Indonesia's Commitment in the New Renewable Energy Transition Post Conference of the Parties 26 to Achieve SDG's Point 7

I Putu Arya Aditia Utama[1], Muhammad Yamin[2]

Universitas Jenderal Soedirman

[1]i.utama@mhs.unsoed.ac.id; [2]muhammad.yamin@unsoed.ac.id

Abstract

Indonesia is one of the countries with the largest carbon emitters in the world, so Indonesia's commitment is always questioned in efforts to deal with the climate crisis. This condition has made Indonesia actively involved in various international agreements or conferences that discuss climate change, one of which is active in the Conference of the Parties (COP). This conference is routinely held every year to collect new commitments from countries that are bound in it and at the last implementation at COP-26, one of the agenda items being discussed was renewable energy. It is interesting to examine more deeply regarding Indonesia's commitment to the post-COP-26 renewable energy transition, considering that Indonesia has considerable challenges in realizing renewable energy. Therefore, the purpose of this paper is to examine Indonesia's commitment to the post-COP-26 renewable energy transition based on the points of the Sustainable Development Goals indicator point 7 regarding Affordable and Clean Energy. This study uses the literature review

method in which the author will conduct an analysis based on theory and previous studies sourced from journals, books, and information from the internet. The research results show that Indonesia has a high commitment to the renewable energy transition. This can be seen from Indonesia's roadmap towards 2060 which focuses on increasing the use of renewable energy and the early termination of coal-based power plants. It is hoped that this research can contribute to the development of future studies and policies related to renewable energy in Indonesia.

Keyword: ***COP-26, Indonesia, New Renewable Energy, SDGs***

Introduction

Renewable energy is understood as an energy source that is produced continuously and sustainably, such as energy that comes from the sun, wind, water and geothermal energy. In the last few decade issues and campaigns regarding renewable energy have often been attempted by international actors (countries and institutions) to reduce dependence on fossil energy such as oil, gas and coal down (Downie, 2015). Since the beginning of the 21st century, the development of solar panel technology and wind turbines as a source of electrical energy has grown exponentially and has given the attention of experts and the academic community regarding the influence of renewable energy on global geopolitics (Saptari, 2017). Nonetheless, in this case the state is still an actor who is positioned as a consumer and producer so that competition and competition in the fight for energy is still an unavoidable issue today (Rachmat, 2018).

The issue of energy and saving the environment itself cannot

be separated from the study of international relations. International political studies examine three main reasons for the emergence of global environmental issues, including, first, humans are faced with global environmental problems that affect everyone and can only be managed effectively by cooperating with all, or most, countries. Second, the increasing scale of regional and local problems, such as urban degradation, deforestation, desertification, salination and denudation or water scarcity. Third, the complex relationship between environmental problems and the globalized world economy (Barnet & Duvall, 2009). Meanwhile, in the perspective of International Political Economy (EPI), the phenomenon of crisis in global energy issues is actually only part of a phenomenon of "energy system transition" which marks shifts in the main energy sources (Arfani, 2006). The international security context also pays attention to energy and environmental issues. The energy security approach is a topic that often appears on government policy agendas in various countries which are used to frame strong issues (framing) to construct, normalize, and justify certain policies (Ramadhanie, 2017).

The real threat of environmental damage and global climate warming has become an important concern for every world government. This environmental issue itself emerged at the 1972 United Nations (UN) conference, in Stockholm, Sweden (Hartati, 2012). Global ecological damage due to the massive exploitation of fossil energy that eventually creates climate change has spawned social-environmental movements that have sprung up since the 1970s. the rural/local community sector which includes the community and its ecology (Rochwulaningsih, 2017). Multi-disciplinary and multi-sectoral attention to environmental issues requires the importance of global environmental issues for human life globally. Hartati (2012) in her research stated that concern for the environment has become a global issue due to several factors, including,

first, these environmental problems always have global effects, for example concerning CFCs (Chlorofluorocarbons) which have an effect on global warming and increase the type and quality of diseases caused by The hole in the ozone layer is felt all over the world. Second, environmental issues also concern the exploitation of global resources such as the oceans and the atmosphere. Third, environmental problems are always transnational in nature, so that environmental damage in a country will have an impact on the surrounding area. Fourth, many activities of environmental exploitation or degradation have a local or national scale, and are carried out in many places around the world so that they can be considered as global problems, for example soil erosion and degradation, deforestation, water pollution and so on. Fifth, the processes that cause over-exploitation and environmental degradation are related to broader political and socio-economic processes where these processes are part of the global political economy.

Indonesia is a country blessed with abundant natural resources, especially oil, natural gas and coal. Indonesia has enormous potential in energy, including oil reserves of 9 billion barrels with a capacity of five hundred million barrels per year, gas reserves of 182 trillion cubic feet with a production capacity of 3 trillion cubic feet, and coal reserves of 19.3 billion tons with a production capacity 130 million tons per year (Rachmat, 2018). Even so, the exploitation of fossil energy such as oil, gas and coal will further cause environmental and ecological damage in Indonesia to continue to increase and will become a real threat in Indonesia's socio-economic and political terms. Research conducted by Astra concluded that the chemical energy in fossil fuels is converted into heat, mechanical, or electrical energy through combustion (Astra, 2010). Thus power plants, motor vehicles and factory stoves are the main causes of air pollution. The pollutants released are usually grouped

into hydrocarbons (HC), nitrogen oxides (NOx), and carbon monoxide (CO). Pollutants produced in fossil burning are the biggest factors in the occurrence of smog, acid rain and global warming and climate change.

The new and renewable energy campaign has actually been echoed by the United Nations through the Sustainable Development Goals (SDGs) program, especially point 7 (Clean and affordable energy). An important indicator in point 7 of the SDGs is that inclusive economic development is an effective way to reduce poverty and increase prosperity, but most economic activities are impossible to do without the availability of sufficient, reliable and competitively priced modern energy. Rapid technological advances have lowered the cost of renewable energy for each person. A four percent increase globally in the use of modern renewable energy and three quarters of it is provided by wind, solar and hydro power (Bappenas, 2022). Indonesia can utilize the Clean Development Mechanism (CDM) to develop renewable energy with several advantages, including: reducing investment costs for developing countries, transferring technology, and obtaining environmentally friendly technology. On the other hand, the potential for renewable energy for the supply of electrical energy, such as water energy, can reach 75,000 MW spread over 1,315 locations, geothermal energy potential has prospects of 19,658 MW, wind energy in Eastern Indonesia can reach 5 m/s, and Indonesian solar energy can reach daily solar radiation of 4.8 kWh/m2 (ESDM, 2022b).

More than that, Indonesia should not continue to be trapped in massive exploitation of fossil energy and ignore environmental sustainability. Article 33 of the 1945 Constitution has stated that all of Indonesia's natural wealth must be used as much as possible for the prosperity of the people. Therefore, the use of energy resources should

not backfire, which will ultimately harm society socially, economically and environmentally. Indonesia's involvement in various energy and environmental forums should have provided a basic commitment to implementing the energy transition. One of Indonesia's involvement in the energy and environment regime can be seen in the COP (Conference of the Party) in the UNCCC (United Nations Framework Convention on Climate Change) which contributed to the birth of the Kyoto protocol framework which was then followed by the Paris Agreement as the newest framework in the efforts of world governments to address the climate crisis and environmental degradation. The last conference was held at COP-26 in which Indonesia is still actively participating. COP-26 is a momentum for countries in the world including Indonesia to convey their commitments so it is interesting to study further about Indonesia's commitment to transitioning to new renewable energy after COP-26 as an effort to realize SDG's point 7. This research uses the literature review method. whose data analysis comes from book journals, as well as information from the internet. By using this method, the authors hope to be able to explain comprehensively Indonesia's commitment to a new renewable energy transition.

Discussion

COP-26 Outcomes

Climate change is an environmental problem that is still being highlighted by many countries. This condition has also led all countries to make a commitment to dealing with climate change contained in the United Nations Framework Convention on Climate Change (UNFCCC) in which there are several agreements that must be obeyed by all countries

and the highest decision-making body of the UNFCCC known as Conference of the Parties (COP) (United Nations Framework Convention on Climate Change, 1992). Since it was first held in Berlin, Germany in 1995, there have been various agendas discussed by 197 countries regarding climate change and plans to overcome it. Each country included in the COP will also gather to carry out reviews related to the UNFCCC and it is carried out routinely every year in rotation among the five UN regions which include Africa, Asia, Latin America and the Caribbean, and Europe (UNFCCC, 2022). Currently, the Conference of the Parties has been held 26 times, of which, the last conference took place in Glasgow, Scotland which has four focus issues for discussion including, namely the switch to electric vehicles, ending deforestation with financial assistance, setting rules for carbon markets globally, and mobilizing funds for developing countries (Widayanti, 2022). COP-26 itself was attended by 197 countries that had signed the Paris Agreement and inclusively also attended by various groups, such as environmental activists, members of NGOs, business people, religious groups, scientists, to indigenous peoples. The COP-26 meeting has become crucial since the Paris Agreement was formed on the COP21 agenda in 2015, because for the first time hundreds of countries presented the results of their work on reducing emissions in the last five years in accordance with the agreement on routine reports in the Paris Agreement (Harris, 2022). In addition, COP-26 was also used as the first meeting to conduct an evaluation after the Paris Agreement, because in the previous year the implementation had been postponed due to the COVID-19 pandemic.

The targets evaluated at COP-26 are the main targets set out in the Paris Agreement or when the implementation of COP-21 takes place which includes reducing greenhouse gas (GHG) emissions, encouraging increased production of new renewable energy, maintaining global

temperatures below 2 degrees Celsius or ideally a maximum of 1.5 degrees Celsius and is committed to donating funds to poor countries (Rhodes, 2016). Therefore, COP-26 is an important momentum for countries in the world in conveying their country's progress as well as conveying commitments for future follow-up plans. The COP-26 high-level meeting took place from 31 October to 13 November (EEAC, 2021). In this series, there were various things that were discussed by world countries, in particular the discussion of several issues that were still unresolved at the previous conference and were finally able to be resolved at this conference. The important results obtained after the implementation of COP-26 were the agreement on the Glasgow Climate Pact and also the completed Paris Rulebook (Sun et al., 2022). Through the Glasgow Climate Pact, there are 4 important things that are the main achievements of COP-26, namely mitigation, adaptation, finance, and also collaboration. Each achievement of COP-26 has its own purpose and substance. The first is the mitigation sector, which has the main objective of securing global net zero emission, NDC (Nationally Determined Contribution) from 153 countries, as well as discussions to strengthen mitigation measures in the future. Another thing that has become an achievement in the mitigation aspect is that the progress of countries in the world shows that more than 90% of world GDP has been covered by net zero commitments. In addition, 153 countries also submitted a new emission target (NDC) for 2030. This was due to Mr. Glasgow's climate accelerating the implementation of rules and systems to increase countries' commitment to achieving net zero emissions. Furthermore, at COP-26 countries also agreed to submit new commitments that would be strengthened in the following year, bearing in mind that the ambition to mitigate climate change is increasingly ideal after the completion of the Paris Rulebook. In meeting the targets set, the COP-26 leadership has also pushed for countries' commitments to move

away from coal power, stop deforestation, reduce methane emissions, and accelerate the transition to electric vehicles (UKCOP26, 2021).

The second is about adaptation where the main objective discussed is to increase efforts to deal with climate impacts. One of the results of the agreement reached in this sector is that 80 countries are now under the auspices of the Adaptation Communication and also the National Adaptation Plan in order to increase preparedness for climate risks. In addition, this meeting also agreed on a global work program on adaptation which will further encourage adaptation actions. One of the contents of the work program is the adaptation fund which doubles the funds from 2019 for preparation of adaptation finance in 2025. This is interesting because it is the first time that adaptation with specific financing objectives has been agreed globally. Furthermore, this work program also conveys that there are new partnerships in increasing access to finance, including for Indigenous Peoples who have been marginalized so far. The third is about finance where the main goal in this sector is to mobilize billions and trillions of funding. There are various results that have been achieved, such as developed countries that have made progress and provided $ 100 billion for climate finance and this contribution is made by 2023. In addition, 34 countries and five public financial institutions will stop providing international support to the sector fossil fuel energy. Furthermore, countries in the world have also agreed to formulate climate finance after 2025 and developed countries are committed to increasing vital funding for underdeveloped countries. Lastly is the collaboration sector. This sector is quite important for its presence at COP-26 because this conference involves various parties inclusively so that with collaborative discussions it is hoped that there will be cooperation between sectors in conveying their aspirations. The participation of various parties led to an achievement at COP-26 where there was a Glasgow breakthrough

that would accelerate collaboration between government, business and civil society to realize goals more quickly. The completion of the Paris Rulebook also resulted in an agreement to increase the transparency framework, new mechanisms and standards for international carbon markets, as well as a common time frame for emission reduction targets which can all be achieved with collaboration (ukcop26, 2021).

Through the results of the achievements above, it can be concluded that countries in the world agree to deal with climate change, one of the main actions taken is the transition to new renewable energy or new renewable energy. Making an energy transition is important and essential because currently, one of the biggest contributors to emissions comes from the energy sector. According to the IEA, most global carbon emissions come from burning coal and natural gas (IEA, 2021). Meanwhile, on the other hand, the transition to renewable energy is quite problematic because several developing and developed countries still depend on the non-renewable energy sector and also the financing for making the transition is very large. A simple example is the case at COP-26 when China, as the world's largest methane producer, did not sign a global agreement to reduce methane emissions by 30% by 2030 (Lo, 2021). This indicates that commitment in the transition to new renewable energy is not an easy thing. Even though there are various financial supports from developed countries, it does not mean that developing countries will be that easy to decide to transition because there are various considerations that will make the goal of transitioning to new renewable energy more difficult.

Conditions of Energy Utilization in Indonesia

Indonesia is one of the countries that has major obstacles towards the new renewable energy transition. This is not only caused by inadequate technology or the high costs of making the transition. However, another condition that is quite difficult for Indonesia in moving towards a new renewable energy transition is that Indonesia's wealth of non-renewable energy is very abundant and has resulted in Indonesia's non-renewable energy bargaining position, such as coal, oil and natural gas being quite strategic in the international energy trade contest. Sidi, 2016). In the coal sector, Indonesia is 1 of 10 countries that have the largest coal reserves in the world because Indonesia holds 3.2% of the world's new coal reserves (Bhwana, 2021). According to a report from the Ministry of Energy and Mineral Resources, Indonesia's coal reserves are 38.84 billion tons and are expected to last for the next 65 years (ESDM, 2021a). This number also increased from the previous year by 0.09% after experiencing fluctuations in previous years. The abundant amount of coal has succeeded in bringing Indonesia to become the country with the second largest coal exporter in the world after Australia. Based on data from World Top Exports, the value of Indonesia's coal exports in 2021 will reach US$ 26.5 billion or 21.6% of total world exports (Pransuamitra, 2022).

Picture 1. Indonesia's Coal Reserves

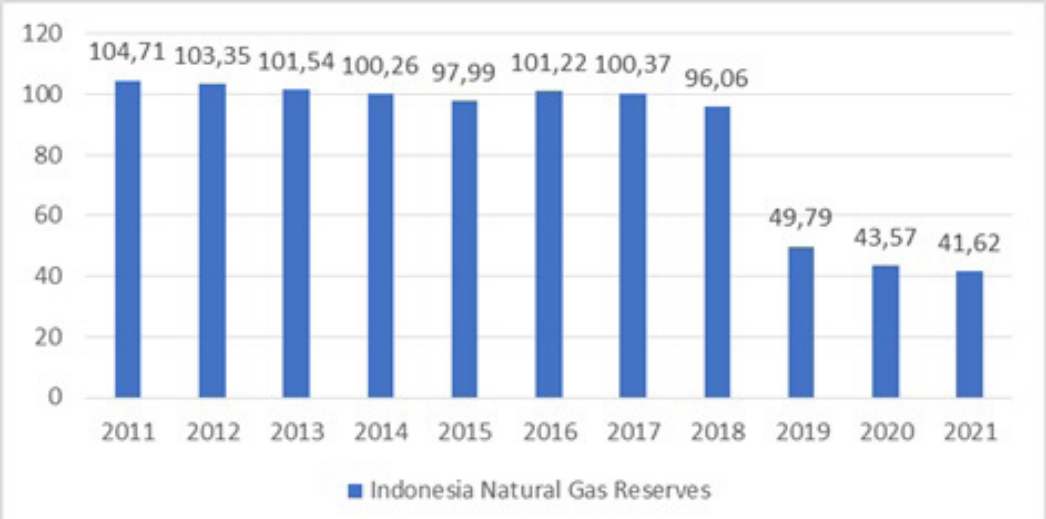
Source: ESDM, 2021

The second is the oil sector where Indonesia's total oil reserves are at 3.95 billion barrels. With sufficiently abundant reserves, the BP Statistical Review stated that Indonesia ranks 24th as the largest oil producing country in the world with a total production of 692 thousand barrels per day or contributing 0.8% of world oil production (BP Stastical Review, 2021). However, in contrast to the increasing amount of coal, Indonesia's oil reserves have continued to deplete in the last decade. Even so, Indonesia continues to export its oil to several countries, such as Japan, South Korea, Taiwan, and China (BPS, 2021b).

Picture 2. Indonesia's Oil Reserves

Source: BP Stastical Review, 2021

Lastly is the natural gas sector where Indonesia's total natural gas reserves are at 41.62 TCSF (trillion square cubic feet). This figure has decreased significantly from previous years which touched 104.71 TCSF (ESDM, 2022c). However, based on data from British Petroleum, Indonesia's natural gas export volume is at 14.6 billion cubic meters, which makes it the eighth largest exporting country in the world (British Petroleum, 2022). The export destinations for Indonesian natural gas include Singapore, China, Taiwan, Malaysia and Mexico (BPS, 2021a).



Picture 3. Indonesia's Natural Gas Reserves

Source: British Petroleum, 2021

Based on the conditions above, it can be seen that Indonesia's biggest obstacle in moving towards a new-renewable energy transition lies in Indonesia's non-renewable energy potential, which is in a quite strategic position. This means that the utilization of non-renewable energy in Indonesia is not only used for domestic consumption, but also as the main export instrument in providing income for the country. This is a challenge for Indonesia in moving towards a new renewable energy transition. However, this does not mean that it is impossible for Indonesia to make the transition to renewable energy because the potential for new renewable energy that Indonesia has is very large, including mini/micro hydro of 450 MW, Biomass 50 GW, solar energy 4.80 KwH/m2/day, wind energy 3-6 m/s, and nuclear energy 3 GW (ESDM, 2022b). Great potential without commitment and concrete steps will ultimately be wasted, so this commitment and concrete steps are needed by Indonesia to transition

towards new renewable energy. Considering that Indonesia is also bound by various international agreements, not only COP-26, but also to the 2030 Sustainable Development Goals (SDGs), one of the goals, such as Affordable and Clean Energy, is part of efforts towards new, renewable energy. Thus, Indonesia should indeed have made efforts to transition towards new renewable energy.

Indonesia's New Renewable Energy Transition Commitment Post COP-26

As previously explained, Indonesia's efforts to transition towards new renewable energy are not only a result of its attachment to the Paris Agreement and COP-26, but also because Indonesia is bound by a global action plan, namely the 2030 SDGs, which have several goals oriented towards a clean energy transition and prevention action against climate change. After the implementation of COP-26 in Glasgow, there were many commitments that were reaffirmed, especially regarding the efforts of countries in the world in the framework of the transition to new renewable energy. The Glasgow Climate Pact produced at COP-26 has had an extraordinary influence on the actions of the countries that are bound by it, including for Indonesia. There are many differences that occurred before and after Indonesia participated in COP-26, especially Indonesia's efforts in transitioning towards new and renewable energy. Indonesia's commitment after COP-26 in transitioning towards new renewable energy can be seen through the Long-Term Strategy for Low Carbon and Climate Resilience (LTS-LCCR). This long-term strategy underlies all steps and commitments made by the Indonesian government (UNFCCC, 2021). There are various efforts that can be seen as a commitment, for example the issuance and regulation related to laws on new renewable energy, early termination of coal-based power plants, expansion of Co-

firing of Steam Power Plants, as well as conversion of diesel to gas and new renewable energy. All of these efforts will be carried out by the government during the period 2021 to 2025 (ESDM, 2021b).

Furthermore, the government also stated that it would start developing the Super Grid in 2025. This Super Grid is the government's strategy in connecting five main electricity areas in Indonesia which will connect Java with Sumatra, Kalimantan with Java, Kalimantan with Sulawesi, and Java-Bali with Nusa Tenggara (ESDM, 2022d). The hope is that by developing the Super Grid, it can overcome the gap between new renewable energy sources and locations in areas that have high demand for electricity. The government also realizes that in transitioning towards new renewable energy, it is necessary to optimize technology so that the government is committed to developing Smart Grid, Smart Meter, and also energy storage systems including Pumped Storage and Battery Energy Storage System (BESS) (Agung, 2021). The other commitments made by the government are that by 2025, the share of renewable energy is targeted at 23% and is dominated by Solar PV. In addition, from 2026 to 2030 as the first stage, electric vehicles will be massively developed, targeted to support the supply of 2 million four-wheeled vehicles and 13 million two-wheeled vehicles. This means that in the following year as the first advanced stage, namely in 2031, the use of diesel will be reduced and solar, hydro and geothermal energy generators will dominate 57% of renewable energy in 2035. In the second stage, namely the period 2036-2040 there will be a cessation of power plants that are not clean energy and the portion of new renewable energy will increase to 66% which is dominated by solar, hydro and bioenergy plants. In addition, sales of conventional two-wheeled vehicles have also been reduced. In the second follow-up stage from 2041 to 2045, the first large-scale ocean current generator and nuclear power plant will start on the Commercial

Operation Date (COD). The increase in the use of renewable energy has also increased to 93%, which is dominated by solar, hydro and bioenergy generators, while sales of conventional four-wheeled vehicles will decrease (ESDM, 2021b).

The last period will occur in 2051 to 2060 where there will be a large-scale development of hydrogen for electricity and the renewable energy developed will be dominated by solar, hydro and wind generators (ESDM, 2022a). Not only on the macro aspect, the government also carries a commitment to the new renewable energy transition on the micro aspect by targeting private actors as well as the community. For private actors, the government emphasizes the role of the private sector as a financial support apart from the government and financial institutions as an effort to increase and accelerate the implementation of low carbon energy (Simanjuntak, 2021). Meanwhile, for community actors, the government will maximize the use of electric stoves, LED lights, and city gas. Communities will also receive incentives when they do a Rooftop Solar Power Plant with the aim that many communities carry out massive development and implementation related to this technology (ESDM, 2022a). Through the explanation above, it can be seen that COP-26 has a very big influence on Indonesia's commitment and steps in transitioning towards new renewable energy. With this strong commitment, it is hoped that Indonesia will not only be able to achieve the NDC in accordance with the targets set after COP-26, but also that Indonesia will be able to realize the goal of SDGs number 7 related to clean energy (sdgs2030, 2017).

Conclusion

The Conference of the Party (COP) 26 has proven to be a very important moment for countries in the world to express their commitment to fighting the climate crisis, one of which is through the energy sector. Indonesia is one of the countries whose commitment has really been tested after the implementation of COP-26. There have been various progresses that have been made by Indonesia to transition towards new renewable energy, starting from infrastructure development from the bureaucrat to the community level, involving various stakeholders as an effort to optimize the transition, and also creating a roadmap that further confirms the government's commitment to gradually use new renewable energy. Even though Indonesia has great potential and a strategic position in non-renewable energy, this condition does not dampen Indonesia's commitment to utilizing new, renewable energy because in fact, Indonesia also has great and strategic potential in the utilization of new and renewable energy so that the steps taken by the government are steps right. This research has been able to answer the main issue regarding Indonesia's commitment to transitioning towards new renewable energy after COP-26 where the steps taken by Indonesia to seriously carry out the transition are also motivated by previous agreements that required countries in the world to achieve SDG's goals, especially those contained in point 7. Through this research, the authors hope to contribute to the development of literature on SDG's in general and new renewable energy in particular. In the future, the authors hope that there will be various follow-up studies monitoring the new renewable energy transition roadmap that has been made by Indonesia as an effort to evaluate each step taken.

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