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Climate Change: Reviewing Indonesia's Compliance with the Paris Agreement on Commitments to Reduce Emissions

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ABSTRACT

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Climate change is a threat to current and future generations. The main cause of climate change is the use of fossil fuels such as coal, oil and gas. Amidst the international community's concerns about climate change, the use of fossil fuels has increased, including in Indonesia. This research aims to analyse Indonesia's compliance with the 2015 Paris Agreement. Indonesia as a country that binds itself to the Paris Agreement has a commitment to reduce emissions in an effort to mitigate climate change. This research analysed using regime compliance theory. The research method used is juridical-normative. The results showed that Indonesia complies with the Paris Agreement regime because it fulfils three indicators in the regime compliance theory, namely output, outcome, and impact.

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PRELIMINARY

Cite this paper

Climate change is one of the biggest challenges for the world today.¹ This is because the impacts of climate change are increasingly worrying. This concern is very reasonable because the impact of climate change does not only cover one particular region, but has a global impact. Climate change poses a global threat to biodiversity and ecosystems.² Climate change also has an impact on humans, where the impacts can threaten human life.

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¹ Malhi G.S., dkk, "Impact of Climate Change on Agriculture and Its Mitigation Strategies: A Review", *Sustainability Journal*, Vol. 13, No. 3, January 2021, 1.

² Sarah R. Weiskopf, dkk., "Climate change effects on biodiversity, ecosystems, ecosystem services, and natural resource management in the United States", *Science of the Total Environment*, Vol. 733, September 2020, 2.

Recent decades have shown that climate change has occurred significantly at the global level. Apart from natural factors, climate change is the result of increased human activities that alter the composition of the global atmosphere.³ Some of the other variables that result in climate change due to human actions come from industrial activities, animal husbandry, land clearing processes, and changes in land use.⁴

Global warming and climate change are interconnected, where global warming results in climate change that has a major impact on human health.⁵ Global warming is an indication of the increasing temperature of the earth globally (extending over a radius of thousands of kilometres).⁶ Global warming has even caused the Arctic, also known as the North Pole, to increase in temperature almost four times faster since 1979.⁷ In addition, heat has increased significantly in the last 4 decades since 1980 as shown in the following graph.



Figure 1 Graph of Earth's average temperature from 1901-2020

The prolonged use of fossil fuels puts the environment and living things at risk. Since the 1980s, concerns have been raised that the use of fossil fuels can cause acid rain and increased ozone levels.⁸ Globally, the production of fossil fuels has been increasing every year, so there needs to be a serious effort for countries in the world to reduce the use of fossil fuels. This can be seen in the following graph which shows the increase in global fossil fuel production, which is still happening amidst the international community's concerns about climate change.

⁽Source: World Economic Forum, 2022)

³ Malhi G.S., dkk, *Op.Cit.*, 1.

⁴ Deni Bram, *Hukum Perubahan Iklim Perspektif Global dan Nasional*, Setara Press, Malang, 2016, 51.

⁵ Risqa Novita, "Dampak perubahan iklim terhadap timbulnya penyakit tular nyamuk terutama Limfatik Filariasis", *Journal of Health Epidemology and Communicable Deseases*, Vol. 5, No. 1, June 2019, 31.

⁶ Surtani, "Efek Rumah Kaca dalam Perspektif Global (Pemanasan Global akibat Efek Rumah Kaca)", *Journal PPSDM MIGAS*, Vol. 4, No. 1, 2015, 49.

⁷ Mika Rantanen., dkk, "The Arctic has Warmed Nearly Four Times Faster than the Globe since 1979", *Communications Earth & Environment*, Vol. 3, No. 168, 2022, 1.

⁸ Thomas Covert, "Will We Ever Stop Using Fossil Fuels?", *Journal of Economic Perspectives*, Vol. 30, No.1, 2016, 117.



Figure 2 Graph of world fossil fuel production from 1965-2021



In Indonesia, the use of energy from fossil fuels is still the main support in meeting national energy needs. The consumption of fossil energy is dominated by the use of coal, oil and natural gas.⁹ Based on its use, in 2021 the transportation sector holds the largest portion of fossil fuel use, amounting to 44.2% of total national energy consumption. In second place, the largest use of fossil fuels in Indonesia is the industrial sector at 33.5%.¹⁰

Much of the energy used for fossil fuels in Indonesia comes from coal. Meanwhile, the use of coal has an impact on acid rain and haze, where burning coal produces carbon monoxide and toxic chemicals that can trigger diseases such as asthma and cancer in humans and animals.¹¹ Not only in its use, even the process of mining and processing fossil fuels into ready-to-use fuels also has an impact on global warming, as a consequence of increased carbon dioxide gas emissions.¹²

The source of electricity in Indonesia still relies on fossil energy sources, especially by relying on Steam Power Plants (PLTU) whose machines are driven by dirty coal energy. Whereas the use of coal produces harmful impacts, among others, an increase in the earth's surface temperature of around 25% is contributed by the energy sector that uses coal fuel.¹³ One example of the existence of a PLTU that has a bad impact is PLTU Paiton. PLTU Paiton has a bad impact on the lives of the surrounding community. The impacts include producing a lot of Hazardous and Toxic Material (B3) waste, heat waste that causes damage to coral reefs (coral bleaching), and damage to agricultural commodities due to black dust produced by the PLTU.¹⁴

⁹ Silmi Nurul Utami, 2022, Mengapa Penggunaan Bahan Bakar Fosil Menyebabkan Pemanasan Global?, https://www.kompas.com/skola/read/2022/05/17/101712769/mengapa-penggunaan-bahan-bakar-fosil-menyebabkan-pemanasan-global, Accessed 10 October 2023.

¹⁰ Thomas Covert, *Op.Cit.*, 117.

¹¹ Frances Roi Seston Tampubolon, dkk., "Penggunaan Bahan Bakar Alternatif dalam Pengelolaan Tambang Batubara sebagai Sumber Energi yang Ramah terhadap Lingkungan", Jurnal Ilmu Lingkungan Vol.19, No.1, 2021, 90.

¹² Siti Allifah, dkk., "Dampak Tenaga Air dan Bahan Bakar Fosil terhadap Implementasi Ekonomi Hijau di Indonesia", *Jurnal Sumber Daya Alam dan Lingkungan*, Vol. 9, No.3, 2022, 103.

¹³ Amin Al-Habaibeh, 2018, How the Legacy of Dirty Coal Could Create a Clean Energy Future. https://theconversation.com/how-the-legacy-of-dirty-coal-could-create-a-clean-energy-future-88969, Accessed 11 October 2023

¹⁴ Wahyu Eka Setiawan, dkk., (2022), *Melihat Ulang Dampak PLTU di Tiga Wilayah: PLTU Paiton, PLTU Pacitan, dan PLTU Cilacap*, Penerbit Walhi Jawa Tengah Walhi Jawa Timur Walhi Yogyakarta, 38-40.

The above conditions illustrate that the current state of the environment is increasingly worrying, especially in Indonesia. Climate change not only affects human life today, but will also threaten future generations. Therefore, it is important to analyse how committed Indonesia is to reducing the amount of emissions, especially after the ratification of the Paris Agreement through Undang-Undang No. 16 Tahun 2016 tentang Pengesahan *Paris Agreement to the United Nations Framework Convention on Climate Change*. This is based on the data above that Indonesia still relies on fossil fuels.

This research will analyse Indonesia's compliance with the 2015 Paris Agreement. Under the agreement, Indonesia, through its Nationally Determined Contribution (NDC), committed to reducing emissions by 29% through its own efforts by 2030 or by 41% with international assistance. The Greenhouse Gas (GHG) portion of the reduction is 314 million tonnes of carbon dioxide.¹⁵ It is important to understand the development of Indonesia's position and the efforts made in promoting environmental sustainability. Sustainability is defined as utilisation that is not excessive so that regeneration of resources is possible in the long term.¹⁶

RESULT AND DISCUSSION Indonesia's compliance with the Paris Agreement

Ronald B. Mithcell connects international regime effectiveness and state compliance through three indicators: "outputs", "outcomes", and "impact".¹⁷ If a state or member is able to fulfil the impact of an international regime, then the state is considered to have been effective and successful in realising compliance in its territory.¹⁸ However, a state has the potential to fail to realise impact, which will affect the effectiveness of the agreement. A state's failure to realise impact indicates non-compliance with the international regime (non-compliance due to incapacity).¹⁹ This can happen even if the state in question has declared itself to be compliant with a regime, which will still lead to non-compliance by the state.

Furthermore, with regard to the output of an agreement, Mitchell argues that there are three factors that influence the failure of the output, namely:²⁰

- 1. *Incapacity,* which is an inability caused by financial or financial circumstances, inadequate resources and technology.
- 2. *Lack of relevant administrative,* which is the cause of a country's failure to fulfil compliance commitments caused by administrative deficiencies such as lack of education and knowledge of staff, legal discrepancies, and lack of information.
- 3. *Inadvertence*. which is the cause of a country's failure to fulfil compliance commitments due to external circumstances that prevent the achievement of targets and timelines agreed in the international regime. An example is the monetary crisis.

International treaties are the cornerstone of international co-operation and international law.²¹ The ratification of an international treaty is an important step of a state,

¹⁵ Muliana Mursalim, & Agung Susanto, "Ambivalence of Renewable Energy: Electric Vehicles for Reducing Carbon Emissions and Its Impact on Environmental Damage in Indonesia", *Jurnal Justisia* Vol.7, No.2, 2022, 312. ¹⁶ Rasmus Heltberg, "Property Rights and Natural Resource Management in Developing Countries", *Journal of Economic Surveys*, Vol. 16, No. 2, 2002, 194.

¹⁷ Ronald B. Mitchell, (2007), *Compliance, Effectiveness, and Behaviour Change in International Environmental Law: The Ofxord Handbook of International Environmental Law,* Oxford: Oxford University Press, 896.

¹⁸ Putri Lia Alfiani, "Efektivitas Convention on International Trade in Endangered Species in Wild Fauna and Flora (CITES) di Indonesia Studi Kasus : Penanganan Perdagangan Gading dan Produknya di Nusa Tenggara Timur", *Journal of International Relations*, Vol. 6, No. 1, 2020, 27.

¹⁹ Ibid., 27.

²⁰ Ronald B. Mitchell, (2008), *Compliance Theory: Compliance, Effectiveness, and Behaviour Change in International Environmental Law: The Oxford Hanbook of International Environmental Law*, Oxford: Oxford University Press, 16-17.

²¹ Andrew T. Guzman, "The Design of International Agreements", *The European Journal of International Law*, Vol. 16, No. 4, 2005, 612.

which will determine the involvement of a state in the treaty.²² According to Article 2 (1) letter b of the Vienna Convention of the Law of Treaties of 1969, it is stated that: "ratification, acceptance, approval, accession mean in each case the international act so named whereby a State estabilishes on the international plane its consent to be bound by treaty". This means that a state becomes bound by an international treaty, one of which is if the state concerned has ratified the treaty.

The Paris Agreement is a legally binding international agreement within the United Nations Framework Convention on Climate Change (UNFCCC) on climate change mitigation, adaptation and financing of greenhouse gas emissions.²³ Indonesia has ratified the Paris Agreement, namely by Law Number 16 of 2016 concerning Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change, and was promulgated on 25 October 2016. The ratification shows Indonesia's attachment to the Paris Agreement in order to deal with climate change, where Indonesia has commitments as the implementation of the agreement, one of which is to reduce emissions as a climate change mitigation measure.

To review Indonesia's compliance with the Paris Agreement in 2015, it can be analysed using three indicators as proposed by Ronald B. Mithcell, namely by looking at the "outputs", "outcomes", and "impact" of the Paris Agreement.

Output

The outputs that Indonesia is able to fulfil after the Paris Agreement are through regulations and policies. The main regulation as an output of the Paris Agreement is the ratification of the agreement through Law No. 16/2016 on the Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change. This law is the basis for implementing Indonesia's commitments under the Paris Agreement. Indonesia has also made regulations to support Indonesia's commitment to reduce emissions, including Peraturan Presiden No. 35 Tahun 2018 tentang percepatan pembangunan instalasi pengolah sampah menjadi energi listrik berbasis teknologi ramah lingkungan

In addition to regulations, the output that Indonesia fulfils from the Paris Agreement is the Government's efforts to establish policies with the aim of reducing emissions, such as the policy of subsidising the purchase of electric vehicles in Indonesia. In addition, Indonesia has also agreed to co-operate with other countries in efforts to reduce carbon and mitigate climate change. One of them is Norway. Indonesia has established intensive cooperation with Norway, including reducing emissions from deforestation and forest degradation, sustainable forest management, and reducing GHG emissions from forest fires.²⁴ On 12 September 2022, the cooperation is contained in a Memorandum of Understanding (MoU) on Partnership in Support of Indonesia's Efforts to Reduce Greenhouse Gas Emissions from Forestry and Other Land Use.

Outcomes

The Outcomes of the Paris Agreement can be seen through the Government's efforts in establishing documents related to climate change, including the Rencana Aksi Nasional Pengurangan Emisi GRK (RAN-GRK) and the Indonesia Climate Change Sectoral Roadmap (ICCSR).²⁵ RAN-GRK is a long-term planning document that regulates GHG emission reduction efforts related to the substance of the Long-Term Development Plan (Rencana

²² Setyo Widagdo, "Pengesahan Perjanjian Internasional dalam Perspektif Hukum Nasional" Indonesia, *Arena Hukum*, Vol. 12, No. 6, April 2019, 195.

²³ Davira Syifa Rifdah Suwatno, "Ratifikasi terhadap Traktat Persetujuan Paris (*Paris Agreement*) sebagai Wujud Implementasi Komitmen Indonesia dalam Upaya Mitigasi dan Adaptasi Perubahan Iklim", *Jurnal Pendidikan Kewarganegaraan Undiksha*, Vol. 10, No. 2, 2022, 328.

²⁴ Kementerian Lingkungan Hidup dan Kehutanan, 2022, Kerjasama Baru Indonesia-Norwegia Pada Pengurangan Emisi GRK Sektor Kehutanan dan Penggunaan Lahan Lainnya, https://ppid.menlhk.go.id/berita/siaran-pers/6819/kerjasama-baru-indonesia-norwegia-pada-

pengurangan-emisi-grk-sektor-kehutanan-dan-penggunaan-lahan-lainnya, Accessed 17 October 2023.

²⁵ Mada Apriandi Zuhir, dkk., "Indonesia Pasca Ratifikasi Perjanjian Paris 2015: Antara Komitmen Dan Realitas", *Bina Hukum Ligkungan*, Vol. 1, No. 2, April 2017, 241.

Pembangunan Jangka Panjang) and the Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah). The RAN-GRK is the main reference for development actors at the national, provincial, and city/district levels in planning, implementing, monitoring, and evaluating GHG emission reductions. The RAN-GRK legalisation process is made through a Presidential Regulation. ²⁶ In addition, Indonesia joined the Clean Energy Demand Initiative (CEDI) which focuses on investment in the clean energy sector. The move is an accelerated effort by Indonesia to reduce the amount of emissions, such as the use of new and renewable energy which is expected to reach 23 per cent in primary energy by 2025.²⁷

Impact

The impact that Indonesia can fulfil by ratifying the Paris Agreement can be seen from the impact of Indonesia's implementation on the outputs and outcomes of the Agreement. The economic sector plays an important role and has begun to take part in efforts to protect and preserve the environment, namely with the concept of green economy or green economy. One example is where banks have begun to limit lending to businesses engaged in the coal sector. This is done as an effort to encourage the use of clean and sustainable energy in order to reduce the amount of emissions in Indonesia.

In addition, the most visible impact on Indonesia's commitment to reducing carbon emissions is the policy of subsidising electric vehicles. This policy stems from the enactment of Presidential Regulation, namely Peraturan Presiden Nomor 55 Tahun 2019 tentang percepatan program kendaraan bermotor listrik berbasis baterai (*battery electric vehicle*) untuk transportasi jalan, which is then further regulated in a Ministerial Regulation. The impact on society is the rapid adoption of electric motorbikes, even in two years (2020 to 2022) it was recorded that the use of electric motorbikes in Indonesia had increased 15 times.²⁸

This is certainly a positive impact on efforts to reduce the amount of emissions in Indonesia. One of the emerging characteristics of the electric vehicle policy in Indonesia is the link between electric vehicle promotion and battery production. Indonesia has large reserves of nickel (nickel laterite).²⁹ The rapid use of electric vehicles has reflected a transition from the use of motorised vehicles. The transition will be optimal if supported by the Government's efforts to suppress the sale of motorised vehicles in Indonesia.

Based on the analysis of Indonesia's compliance with the Paris Agreement through the three indicators above. Indonesia can be classified as a country that complies with the agreement (compliance to agreement). Based on the analysis, it can also be seen that Indonesia has endeavoured to produce outputs, outcomes, and impacts from the Paris Agreement in order to reduce the amount of emissions. Indonesia is also still committed to achieving its Nationally Determined Contribution (NDC) target to reduce emissions by 29% through its own efforts by 2030 or by 41% through international assistance.

Indonesia's Efforts to Reduce Emissions

The absence of restrictions on the use of energy from fossil fuels, especially coal, will make it difficult for Indonesia to optimise its energy transition as targeted. Without restrictions on the use of fossil fuels, Indonesia will remain comfortably in the position of

²⁶ Natural Resources Development Center. (2013), *Modul: Kebijakan Nasional Perubahan Iklim*. Jakarta: The Nature Conservancy Indonesia. 26.

²⁷ Portal Informasi Indonesia, 2022, Dukungan Pembiayaan Ekonomi Hijau, https://indonesia.go.id/kategori/editorial/5608/dukungan-pembiayaan-ekonomi-hijau?lang=1, Accessed 19 October 2023.

²⁸ Danur Lambang Pristiandaru, 2023, Berkembang Pesat, Pengguna Motor Listrik Meningkat 15 Kali Lipat dalam 2 Tahun, https://lestari.kompas.com/read/2023/09/13/120000086/berkembang-pesat-pengguna-motor-listrik-meningkat-15-kali-lipat-dalam-2?page=all, Accessed 17 October 2023.

²⁹ Economic Research Institute for ASEAN and East Asia (ERIA), (2021), *Promotion of Electromobility in ASEAN: States, Carmakers, and International Production Networks*, Jakarta: ERIA Research Project Report 2021, 7.

using fossil fuel energy. The use of fossil fuels, which still dominates the fulfilment of national energy, requires the Government to take effective steps in carrying out the energy transition, especially since the Government of Indonesia has also shown its commitment to the 2015 Paris Agreement to reduce emissions.

Based on Indonesia's Nationally Determined Contribution (NDC) to the 2015 Paris Agreement, Indonesia is committed to reducing emissions by 29% through its own efforts by 2030 or by 41% with international assistance. Through this target, Greenhouse Gas (GHG) emissions will be reduced by 314 million tonnes of carbon dioxide.³⁰ In order to implement its commitment, the government then passed Undang-Undang Nomor 16 Tahun 2016. Efforts to realise this commitment are reflected in the target set, which is to use 23% renewable energy in the national energy mix.³¹

In the midst of Indonesia's efforts to reduce emissions, coal-fired power plants still dominate total electricity generation at around 66%. In the same period, renewable energy contributed an increase of 386 MW and around 13.5% of total electricity generation. The addition of 9 MW of renewable energy that began operating at the end of 2021, gave a total renewable energy capacity of 395 MW. However, these renewable energy additions are still far from what is needed to reach the 23% target by 2025 where Indonesia needs to add at least 13 GW of renewable energy by 2025.³² In this case, improved regulation is essential to encourage renewable energy development and achieve the 23% target by 2025.

On the one hand, the government is committed to reducing emissions. However, on the other hand, the government does not seem serious about reducing or limiting the amount of coal production in Indonesia. This can be seen from Indonesia's coal production in 2022, which is 687 million tonnes, where in 2021 the amount of Indonesian coal production was 614 million tonnes. This means that in one year there has been an increase in production by 12%. In fact, domestic coal demand in 2021 was only 133 million tonnes. This figure shows that in 2022 there has been a 45% increase in domestic coal demand.³³ The high amount of production and unrestricted domestic demand reflects that the government does not seem serious about making an energy transition by switching to renewable energy. Renewable energy that is environmentally friendly can provide long-term benefits for the prosperity of society, where the state has the sovereign right to carry out this task.

Indonesia's commitment and the target of reducing carbon emissions in its implementation need to pay attention to the regulations and policies made, where in making regulations and policies is the authority of the government, so it must be made as well as possible in order to achieve the target as a commitment that has been made in the Paris Agreement in 2015. In this case, there are at least two main points that will be discussed in this paper. These two points are: (i) Indonesia's Authority in Making Regulations and Policies as Climate Change Mitigation and (ii) The development of regulations and policies that have been made in order to realise the commitment to reduce carbon emissions.

Indonesia's authority in implementing the Paris Agreement through regulations and policies

In order to realise Indonesia's commitment to reduce carbon emissions in the Paris Agreement in 2015, the fundamental thing that must be implemented by Indonesia is to strengthen the concept of rights owned by the state. It is this right that gives the government the authority to make regulations and policies in order to reduce carbon emissions in the

³⁰ Muliana Mursalim, & Agung Susanto, *Op.Cit*, 312.

³¹ Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, 2021, *Pemerintah Optimistis EBT 23% Tahun 2025 Tercapai*, https://www.esdm.go.id/id/berita-unit/direktorat-jenderal-ketenagalistrikan/pemerintah-optimistis-ebt-23-tahun-2025-tercapai, Accessed 21 October 2023.

³² Institute for Essential Services Reform, (2021), Indonesia Energy Transition Outlook 2022: Tracking Progress of Energy Transition in Indonesia: Aiming for Net-Zero Emissions by 2050, Jakarta: IESR, 36.

³³ Verda Nano Setiawan, 2023, Top! Produksi Batu Bara RI Pecah Rekor Tembus 687 Juta Ton, https://www.cnbcindonesia.com/news/20230130111233-4-409225/top-produksi-batu-bara-ri-pecahrekor-tembus-687-juta-ton. Accessed 15 October 2023.

country. Without this authority, it will be difficult for the government to realise its commitment to reduce carbon emissions as the target has been made, while with the authority to make regulations and policies, it will undoubtedly facilitate the government's efforts to realise its commitment.

General Assembly Resolution 1803 (XVII) on 14 December 1962, states that every state has full authority to realise the welfare of its people. This authority is known as permanent sovereignty. However, the resolution provides some specific guidelines for the implementation of the right of permanent sovereignty, where the first paragraph emphasises that:

> "the right of people and nations to permanent sovereignty over their natural wealth and resources must be exercised in the interest of their national development and the well-being of the people of the State concern"

Based on these provisions, the General Assembly clearly linked the exercise of permanent sovereignty to the requirement to promote national development and the welfare of the people. This aims to avoid circumstances that could be detrimental to society. For example, in the use of natural resources that should be able to provide benefits fairly and equitably to the community. The resolution clearly requires that permanent sovereignty over natural resources should be exercised for national development and the welfare of the people.³⁴ Welfare itself is defined as an effort to make safe and prosperous.³⁵

Based on national law, the government's authority to make regulations and policies comes from the constitution, namely through Article 33 (3) of the 1945 Constitution of the Republic of Indonesia (Undang-Undang Dasar Negara Republik Indonesia Tahun 1945, hereinafter abbreviated as UUDNRI 1945). Article 33 (3) of the UUDNRI 1945 states that: "The land and water and the natural resources contained therein shall be controlled by the state and utilised for the greatest prosperity of the people". This provision then gives birth to authority to the state in the form of rights, where the rights are known as the State Controlling Rights (Hak Menguasai Negara, hereinafter abbreviated as HMN). The meaning of control exercised by the State does not mean ownership (eigensdaad), where if the right of state control is interpreted as ownership, then there will be no guarantees made by the state in order to achieve its goals, namely achieving the greatest prosperity of the people.³⁶

HMN, which was born through Article 33 paragraph (3) of the UUDNRI 1945, is then explained specifically through Article 2 paragraph (2) Undang-Undang No. 5 tahun 1960 tentang Peraturan Dasar Pokok-Pokok Agraria (hereinafter referred to as UUPA). Article 2 paragraph (2) of the UUPA classifies HMN in 3 aspects, namely:

- a. Regulate and organise the allocation, use, supply and maintenance of the earth, water and space. This means that HMN mandates the state, in this case the government is positioned as the subject to organise HMN.
- b. Determining and regulating legal relationships between people and the earth, water and space. In this aspect, the state is positioned as a controller and liaison.
- c. Determining and regulating legal relationships between people and legal acts concerning the earth, water and space. This aspect is still the same as the second aspect, but has a difference in its object, namely legal acts on the earth, water and space.

The concept of HMN is also interpreted by the Constitutional Court through Constitutional Court Decision (Putusan Mahkamah Konstitusi) No. 001/PUU-I/2003 through the review of Law No. 20 of 2002 on Electricity, where the Constitutional Court

³⁴ Nico Schrijver, (2008), *Sovereignty Over Natural Recources: Balancing Rights and Duties*, New York: Cambridge University Press, 308.

³⁵ Pusat Bahasa Departemen Pendidikan Nasional, (2008), *Kamus Bahasa Indonesia*, Jakarta: Pusat Bahasa Departemen Pendidikan Nasional, 1382.

³⁶ Julius Sembiring, "Hak Menguasai Negara atas Sumber Daya Agraria", *Jurnal Bhumi*, Vol. 2, No. 2, November 2016, 121.

Decision gave birth to new legal norms regarding the concept of HMN. The meaning of HMN according to the decision is divided into five functions, namely: (i) to make policy (bleid), (ii) to regulate (regelandaad), (iii) to manage (beheersdaad), (iv) to manage (bestuursdaad), and (v) to supervise (toezichthoudensdaad). Based on this explanation, it is obvious that the government has the authority through HMN to make arrangements and make policies, including in making arrangements/regulations and policies whose purpose is to reduce carbon emissions in Indonesia. Effective climate policy aims to reduce the risk of climate change by establishing an appropriate system between the environment and humans.³⁷ Based on the description above, Indonesia has the authority to make regulations and policies to implement the Paris Agreement in order to reduce emissions.

The progress of regulations that Indonesia has made to realise its emission reduction commitments in Indonesia

In its progress, Indonesia has made regulations after the commitment to reduce carbon emissions in the Paris Agreement in 2015, which are made to support the commitment to reduce national carbon emissions. Examples of these regulations can be seen in the following table.

No.	Regulations
1.	Undang-Undang Nomor 16 Tahun 2016 tentang Pengesahan Paris Agreement To The United Nations Framework Convention On Climate Change (Persetujuan Paris Atas Konvensi Kerangka Kerja Perserikatan Bangsa-Bangsa mengenai Perubahan Iklim).
2.	Peraturan Presiden Nomor 35 Tahun 2018 tentang percepatan pembangunan instalasi pengolah sampah menjadi energi listrik berbasis teknologi ramah lingkungan.
3.	Peraturan Presiden Nomor 98 Tahun 2021 tentang Penyelenggaraan Nilai Ekonomi Karbon Untuk Pencapaian Target Kontribusi yang ditetapkan secara Nasional dan Pengendalian Emisi Gas Rumah Kaca Dalam Pembangunan Nasional.
4.	Peraturan Presiden No. 112 Tahun 2022 tentang percepatan pengembangan energi terbarukan untuk penyediaan tenaga listrik.
5.	Peraturan Presiden Nomor 55 Tahun 2019 Tentang Percepatan Program Kendaraan Bermotor Listrik Berbasis Baterai (<i>Battery Electric</i> <i>Vehicle</i>) untuk Transportasi Jalan.
6.	Peraturan Menteri ESDM Nomor 53 Tahun 2018 tentang perubahan atas Peraturan Menteri Energi dan Sumber Daya Mineral Nomor 50 tahun 2017 tentang pemanfaatan sumber energi terbarukan untuk penyediaan tenaga listrik.
7.	Peraturan Menteri ESDM Nomor 2 Tahun 2023 tentang penyelenggaraan penangkapan dan penyimpanan karbon, serta penangkapan, pemanfaatan, dan penyimpanan karbon pada kegiatan usaha hulu minyak dan gas bumi.

Table 1List of regulations to reduce emissions in Indonesia

³⁷ The Intergovernmental Panel on Climate Change (IPCC), (2007), *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Cambridge: Cambridge University Press, 747.

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8.	Peraturan Menteri Keuangan Republik Indonesia Nomor 38 Tahun
	2023 tentang pajak pertambahan nilai atas penyerahan kendaraan
	bermotor listrik berbasis baterai roda empat tertentu dan kendaraan
	bermotor listrik berbasis baterai bus tertentu yang ditanggung
	pemerintah.

9. Peraturan Otoritas Jasa Keuangan Nomor 14 Tahun 2023 tentang perdagangan karbon melalui bursa karbon.

The government's efforts to support its commitment can also be seen with efforts to utilise new renewable energy (EBT). One of the efforts made is to increase the use of biomass waste as a fuel mixture in Steam Power Plants (Pembangkit Listrik Tenaga Uap, hereinafter referred to as PLTU). ³⁸ The PLTU co-firing method is expected to accelerate the energy transition in Indonesia. The use of co-firing technology confirms Indonesia's commitment to accelerate the net zero emission (NZE) target by 2060. much less, PLTU is one of the largest contributors to carbon dioxide (CO2) emissions. The use of biomass with co-firing technology is carried out by PLN through its subsidiary, PT Energi Primer Indonesia (EPI) by supplying biomass for PLTU in a number of regions.³⁹

As quoted from the PLN website, there are 13 PLTUs that have implemented biomass co-firing from a total of 18 PLTUs that have been tested. In this case, it has produced 269 GWh of electricity from co-firing 276 thousand tonnes of biomass in 2022.⁴⁰ In addition, the Indonesian government has also provided an incentive programme for electric vehicles. Of course, this is an effort made so that vehicle consumers in Indonesia are not only fixated on fossil fuelled vehicles. However, according to the author, there are still many efforts that must continue to be made by the Government in reducing carbon emissions and encouraging the implementation of energy transition in Indonesia, efforts that can be made include limiting or reducing the production as well as the use of coal, the need for regulations in the form of a ban on the establishment of industrial power plants, and efforts to improve the quality of human resources in order to maximise the use of renewable energy resources in Indonesia.

The USD 20 billion Fair Energy Transition Partnership (JETP), launched during Indonesia's G20 Summit, stipulates that emissions from the power sector will peak in 2030 and be capped at 290 MtCO2e. Although the JETP target is not aligned with the Paris Agreement of 1.5°C, it is still possible to accelerate the growth of renewable energy in Indonesia, increase energy efficiency measures, and initiate coal phase-down before 2030. This means that there is still a lot of work to be done by the Government towards the energy transition in Indonesia.⁴¹ So it is important that the Government's commitment and strategic steps in pursuing the use of renewable energy in Indonesia, especially in encouraging sustainable investment in the use of renewable energy in Indonesia.

³⁸ Kristantyo Wisnubroto, 2023, Upaya Indonesia Mengurangi Pemanasan Global dengan Suplai Biomassa, https://indonesia.go.id/kategori/editorial/6949/upaya-indonesia-mengurangi-pemanasan-global-dengansuplai-biomassa?lang=1, Accessed 25 October 2023.

³⁹ Ibid.

⁴⁰ Rifky Syofiadi, 2022, Produksi Energi Bersih, PLN Group Manfaatkan *Co-firing* Biomassa Gantikan Batu Bara, https://web.pln.co.id/media/siaran-pers/2022/12/produksi-energi-bersih-pln-group-manfaatkan-co-firing-biomassa-gantikan-batu-bara, Accessed 25 October 2023.

⁴¹ Institute for Essential Services Reform, (2022), *Indonesia Energy Transition Outlook 2023: Tracking Progress of Energy Transition in Indonesia: Pursuing Energy Security in the Time of Transition*, Jakarta: Institute for Essential Services Reform, 3.



Figure 3 Graph of investment allocation by sector

The graph above shows that the investment allocation to the renewable energy sector is still low if compared to investment in oil and gas, although it is targeted that the value of investment in the renewable energy sector can increase in 2023. Based on the Indonesia Energy Transition Outlook 2023, there has been a decline in the share of renewable energy in Indonesia's primary energy mix from 11.5% in 2021 to 10.4% in 2022.⁴² Therefore, the target of 23% renewable energy use by 2025 is considered unreasonable if no significant reforms are made. This slow adoption of renewable energy reflects the Government's lack of seriousness in realising the use of Renewable Energy. In addition, it is important for the Government to limit the utilisation and mining of coal in the country to curb the growth of coal-fired power plants. These steps need to be taken to implement the commitments made in the Paris Agreement.

CLOSING

Based on the analysis, it can be concluded that Indonesia is classified as a country that complies with the 2015 Paris Agreement. In the Paris Agreement, Indonesia has committed to reduce emissions by 29% through its own efforts by 2030 or increase by 41% through international assistance. The analysis shows that Indonesia is able to fulfil three indicators according to the regime compliance theory. The three indicators are output, outcomes, and impact. Output indicators are fulfilled by Indonesia through the creation of regulations and policies. The outcome indicators are fulfilled through the Government's efforts in establishing documents related to climate change, including the National Action Plan for GHG Emission Reduction (RAN-GRK) and the Indonesia Climate Change Sectoral Roadmap (ICCSR). The impacts that have been met include changes in the economic sector. For example, banks in Indonesia have begun to limit financing to the coal sector. This is done through green economy principles that aim to reduce emissions and mitigate climate change.

⁽Source: Indonesia Energy Transition Outlook 2023)

⁴² Ibid., 9.

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