aspects of environmental sustainability.

In Indonesia, the term Green Financing is a new term and is currently being intensively developed. Green Financing consists of 4 dimensions, namely:

- 1) Achieving industrial, economic and social excellence to reduce the threat of global warming and prevent other environmental and social problems;
- 2) Have a goal of moving towards a competitive low-carbon economy;
- 3) Strategically promote environmentally friendly investments in various business/economic sectors;
- 4) Support the principles of Indonesian development as stated in the Medium-Term Development Plan, namely 4P (*pro-growth, pro-jobs, pro-poor, dan pro-environment*).<sup>19</sup>

Green finance ideas began to emerge since the enactment of Law Number 32 of 2009 concerning Environmental Protection and Management which mandates the development and implementation of Environmental economic instruments including Environmentally friendly policies in the banking, capital market, and non-bank financial industry sectors. Article 43 paragraph (3) letter c of Law Number 32 of 2009 states that there are incentives for the development of environmentally friendly financial institutions and capital markets. This shows the good will of state administrators to create green financing in Indonesia.

The birth of Law No. 32/2009 on the Environment is also inseparable from changes in the Indonesian constitution which also mentions issues related to the environment. Article 33 paragraph (4) of the 1945 Constitution states that The organisation of the national economy shall be conducted on the basis of economic democracy upholding the principles of togetherness, efficiency with justice, continuity, environmental perspective, self-sufficiency, and keeping a balance in the progress and unity of the national economy. This article is the constitutional basis for green financing.

The commitment continued when the Financial Services Authority (OJK) launched a road map or Road Map for Sustainable Finance in Indonesia in December 2014. The Road Map was enthusiastically welcomed by banks in Indonesia, expressed in a joint commitment followed by 8 (eight) banks with the largest assets committed to becoming pioneers for sustainable banking. The commitment was expressed through a Pilot Project in collaboration with OJK and WWF-Indonesia entitled "*Langkah Pertama Untuk Menjadi Bank Yang Berkelanjutan*".<sup>20</sup>

<sup>19</sup> Pembiayaan Berkelanjutan Bagi UMKM Sektor Industri Pengolahan Alas Kaki Di Kota Bandung Oleh et al., "Efektivitas Implementasi Green Financing Sebagai Alternatif Pembiayaan Berkelanjutan Bagi UMKM Sektor Industri Pengolahan Alas Kaki Di Kota Bandung," *Jurnal Manajemen Dan Bisnis Performa* 14, no. 2 (2017).

<sup>20</sup> Neneng Hayati, Erwin Yulianto, and . Syafidinal, "Peranan Keuangan Berkelanjutan Pada Industri Perbankan Dalam Mendukung Sustainable Development Goals," *Jurnal Akuntansi Bisnis Dan Ekonomi* 6, no. 1 (2020), <https://doi.org/10.33197/jabe.vol6.iss1.2020.473>.

One thing that must be realized with the establishment of the Sustainable Finance Road Map is the existence of specific and binding regulations for all financial services sector players related to the implementation of Sustainable Finance in Indonesia. Therefore, green financing legally in Indonesia has been firmly implemented since the Financial Services Authority (OJK) issued OJK Regulation No. 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers and Public Companies as a realization of the Road Map. The purpose of issuing the POJK is to unite the steps of general banks in Indonesia in green financing within one regulatory framework.<sup>21</sup> The terms used in the POJK are “*Keuangan Berkelanjutan*”.

The objectives of implementing Sustainable Finance as stated in the POJK include:

- a. provide adequate funding sources to achieve sustainable development goals and climate change-related funding;
- b. improve the resilience and competitiveness of LJK, Issuers, and Public Companies through better management of social and environmental risks by developing financial products and/or services that implement the principles of Sustainable Finance so contribute positively to the stability of the financial system;
- c. reduce social disparities, reduce and prevent environmental damage, maintain biodiversity, and encourage efficient use of energy and natural resources; and
- d. develop financial products and/or services that implement the principles of Sustainable Finance.

POJK Number 51 of 2017 creates an obligation for Financial Services Institutions (LJK) to prepare a Sustainable Finance Action Plan. LJK are also required to make a Sustainability Report which is then submitted to the Financial Services Authority. Through this POJK, it is also stated that there are incentives for LJK that implement Sustainable Finance and administrative sanctions for LJK that meet the requirements based on the POJK but do not implement Sustainable Finance.

From the various steps above, in the end a number of green financial instruments in Indonesia have been implemented in the financial sector in Indonesia. Among them are green bonds, green sukuk, and green funds. Moreover, in October 2023, the Financial Services Authority (OJK) issued the Regulation of the Financial Services Authority of the Republic of Indonesia (POJK) Number 18 of 2023 concerning the Issuance and Requirements of Debt Securities and Sukuk Based on Sustainability, where one of the considerations of the regulation states that the birth of POJK Number 18 of 2023 is intended to encourage the development of debt securities based on sustainability.

In the formulation of the definition of green bonds and green sukuk in Article 1 number 3 of POJK Number 18 of 2023, it appears that a debt effect can be said to be environmentally friendly when the proceeds from its issuance are used to finance or refinance Environmentally Friendly Business Activities (KUBL). The KUBL in question is stated in Article 8 along with its explanation. There are at least 11 activities, namely: a. renewable energy; b. energy efficiency; c. pollution prevention and control; d. management of biological natural resources and sustainable land use; e. conservation of terrestrial and aquatic biodiversity; f. environmentally

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<sup>21</sup> Lely Savitri Dewi, “Peranan Perbankan Dalam Mendukung Green Economy Melalui Program Green Financing,” *Strategi Pengembangan Kinerja Koperasi Dan UMKM*, 2020.

friendly transportation; g. sustainable water and wastewater management; h. climate change adaptation; i. products that can reduce resource use and produce less pollution; j. environmentally friendly buildings that meet nationally, regionally, or internationally recognized standards or certifications; and/or k. other environmentally friendly business activities and/or activities.

POJK Number 18 of 2023 also introduces the term other effects based on sustainability. The effects referred in the POJK consist of socially oriented debt effects, sustainable debt effects, waqf sukuk, and sustainability-related debt effects.

Various studies conducted by researchers in various countries have found that green finance has a positive effect on sustainable development. For example, Zhou et al.,<sup>22</sup> found that green credit provides significant financial support for national sustainable development if it meets the requirements of national environmental regulations. while Lee found that the promotion of green finance reduces coal consumption and thus improves energy sustainability.<sup>23</sup>

Related to the issue of transition to New and Renewable Energy which is the main topic of discussion in this article, several studies have examined the correlation between green financing and transition financing to New and Renewable Energy. Pathania and Bose link green financial support to the success of renewable energy projects and note that the growth of solar energy technology is constrained by insufficient funding. Furthermore, the study recommends that the government regulate the green financial system to increase efficiency. Because if not done, uncontrolled green financial growth can actually cause renewable energy inefficiency.<sup>24</sup>

Furthermore, He et al. pointed out that in order to promote the development of renewable energy sources and to achieve sustainable and environmentally friendly development goals, attention should be paid to the formation of green policies, noting that green bonds and green credits are profitable financial tools for achieving sustainability goals.<sup>25</sup>

Reflecting on the study, it is very possible that green financing will become one of the sources of financing in the transition to New and Renewable Energy which is currently being discussed in the drafting of the EBT Bill. With the existence of sources originating from green financing, the transition to EBT is not entirely borne by the APBN.

### **3.3. Optimizing Green Financing as a Source of Financing for the Transition to EBT: Comparison of Indonesia, China and South Africa**

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<sup>22</sup> Xiaoguang Zhou, Xinmeng Tang, and Rui Zhang, "Impact of Green Finance on Economic Development and Environmental Quality: A Study Based on Provincial Panel Data from China," *Environmental Science and Pollution Research* 27, no. 16 (2020), <https://doi.org/10.1007/s11356-020-08383-2>.

<sup>23</sup> Chi Chuan Lee and Chien Chiang Lee, "How Does Green Finance Affect Green Total Factor Productivity? Evidence from China," *Energy Economics* 107 (2022), <https://doi.org/10.1016/j.eneco.2022.105863>.

<sup>24</sup> Rohit Pathania and Arnab Bose, "An Analysis of the Role of Finance in Energy Transitions," *Journal of Sustainable Finance and Investment* 4, no. 3 (2014), <https://doi.org/10.1080/20430795.2014.929000>.

<sup>25</sup> Lingyun He et al., "Can Green Financial Development Promote Renewable Energy Investment Efficiency? A Consideration of Bank Credit," *Renewable Energy* 143 (2019), <https://doi.org/10.1016/j.renene.2019.05.059>.



In the 2020-2024 National Legislation Program, the Indonesian House of Representatives has determined a number of Draft Laws that are priorities to be passed into Law. One of them is the New and Renewable Energy Bill. The birth of the Bill cannot be separated from the ratification of the Paris Agreement on Climate Change. Indonesia has agreed to the Bali Declaration at the G20, one of the points of which is related to the acceleration of sustainable energy transition. Several years before the implementation of the G20, Indonesia has also agreed to the Paris Agreement on climate change mitigation, adaptation and finance in 2015 through Law Number 16 of 2016 concerning Ratification of the Paris Agreement to The United Nations Framework Convention On Climate Change. With the ratification of the agreement, Indonesia must also take steps to reduce carbon dioxide emissions and other greenhouse gases in order to limit global warming below 2.0 degrees Celsius from the figure before the Industrial Revolution. Therefore, the implementation of the Paris Agreement is closely related to the energy transition towards New Renewable Energy.

One of the problems related to the transition from fossil fuels to New Renewable Energy is the aspect of financing or funding. Building these energy sources requires quite a large cost. This is partly because the components of EBT technology are expensive because these components must be imported from abroad. This is different from fossil fuels such as coal and oil which tend to be much cheaper and are also supported by the fact that Indonesia has sufficient Natural Resources such as oil and coal, which makes fossil fuels much more in demand than EBT. Therefore, the investment costs required for the development of EBT in Indonesia are very high.<sup>26</sup>

The energy transition has actually been carried out by a number of communities before the G20. The transition from fossil fuels has begun in the vehicle aspect, where people have started to switch from fossil fuel vehicles to electric energy. It is recorded that there are 33,810 (thirty thousand eight hundred and ten) electric vehicles in Indonesia, including private and conventional vehicles as of November 2022 based on data released by the Ministry of Energy and Mineral Resources.<sup>27</sup>

The awareness of the Indonesian people regarding energy derived from renewable Natural Resources (SDA) is also seen in the use of electricity both in households and in industry. People are starting to use electricity derived from solar energy or solar power. The Ministry of Energy and Mineral Resources noted that as of January 2022, the installed capacity of rooftop Solar Power Plants (PLTS) in Indonesia until January 2022 had reached 51.19 (fifty one point nineteen) megawatt peak (MWp) from 4,974 (four thousand nine hundred and seventy-four) customers.<sup>28</sup> However, the transition to Renewable Energy cannot only rely on the above actions. Referring to the concept of governance, it requires the role of 3 (three) actors,

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<sup>26</sup> Fikry Adzikri, Didik Notosudjono, and Dede Suhendi, "Strategi Pengembangan Energi Terbarukan Di Indonesia," *Jurnal Online Mahasiswa (Jom) Bidang Teknik Elektro* 1, no. 1 (2017).

<sup>27</sup> IDN Times, "Penasaran Sudah Berapa Jumlah Kendaraan Listrik Di RI? Ini Datanya," 2023, <https://www.idntimes.com/automotive/car/ilh-1665114296-ogx/penasaran-sudah-berapa-jumlah-kendaraan-listrik-di-ri-ini-datanya>.

<sup>28</sup> Katadata.co.id, "Pengguna PLTS Atap Hingga Januari 2022 Capai 51,19 MWp, Industri 33%," 2022, <https://katadata.co.id/happyfajrian/ekonomi-hijau/620f56204b462/pengguna-plts-atap-hingga-januari-2022-capai-51-19-mwp-industri-33>.

namely the state, society and the private sector.<sup>29</sup> Therefore, state administrators realize that the energy transition from fossil fuels to renewable energy requires huge funding. As previously mentioned, it requires funds of around US\$ 1 trillion (One Trillion US Dollars) for investment in the New and Renewable Energy sector in Indonesia. One of the steps taken by the organizers is to draft a Bill on New and Renewable Energy in the DPR-RI.

In order not to completely burden the state budget, Indonesia should be able to learn from China and South Africa. The development of green financing is also occurring in several countries which are used to finance several sustainable and environmentally related projects such as transportation, renewable energy and green office buildings. Green financing instruments such as green bonds are issued by both central and regional governments as well as the private sector. For example, in South Africa, the first green bond was issued by the City of Johannesburg in 2014 for R1.5 billion. The proceeds from the bond issue were allocated to fund green projects such as low-carbon transport and energy saving measures for residents such as solar water heaters. The success of this green bond led to the city of Johannesburg being recognised in the Paris Agreement to address climate change and receiving the C40 Cities Award for green bonds. This was followed by the City of Cape Town which became the second city in the country to issue a green bond in 2017. The green bond issued by Cape Town was the first green bond in the country to be listed on the green segment of the Johannesburg Stock Exchange (JSE) for R1 billion (JSE 2017). There has been increasing investor demand for this green bond due to the Invest Cape Town Initiative which brings together stakeholders such as the CBI, Rand Merchant Bank, City of Cape Town, Cape Chamber of Commerce and international investors.<sup>30</sup> In addition, several green bonds have also been issued from the South African private sector. This is largely due to the JSE's green bond segment which has enabled investors to contribute to raising capital for sustainable and environmentally-related projects. Growth Point Properties was one of the first real estate companies in South Africa to issue a R1 billion green bond on the JSE in 2018 with the proceeds earmarked for energy efficiency and green office buildings (Growth Point Properties 2018). Furthermore, in 2019, Nedbank became the first corporate bank in the country to issue a R1.7 billion green bond with the proceeds earmarked for renewable energy projects in the country (JSE 2019).<sup>31</sup> In addition to South Africa, the country that is developing green finance is China. Referring to the results of research conducted by Jiahui Chen, Lun Li, Dechun Yang and Zuogong Wang, it shows that green finance for sustainable development has a constant positive impact in the short term. Although in the current development of green finance it still faces problems such as imperfect information disclosure, low rates of return, long maturity and high risk.<sup>32</sup> Furthermore, Jiahui Chen recommends that which is basically the same as the condition of green finance in

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<sup>29</sup> Y. P. (Yasmine) Sari and K. (Kismartini) Kismartini, "Analisis Aktor Pembentukan Bumdes Pagedangan Cahaya Madani Dalam Perspektif Governance," *Indonesian Journal of Public Policy and Management Review* 6 (2017).

<sup>30</sup> Nomhle Ngwenya and Mulala Danny Simatele, "Unbundling of the Green Bond Market in the Economic Hubs of Africa: Case Study of Kenya, Nigeria and South Africa," *Development Southern Africa* 37, no. 6 (2020), <https://doi.org/10.1080/0376835X.2020.1725446>.

<sup>31</sup> Ngwenya and Simatele.

<sup>32</sup> Jiahui Chen et al., "The Dinamic Impact of Green Finance and Renewable Energy in China," *Frointiers in Enviromental Science* 10 (2022).

Indonesia, that it is necessary to develop integrated standards, norms and statistical systems for green finance and other basic systems must be gradually refined and clarified along with the development and continuous improvement of market practices pasar.<sup>33</sup>

Jiahui Chen's study is quite interesting, where the results of the exploration carried out found a dynamic relationship between green finance, renewable energy and sustainable development in China based on data from January 4, 2013, to October 14, 2022, the following facts were found:<sup>34</sup>

1. First, green finance, renewable energy and sustainable development interact with each other;
2. Second, the relationship between sustainable development and renewable energy is a complex dynamic response process. Increasing sustainable development has a positive effect on sustainable energy use; and
3. Third, green finance for sustainable development has a constant positive impact in the short term, positive shocks of green finance in the long term cause a decrease in the sustainable development index, which in this case is related to the shortcomings in the development of green finance in China.

Referring to the experience of green finance development both in South Africa and especially in China shows a strong relationship between green finance and the development of new renewable energy, both of which are efforts to realize sustainable development. This description, is very relevant to the study conducted, namely to realize sustainable development with the development of new renewable energy, a more specific financial scheme or instrument is needed, such as green bonds or shari'ah bonds in the form of green sukuk.

#### **3.4. Direction of Green Financing Policy as a Source of Financing for the Transition to EBT**

After seeing the development of green financing in South Africa and China, we compare it with the development in Indonesia. In the Capital Market sector in Indonesia, one of the green financing instruments that can be maximized is green bonds or syariah bonds in the form of green sukuk which are growing rapidly today. These financial instruments can be utilized based on the very high enthusiasm of the community. This can be seen from the achievement of the collection of Indonesian Retail Green Sukuk funds carried out by the Ministry of Finance from 2019 which was still at IDR 1.4 trillion (one trillion four hundred billion rupiah) and in 2020 it shot up to IDR 5.4 trillion (five trillion four hundred billion rupiah). Even during the pandemic in 2021, although there was a decrease in the collection of retail green sukuk funds, the value collected was still quite stable reaching IDR 5 trillion (five trillion rupiah).<sup>35</sup>

The growth of green bond issuance in banking and corporations also shows a fairly positive trend. In recent years, there has been an increase in the issuance of green bonds or green sukuk by both the banking industry and corporations. For example, Bank Rakyat Indonesia (BRI) issued Sustainable Environmentally Insightful Bonds I. BRI's corporate action is targeted to raise funds of IDR 15 trillion (fifteen trillion rupiah) with the amount of phase 1

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<sup>33</sup> Chen et al.

<sup>34</sup> Chen et al.

<sup>35</sup> Kementerian Koordinator Bidang Perekonomian Republik Indonesia, "The Importance of Green Financing in the Enhancement of Renewable Energy."

(first) emissions in 2022 amounting to IDR 5 trillion (five trillion rupiah). This corporate action is also an effort to establish BRI as a market leader in the implementation of Environmental, Social, and Sustainability (ESG) in Indonesia.<sup>36</sup>

Looking at the data above, it appears that there is public enthusiasm for investing in environmentally-based capital markets. Therefore, the Government can utilize financial instruments in the capital market to collect funds from the public or the private sector who want to invest in financing the energy transition to EBT, so that the financing does not only rely on the APBN and APBD alone.

In the private investment sector, one of the problems faced is high bank interest. Domestic financing sources currently still offer loans with high interest rates and short tenors.<sup>37</sup> Therefore, this is a challenge for financial institutions to make loans for environmentally friendly or green financing more attractive. The Financial Services Authority as an authorized institution in the capital market, insurance, pension fund, financing institution sector replacing the Capital Market and Financial Institution Supervisory Agency (Bapepam-LK) based on Law Number 21 of 2011 concerning the Financial Services Authority (OJK Law) is aware of the need to strengthen the banking sector related to environmental-based funding. Therefore, OJK issued Financial Services Authority Regulation Number 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies which is expected to make banks more aggressive in financing green projects or sustainable development activities.

From the POJK, banks began to facilitate environmentally-based issuances such as green bonds and syariah bonds for environmental conservation and the development of green infrastructure in all sectors. Seeing the reaction made by the banking sector, the OJK re-issued a regulation, namely the Financial Services Authority Regulation Number 60/POJK.04/2017 concerning the Issuance and Requirements for Environmentally-Friendly Debt Securities/Green Bonds which is the basis for organizing the issuance of green bonds, both green bonds in general and syariah bonds referred to as green sukuk. Furthermore, the provisions of the POJK were revoked and replaced through POJK Number 18 of 2023 concerning the Issuance and Requirements for Debt Securities and Sukuk Based on Sustainability.

When specified on New Renewable Energy funding, the Financial Services Authority Regulation alone is actually still not enough. This is because from an investment law perspective, a capital market which is an investment vehicle for investors must be supported by 3 (three) aspects, namely:

- a. Adequate infrastructure;
- b. A solid legal framework;

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<sup>36</sup> Bank Rakyat Indonesia, "Terbitkan Green Bond, BRI Ajak Masyarakat Berinvestasi Sekaligus Selamatkan Bumi," 2023, [https://bri.co.id/test/-/asset\\_publisher/G3x3P8wG7JRn/content/terbitkan-green-bond-bri-ajak-masyarakat-berinvestasi-sekaligus-selamatkan-bumi](https://bri.co.id/test/-/asset_publisher/G3x3P8wG7JRn/content/terbitkan-green-bond-bri-ajak-masyarakat-berinvestasi-sekaligus-selamatkan-bumi).

<sup>37</sup> B Endarto, F Hadi, and N H Fithri, "Politik Hukum Green Bond Di Indonesia The Politic Of Law On Green Bond In Indonesia," *Jurnal Bina Hukum Lingkungan ...*, 2022.

c. Professional attitude from capital market players"<sup>38</sup>

From the three elements above, the aspect related to a solid legal framework that is meant is the legal order in the capital market sector. The purpose of this aspect is to provide legal protection and legal certainty to the community, in this case, investors. By providing legal protection and legal certainty to investors, hopefully, it will increase public trust in the capital market itself. Therefore, the earliest step that must be taken by state administrators to support private investment and community participation to participate in EBT financing is to organize regulations and regulations that support the concept of green financing. If laws and regulations are inadequate, then the implementation of green financing such as easy access to finance, acceleration of green investment, incentive support and others will not be able to run.

In general, there are a number of things that must be considered regarding energy development in Indonesia, especially regarding the transition to renewable energy, namely:

1. Legal basis and policy, this is in the form of legislation and regulations that provide legal certainty for investment in the energy sector;
2. Financial aspects, where this is related to incentives, rates and ease of funding access;
3. Technology in the form of innovation and acceleration of efficient technological progress;
4. Capacity Development, namely increasing the capabilities of the community and industry in providing and using energy.

When associated with developments related to the discourse on energy transition in Indonesia which is an issue in this research, then the basic legal steps and financial steps must be the focus of attention. Green financial instruments such as environmentally friendly stocks and mutual funds, green bonds and green sukuk as one of the funding mechanisms related to EBT must be included in the material in the EBT Bill. If these financial instruments are included in the EBT Bill, they can become a legal basis for the regulations below it regarding incentives, rates and ease of access to EBT funding, either through Government Regulations (PP), Regulations of the Minister of Finance (Permenkeu) or Regulations of the Financial Services Authority (POJK).

Regarding financing, the legislator has formulated in Article 56 of the Draft Bill on EBT, which is as follows:

- (1) The Central Government and/or Regional Government in accordance with their authority are obliged to seek New Energy and Renewable Energy funds to achieve the national Energy policy target while taking into account the ability of the State Budget, Regional Budget, transition period, and road map for the development of New Energy and Renewable Energy.
- (2) New Energy and Renewable Energy Funds as referred to in paragraph (1) are sourced from:
  - a. state revenue and expenditure budget;
  - b. regional revenue and expenditure budget;
  - c. export levies on non-renewable energy;
  - d. carbon trading fund;
  - e. Renewable Energy certificate funds; and/or

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<sup>38</sup> Nasarudin Irsan dan Surya Indra, "Aspek Hukum Pasar Modal Indonesia," *Penerbit Purnada Media*, 2004.

- f. other sources that are legal and not contrary to statutory regulations.
- (3) The Renewable Energy Fund as referred to in paragraph (2) is used for:
- a. financing of New Energy and Renewable Energy infrastructure;
  - b. financing of New Energy and Renewable Energy incentives;
  - c. compensation for Business Entities that develop New Energy and Renewable Energy;
  - d. research and development of New Energy and Renewable Energy;
  - e. increasing the capacity and quality of human resources in the field of New Energy and Renewable Energy;
  - f. price subsidies for Renewable Energy whose prices cannot yet compete with non-renewable Energy.
- (4) The New Energy and Renewable Energy Fund as referred to in paragraph (1) is managed by the Minister and the minister who organises government affairs in the financial sector.
- (5) Further provisions regarding the New Energy and Renewable Energy funds as referred to in paragraphs (1) to paragraph (4) shall be regulated in a Government Regulation.

Upon reviewing the estimated budget for the energy switch, the drafters realized that it would not be feasible. Therefore, to accommodate this constraint, the phrase "while taking into account the ability" was added to paragraph (1).

Furthermore, when looking at the formulation of the financing article of RUU EBT, obligations related to EBT funding are placed on the executive, in this case, the Central Government and Regional Governments. The Government should be able to coordinate private actors and the public who want to participate in investing in the financing of the energy transition process. Therefore, The EBT Bill should state in the explanation that other legitimate sources are instruments in green financing such as green bonds or green sukuk. By explicitly mentioning it (even though it is in the explanation of the article), it can encourage investors and financial institutions to use green financing instruments as a source of financing for the transition to EBT. This is also in line with the theory of 3 (three) supporting aspects in the Capital Market, one of which is a solid legal framework (in this case, it is at the level of laws based on the hierarchy of laws and regulations in Indonesia).

If the concept of green financing is incorporated into RUU EBT, then this will become the main legal basis in the implementation of coordination between executive institutions represented by the Ministry of Finance and the Ministry of Energy and Mineral Resources as well as with independent institutions related to finance such as the central bank/Bank Indonesia and the Financial Services Authority. Because these institutions are hierarchically equal and cannot intervene with each other. The only way is through coordination established by law. Furthermore, if the EBT Bill has been connected to POJK Number 18 of 2023, then the choice of securities that can be used are Environmentally Friendly Debt Securities and/or Environmentally Friendly Sukuk (EBUS Lingkungan) and Sustainable EBUS. If you look at Article 8, the EBUS can be used to finance renewable energy. In the explanation of Article 8, it is stated that what is meant by "renewable energy" is an energy source produced from sustainable energy resources if managed properly, including geothermal, wind, bioenergy, sunlight, water flow and waterfalls, and movement and differences in sea layer temperatures.

Business activities and/or other activities that utilize renewable energy include the construction of mini hydro and the use of solar power for power generation.

The explanation of the POJK is indeed relevant to the direction of the purpose of the formation of the EBT Bill. However, the EBT Bill should also explicitly mention other legitimate sources and involve elements of the Financial Services Authority in the implementation of technical regulations or derivative regulations of the upcoming EBT Bill so that there is an affirmation regarding the use of green financing instruments as a source of EBT financing in the EBT Bill as well as providing more legal certainty to investors because green financing is mentioned in regulations at the law level. Therefore, the existence of the EBT Bill is expected to be the first step in arranging rules and regulations related to energy issues in Indonesia, including financing. With clear regulations, which can provide certainty and legal protection, hopefully, public participation, coupled with private investment, can also support the financing of energy transition in Indonesia, so that it does not only rely on funds from the APBN and APBD.

Furthermore, when associated with the P2SK Law which was just passed in January 2023, the next step is to create derivative regulations, especially related to the Capital Market. Derivative regulations are needed as a reference for the technical implementation of the matters contained in the Law. This must be created immediately, in addition to being associated with the investment theory, namely the solid legal framework, also reflecting on Indonesia's experience when experiencing the COVID-19 disaster, where many technical regulations related to Law Number 6 of 2018 on Health Quarantine have not been made even though the Law has been in effect since 2018.<sup>39</sup> As a result, the Law could not be implemented in the early days of COVID-19 as was the original intention of the Law's formation. However, the same is true for the P2SK Law, where if technical regulations or derivatives are not made immediately, the P2SK Law will be difficult to implement as intended by the law. Moreover, the Financial Services Authority has stated that there are 35 (thirty-five) topics related to the capital market in the P2SK Law that must be made derivative regulations either through Government Regulations or POJK. The same is true for coordination with related institutions, such as Bank Indonesia, the Ministry of Environment and Forestry, the Ministry of Energy and Mineral Resources and so on. These aspects must be considered by related institutions with the ratification of the P2SK Law so that the intent and purpose of the birth of the P2SK Law can be implemented and can also create legal certainty for investors.

The aspect of legal certainty is not only related to the mention of green financing such as green bonds as an alternative source of funding for the transition to EBT. Legal certainty is also aspects related to dispute resolution related to the use of green financing in EBT investments. This is related to consumer protection, in this case, legal protection for these investors. Moreover, the P2SK Law has explicitly mentioned consumer protection in the financial services sector, including financial sector dispute resolution, Alternative Financial Sector Dispute Resolution Institutions, administrative sanctions, and criminal provisions. The P2SK Law mandates in Article 243 that the Government, Bank Indonesia, and the Financial Services Authority coordinate in the framework of Consumer Protection in the financial sector.

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<sup>39</sup> Fikri Hadi and Farina Gandryani, "Kegagalan Peraturan Penanganan Covid-19 Di Indonesia," *Jurnal Konstitusi* 19, no. 1 (2022), <https://doi.org/10.31078/jk1912>.

Related to the Alternative Dispute Resolution Institution, it is stated in Article 246 of the P2SK Law that further provisions regarding the establishment and conditions of the LAPS-SK as referred to in paragraph (1) shall be regulated in the regulations of the financial sector authorities in accordance with their respective authorities.

The institution related to the use of green financing, especially green bonds or green sukuk in the issue of this article is the Financial Services Authority (OJK). Therefore, OJK must adjust the technical rules of alternative dispute resolution institutions, especially related to disputes on green financing instruments such as green bonds or green sukuk by adjusting the P2SK Law. If the technical rules are not immediately made, it can reduce investor confidence in legal certainty in Indonesia.

Both the EBT Bill currently being drafted by the DPR and the delegation given by law to the Government and related ministries to draft derivative regulations from the P2SK Law should be completed immediately in order to provide more legal certainty to investors regarding green financing. With better legal certainty, hopefully, this can increase investor confidence in investing in the green financing sector, especially if it is used as a source of funding for the transition to EBT so it doesn't solely rely on finances sourced from the state (APBN or APBD).

#### 4. Conclusions

Environmentally friendly financial instruments in the capital market that can be utilized by the public or private sector who want to participate in financing the energy transition to renewable energy can be transacted through green investments such as stocks, environmentally-based mutual funds, green bonds and green sukuk. These instruments are currently experiencing very rapid development in Indonesia. Especially when looking at the success in South Africa and China. Therefore, in order for these green financing instruments to be used as one source of financing in the transition to renewable energy, instruments such as green bonds and green sukuk need to be mentioned in the EBT Bill. In addition, it is necessary to involve the Financial Services Authority in the formulation related to EBT funding. This article can be a legal basis for the use of green financing instruments as one source of financing for the transition to EBT. By explicitly mentioning the use of green financing as a source of financing, in a regulation at the level of a law, this can provide strong legal certainty to investors and financial institutions who want to invest or issue green financing instruments specifically for the transition to EBT. From the EBT Bill, when linked to POJK Number 18 of 2023, investors can use Environmental EBUS or Sustainable EBUS.

#### 5. Reference

- Adzikri, Fikry, Didik Notosudjono, and Dede Suhendi. "Strategi Pengembangan Energi Terbaru Di Indonesia." *Jurnal Online Mahasiswa (Jom) Bidang Teknik Elektro* 1, no. 1 (2017).
- Asshiddiqie, Jimly. *Green Constitution: Nuansa Hijau Undang-Undang Dasar Negara Republik Indonesia Tahun 1945*. Jakarta: Rajawali Press, 2016.
- Berkelanjutan Bagi UMKM Sektor Industri Pengolahan Alas Kaki Di Kota Bandung Oleh, Pembiayaan, Tia Yuliawati, Asni Mustika Rani, and Allya Roosallyn Assyofa. "Efektivitas Implementasi Green Financing Sebagai Alternatif Pembiayaan Berkelanjutan Bagi UMKM Sektor Industri Pengolahan Alas Kaki Di Kota Bandung." *Jurnal Manajemen Dan Bisnis Performa* 14, no. 2 (2017).
- Chen, Jiahui, Lun Li, Dechun Yang, and Zuogong Wang. "The Dinamic Impact of Green



- Finance and Renewable Energy in China." *Frointiers in Enviromental Science* 10 (2022).
- Dewi, Lely Savitri. "Peranan Perbankan Dalam Mendukung Green Economy Melalui Program Green Financing." *Strategi Pengembangan Kinerja Koperasi Dan UMKM*, 2020.
- Endarto, B, F Hadi, and N H Fithri. "Politik Hukum Green Bond Di Indonesia The Politic Of Law On Green Bond In Indonesia." *Jurnal Bina Hukum Lingkungan ...*, 2022.
- Endarto, Budi, Arief Syahrul Alam, Muhammad Harist Murdani, Taufiqurrahman, Nur Hidayatul Fithri, Andy Usmina Wijaya, Fikri Hadi, and Farina Gandryani. *Potret Hukum Kontemporer Di Indonesia*. Yogyakarta: KYTA Jaya Mandiri, 2022.
- Endarto, Budi, Fikri Hadi, and Nur Hidayatul Fithri. *Karakteristik, Arah Kebijakan, & Politik Hukum Pengembangan Green Bond Di Indonesia*. Yogyakarta: KYTA Jaya Mandiri, 2022.
- Hadi, Fikri, Budi Endarto, and Farina Gandryani. "Aspek Hukum Green Bond Sebagai Pembiayaan Energi Baru Terbarukan Di Indonesia." *Jurnal RECHTS VINDING* 11, no. 3 (2022).
- Hadi, Fikri, and Farina Gandryani. "Kegagalan Peraturan Penanganan Covid-19 Di Indonesia." *Jurnal Konstitusi* 19, no. 1 (2022). <https://doi.org/10.31078/jk1912>.
- Handayani, Marsya Mutmainah, Adrianus Eryan, Dyah Paramita, and Adam Putra Firdaus. "Membangun Kembali Kerangka Keuangan Berkelanjutan Indonesia," 2024.
- Hayati, Neneng, Erwin Yulianto, and . Syafdinal. "Peranan Keuangan Berkelanjutan Pada Industri Perbankan Dalam Mendukung Sustainable Development Goals." *Jurnal Akuntansi Bisnis Dan Ekonomi* 6, no. 1 (2020). <https://doi.org/10.33197/jabe.vol6.iss1.2020.473>.
- He, Lingyun, Rongyan Liu, Zhangqi Zhong, Deqing Wang, and Yufei Xia. "Can Green Financial Development Promote Renewable Energy Investment Efficiency? A Consideration of Bank Credit." *Renewable Energy* 143 (2019). <https://doi.org/10.1016/j.renene.2019.05.059>.
- Hendrysusanto, Antonius Glendnaldy, and Carolus Borrromeus Mulyatno. "Memperbaiki Hubungan Antara Manusia Dan Alam Melalui Pemikiran Daisaku Ikeda." In *Proceedings Of The National Conference On Indonesian Philosophy And Theology*. Fakultas Teologi, Universitas Sanata Dharma Yogyakarta, 2024.
- Hutchinson, Terry. "Developing Legal Research Skills: Expanding the Paradigm." *Melbourne University Law Review* 32, no. 3 (2008).
- IDN Times. "Penasaran Sudah Berapa Jumlah Kendaraan Listrik Di RI? Ini Datanya," 2023. <https://www.idntimes.com/automotive/car/ilh-1665114296-ogx/penasaran-sudah-berapa-jumlah-kendaraan-listrik-di-ri-ini-datanya>.
- Indonesia, Bank Rakyat. "Terbitkan Green Bond, BRI Ajak Masyarakat Berinvestasi Sekaligus Selamatkan Bumi," 2023. [https://bri.co.id/test/-/asset\\_publisher/G3x3P8wG7JRn/content/terbitkan-green-bond-bri-ajak-masyarakat-berinvestasi-sekaligus-selamatkan-bumi](https://bri.co.id/test/-/asset_publisher/G3x3P8wG7JRn/content/terbitkan-green-bond-bri-ajak-masyarakat-berinvestasi-sekaligus-selamatkan-bumi).
- Irwansyah, and Ahsan Yunus. *Penelitian Hukum : Pilihan Metode & Praktik Penulisan Artikel*. Sleman: Mirra Buana Media, 2021.
- Katadata.co.id. "Pengguna PLTS Atap Hingga Januari 2022 Capai 51,19 MWp, Industri 33%," 2022. <https://katadata.co.id/happyfajrian/ekonomi-hijau/620f56204b462/pengguna-plts-atap-hingga-januari-2022-capai-51-19-mwp-industri-33>.
- Kementerian Energi Dan Sumber Daya Mineral. "Pemimpin Negara G20 Sepakati Deklarasi Bali, Ini Poin Penting Kesepakatan Sektor Energi," 2022. <https://migas.esdm.go.id/post/read/pemimpin-negara-g20-sepakati-deklarasi-bali-ini-poin-penting-kesepakatan-sektor-energi>.
- Kementerian Koordinator Bidang Perekonomian Republik Indonesia. "The Importance of Green Financing in the Enchancement of Renewable Energy." 2022.
- Lee, Chi Chuan, and Chien Chiang Lee. "How Does Green Finance Affect Green Total Factor

- Productivity? Evidence from China." *Energy Economics* 107 (2022).  
<https://doi.org/10.1016/j.eneco.2022.105863>.
- Mufidah, Nuruz Zakiyyatul, and Miftachur R. Habibi. "Konsep Ecocracy Sebagai Perlindungan Hukum Lingkungan Terhadap Pelanggaran Reklamasi Paska Penambangan." *Simposium Hukum Indonesia* 1, no. 1 (2019).
- Nasarudin Irsan dan Surya Indra. "Aspek Hukum Pasar Modal Indonesia." *Penerbit Pernada Media*, 2004.
- Ngwenya, Nomhle, and Mulala Danny Simatele. "Unbundling of the Green Bond Market in the Economic Hubs of Africa: Case Study of Kenya, Nigeria and South Africa." *Development Southern Africa* 37, no. 6 (2020).  
<https://doi.org/10.1080/0376835X.2020.1725446>.
- Niklas Höhne, Nadine Braun, Hanna Fekete, Ruut Brandsma, Julia Larkin, Michel den Elzen, Mark Roelfsema, Andries Hof, and Hannes Böttcher. "Greenhouse Gas Emission Reduction Proposals and National Climate Policies of Major Economies." Bilthoven, 2016.
- Pathania, Rohit, and Arnab Bose. "An Analysis of the Role of Finance in Energy Transitions." *Journal of Sustainable Finance and Investment* 4, no. 3 (2014).  
<https://doi.org/10.1080/20430795.2014.929000>.
- Redi, Ahmad. *Hukum Sumber Daya Alam Sektor Kehutanan*. Jakarta: Sinar Grafika, 2014.
- Risपालman. "Sejarah Perkembangan Hukum Lingkungan Di Indonesia." *Dusturiah* 8, no. 2 (2018).
- Sari, Y. P. (Yasmine), and K. (Kismartini) Kismartini. "Analisis Aktor Pembentukan Bumdes Pagedangan Cahaya Madani Dalam Perspektif Governance." *Indonesian Journal of Public Policy and Management Review* 6 (2017).
- Sodikin, Sodikin. "Gagasan Kedaulatan Lingkungan Dalam Konstitusi Dan Implementasinya Dalam Pelestarian Lingkungan Hidup." *Masalah-Masalah Hukum* 48, no. 3 (2019).  
<https://doi.org/10.14710/mmh.48.3.2019.294-305>.
- Taghizadeh-Hesary, Farhad, and Naoyuki Yoshino. "The Way to Induce Private Participation in Green Finance and Investment." *Finance Research Letters* 31 (2019).  
<https://doi.org/10.1016/j.frl.2019.04.016>.
- Tjandra, W. Ridwan, Ifdhal Kasim, and Jalal. *Keuangan Berkelanjutan Di Indonesia: Harapan Dan Tantangan*. Transformasi Untuk Keadilan Indonesia (TuK Indonesia), 2017.
- Wibowo Suliantoro, Bernadus. "Konsep Keadilan Sosial Yang Berwawasan Ekologis Menurut Vandana Shiva: Kajian Dari Perspektif Etika Lingkungan." *ICSSIS (The 5th International Conference on Indonesia Studies: "Ethnicity and Globalization")*, 2013.
- Zhou, Xiaoguang, Xinmeng Tang, and Rui Zhang. "Impact of Green Finance on Economic Development and Environmental Quality: A Study Based on Provincial Panel Data from China." *Environmental Science and Pollution Research* 27, no. 16 (2020).  
<https://doi.org/10.1007/s11356-020-08383-2>.