

# Development of Laws and Regulations on the Use of Forest Conservation Areas for the Utilization of Geothermal Resources (Geothermal Power Plants)

*by Jurnal Yurispruden*

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## Development of Laws and Regulations on the Use of Forest Conservation Areas for the Utilization of Geothermal Resources (*Geothermal Power Plants*)

Article	Abstract
<p><b>Article History</b> Received: Apr 11, 2017; Reviewed: May 10, 2017; Accepted: July 10, 2017; Published: Jan 31, 2018</p> <p>doi: 10.28946/jsrev. Vol2 Iss1.%pp%</p>	<p>Indonesia's high geothermal potential plays a role in national energy security and is believed to reduce carbon emissions that cause global warming. Geothermal is developed through two methods, namely directly or indirectly methods. Indirect geothermal development aims to meet electricity needs in Indonesia through pursuing the fulfill national electrical energy that cannot be supplied by State Power Plant (PLN). The latest developments related to indirect geothermal utilization in conservation areas in connection with the issuance of Law Number 11 of 2020 concerning Job Creation includes the forestry sector in it and its changes through Government Regulation in Lieu of Law (Perpu) Number 2 of 2022 concerning Job Creation, of course about the facilities provided by the Government can have a positive impact on the ease of geothermal utilization. But, it must keep a concern so as not to damage the conservation area, especially the available ecosystem in it.</p> <p><b>Keywords:</b> Geothermal, Conservation, Forest Conservation</p>

### INTRODUCTION

Legal transplantation carried out through the ratification of laws and regulations can cause similarities in applicable legal regulations although there are differences in the legal systems, both the common and civil

laws<sup>1</sup>. It has been a concern of comparative jurists because there may be conflicts in the implementation of the law in legal transplantation<sup>2</sup>. The Ratification of Laws and Regulations following the provisions of the Paris Agreement is widely implemented in our

<sup>1</sup> Kaushiki Brahma, 'Legal Transplantation and Related Party Transactions in Emerging Markets', *International Journal of Disclosure and Governance*, 20.1 (2023) <<https://doi.org/10.1057/s41310-022-00160-6>>; Shuangge Wen and Jingchen Zhao, 'Contextualizing Legal Norms: A Multi-Dimensional View of the 2014 Legal Capital Reform in China', *European Business Organization Law Review*, 19.1 (2018) <<https://doi.org/10.1007/s40804-017-0098-7>>.

<sup>2</sup> Brahma; Thomas Horsley, 'Constitutional Reform by Legal Transplantation: The United Kingdom internal Market Act 2020', *Oxford Journal of Legal Studies*, 42.4 (2022) <<https://doi.org/10.1093/ojls/gqac018>>.

laws and regulations, especially in the field of natural resources and has a positive impact on the preservation of natural resources<sup>3</sup>. The potential of Indonesia's vast natural resources, ranging from the beneath of the earth's surface to those spread across the surface of the country, stretching from Sabang to Merauke, the use of especially conservation forests should not damage the environment around these natural resources<sup>4</sup>. Therefore, the use of natural resources which are generally in forest areas must be considered properly in accordance with the mandate of Article 33 paragraph (3) of the 1945 Constitution, namely to advance public welfare and natural resources used for the greatest prosperity of the people. Before the Forestry Law Number 41 of 1999, the preservation of natural resources in Indonesian forests adopted an international convention related to the interests of natural resource conservation, namely Law Number 5 of 1994 concerning the Ratification of the United Nations Convention of Biological Diversity. This Law is regulated the conservation of biological natural resources and their ecosystems, especially in the field of Forestry<sup>5</sup>. After the issuance of Law Number

41 of 1999 concerning Forestry, the Indonesian government continues to be committed to maintaining the existence of forests in its implementation by concerning:

- a) reduced emissions from deforestation and forest degradation
- b) development of industrial forest plantations
- c) sustainable forest management
- d) forest rehabilitation
- e) peatland management

Besides Indonesia is known for the largest tropical forest in the world which is one of the largest places for biodiversity hotspots in the world with a diversity of plant varieties, genes and ecosystems<sup>6</sup>.

In this current condition, the development of alternative energy to reduce dependence on fossil energy sources has started to be actively socialized by the Government. The results include fossil energy sources that will soon run out and the negative effects of producing high carbon emissions due to the use of fossil energy than can cause world climate change. The use of fossil energy can produce gases that damage the environment and cause global warming, such as carbon dioxide (CO<sup>2</sup>), methane (CH<sup>4</sup>), and nitrous oxide (N<sup>2</sup>O). One

<sup>3</sup> Suvi Borgström, 'Reviewing Natural Resources Law in the Light of Bioeconomy: Finnish Forest Regulations as a Case Study', *Forest Policy and Economics*, 2018 <<https://doi.org/10.1016/j.forpol.2017.10.012>>.

<sup>4</sup> Anshori Ilyas and others, 'Omnibus Law in Natural Resource Management: Challenges and the Future Prospect', *Journal of Critical Reviews*, 7.19 [2020] <<https://doi.org/10.31838/jcr.07.19.107>>.

<sup>5</sup> Nakzim Khalid Siddiq and M Sofian Assaori, 'The Existence of Law Number 41/1999 on Forestry in Forest Management', *Jurnal Fundamental JUSTICE*, 2.Maret (2021).

<sup>6</sup> La Ode Angga La Ode Angga and others, 'Effectiveness of Law Number 41 the Year 1999 in the Case of Illegal Logging in Maluku Province', *Cepalo*, 3.2 (2019) <<https://doi.org/10.25041/cepalo.v3no2.1848>>.

way that Indonesia can do to overcome this problem is to develop alternative beside the fossil energy, namely geothermal<sup>7</sup>.

The use of the term "Geothermal" itself is taken because this energy source comes from heat energy contained in hot water, water vapor, and rocks along with associated minerals and other gases. While geothermal energy is derived from heat contained within the earth's crust and is generally associated with the existence of volcanoes<sup>8</sup>. Geothermal energy sources are potential to be utilized because they are supported by Indonesia's landscape which has many volcanoes and it is located on three large tectonic plates, namely Eurasia, Indo-Australia, and the Pacific<sup>9</sup>. The general characteristics of geothermal energy<sup>10</sup> include:

- 1) A clean, environmentally friendly, and sustainable energy source.
- 2) Can not be exported, only used for domestic consumption (indigenous).
- 3) Free from the risk of rising (fluctuating) fossil fuels.

4) It does not depend on the weather, supplier, and availability of transportation and handling facilities in fuel supply.

5) Free from the risk of increasing fossil fuels.

6) Able to provide local economic development and local communities.

7) It does not require a large area of land.

Based on Law Number 21 of 2014 concerning Geothermal Energy, geothermal utilization is divided into two, namely direct utilization and indirect utilization. Direct geothermal utilization is a direct geothermal utilization exploitation activity carried out without the process of converting from thermal energy into other types of energy for non-electrical needs. Direct geothermal utilization is usually used for natural attractions, such as natural tourist attraction of hot springs in mountainous areas. Meanwhile, the indirect geothermal utilization is an activity of geothermal utilization through the stages of the process of converting heat and/or fluid energy into electrical energy<sup>11</sup>.

<sup>7</sup> Masyarakat Berdasarkan Undang-Undang Nomor, Tentang Kehutanan Zulfatriano, and Melvin J Sinaga, 'Problematika Tindak Pidana Illegal Logging Pada Lahan Milik Masyarakat Berdasarkan Undang-Undang Nomor 41 Tahun 1999 Tentang Kehutanan', *Journal of Criminology and Justice*, 1.1 (2021).

<sup>8</sup> Berliane Rezty Anggriheny and Regina Yusticia Nababan, 'The Consequence of the Legal Application of Forest Area Defense Principles and Approval Principles', *Lambung Mangkurat Law Journal*, 6.2 (2021) <<https://doi.org/10.32801/lamaj.v6i2.256>>.

<sup>9</sup> Rina Kristant and others, 'Institutional Performance of Mining Reclamation in Forest Areas of East Kalimantan', *Jurnal Manajemen Hutan Tropika*, 25.2 (2019) <<https://doi.org/10.7226/jfm.25.2.69>>.

<sup>10</sup> Dady Sulaiman, St Syahdan, and Siti Maria Ulva, 'Characteristics of Bioethanol from Musa Salaccensis ZOLL', *International Journal of Science and Society*, 3.4 (2021) <<https://doi.org/10.54783/ijss.v3i4.389>>.

<sup>11</sup> Ayu Utami and others, 'Geothermal Energy Solid Waste Management: Source, Type of Waste, and the Management', in *AIP Conference Proceedings*, 2020, MMLXV <<https://doi.org/10.1063/5.0007299>>.

Geothermal resources that are often found in forests, especially conservation forest areas which have a definition as the forest areas with certain characteristics that have the main function of preserving plant and animal diversity and ecosystems<sup>6</sup>. The examples of geothermal utilization that are included in conservation areas are Ulubelu area located in Mining Working Area (*WKP*) of Gunung Way Panas, Lampung Province, where there are 4 Geothermal Power Plants (*PLTP*) units operating commercially since 2011. The total installed capacity is currently 220MW. This area is included in the Way Kambas national park of Lampung Province.

In 1991 based on the Decree of the Minister of Forestry number 144/Kpts/II/1991 dated March 13, 1991 was declared as Way Kambas National Park, where the management was from the Way Kambas Natural Resources Conservation Sub Center which was directly responsible to the Tanjung Karang Natural Resources Conservation Center II. With the Decree of the Minister of Forestry Number 185/Kpts-II/1997 dated March 13, 1997 where the Way Kambas Natural Resources Conservation Sub Center was declared as the Way Kambas National Park Office.

The reason for establishing the area as a nature conservation area is to protect a rich area with various wildlife, including tapirs (*Tapirus indicus*), Sumatran elephants (*Elephants maximus sumatranus*), six species

of primates, sambar deer (*Cervus unicolor*), antelope (*Muntiacus muntjak*), Sumatran tiger (*Panthera tigris*), and sun bear.

## METHODS

This type of research is normative juridical research, especially related to the formation and application of law. The typology of this research is analytical prescriptive which will analyze and answer each of the problem formulations using conceptual, normative, historical, and comparative approaches to policies on the use of conservation forest areas for use of geothermal power plants in order to balance the interests of community welfare and environmental protection, especially in conservation forests in the Lampung region. This research will use primary and secondary legal materials, as well as non-legal materials. The primary legal materials that will be used include various laws and regulations related to regulations regarding the use of geothermal energy, land, forestry, and environmental protection. Secondary legal material includes various legal publications (books, journals, etc.) related to agrarian reform, land, forestry, and environmental protection. While non-legal materials include various non-legal research and non-legal data, ministry strategic plan documents related to the implementation of agrarian reform, land, forestry and environmental protection programs, as well as other non-legal documents and data relevant to study. Data collection in this study will be carried out through library research and

searching various data and research materials through available media, such as: the internet and legal documentation networks owned by government agencies (Ministry of ATR/BPN, KLHK, Bappenas, KEESDM, etc.), relevant to this research. The method of data analysis in this study was carried out qualitatively by elaborating and analyzing various secondary data and legal materials obtained in order to answer each of the problem formulations.

## RESULT

Specifically, the use of geothermal energy in Indonesian forest areas, it has been regulated in Law Number 21 of 2014 concerning Geothermal article 5 paragraph (1) regulates the use of geothermal energy in Indonesian forest areas. In the formulation of Article 5 states that the implementation of Geothermal by the Government as intended is carried out on Geothermal for Direct Utilization (Geothermal exploitation activities for non-electrical purposes, such as utilization in the field of agribusiness, industry, tourism, and others) and indirectly (Geothermal exploitation activities to produce electrical energy) located in Conservation Forest Areas<sup>12</sup>.



Table 1. the *PUBM* Smart Book by Directorate General of EBTKE Ministry of Energy and Mineral Resources

The utilization of forests for geothermal is also regulated by amending Law 41/1999 on Forestry by amending the Job Creation Law No. 11 of 2020 *UUCK* and then its derivative regulations Government Regulation (PP) No. 23/2021 concerning Forestry Implementation issued on February 2, 2021. The Job Creation Law changes article 38 paragraph 3 into *"the provision regarding the utilization of forest areas through temporary use by the central government considering certain area and specific limits and environmental sustainability"* has been deleted from the *UUCK* (Indonesian Forestry Law).

This changing forest management paradigm, of course, must be based on the Article 33 paragraph (3) of the 1945 Constitution *"Land, water, and natural resources contained therein are controlled by the state and utilized to the greatest extent for the prosperity of the people."* Therefore, in forest management should involve all

<sup>12</sup> Mentari Mukti and others, 'Geological and Environmental Implications of the Utilisation of Geothermal Energy in the Lahendong Working Area, Indonesia', *Geology, Geophysics and Environment*, 48.1 (2022) <<https://doi.org/10.7494/geol.2022.48.1.69>>.

stakeholders, namely the Government, the society, and the private sector or the business world. In constructing forestry development programs, namely the utilization of forests that do not damage the surrounding environment<sup>13</sup>. So that the state is provided the right of attribution, namely the right of state control, which is to have the power to manage and supervise the management or mining of mineral materials, and is obliged to make the greatest use for the prosperity of the people<sup>14</sup>. State control is carried out by the government. Its scope is carried out by the Government and Local Governments who have the right to conduct preliminary investigations (including exploration), licensing, guidance, and supervision of geothermal operations following with their respective jurisdictions<sup>15</sup>. The Government issued Government Regulation Number 70 of 2009 concerning Policy on Renewable Energy Development and Energy Conservation (PP 70/2009) and Presidential Regulation Number 5 of 2006 concerning National Energy Policy/KEN (Perpres 5/2006).

### **Laws and Regulations that Provide Ease of Forest Areas Utilization for Geothermal**

Geothermal as one of the potential environmental services in conservation areas whose existence is increasingly concern. Geothermal potential in Indonesia is spread to form a 'ring of fire', starting from the islands of Sumatra, Java, Bali, Nusa Tenggara, North Sulawesi, to Maluku. Based on data from the Ministry of Energy and Mineral Resources (ESDM), the length of the line is around 7.500 km and width of 50-200 km, with a potential of around 29.543.5 Mega Watt (MW)<sup>16</sup>. The importance of geothermal development in order to fulfill national demand for alternative energy, which is highly required by Indonesia<sup>17</sup>. The benefits of using geothermal energy include:

- 1) The geothermal power plant (*PLTP*) can provide reliable and sustainable electricity with a capacity factor of 90-95%.
- 2) Electricity production is stable, not intermittent and does not depend on fuel supply/logistics.
- 3) Geothermal is renewable and can operate sustainably by maintaining reservoir balance.

<sup>13</sup> Sukir Maryanto and others, 'Magnetotelluric-Geochemistry Investigations of Blawan Geothermal Field, East Java, Indonesia', *Geosciences (Switzerland)*, 7.2 (2017) <<https://doi.org/10.3390/geosciences7020041>>.

<sup>14</sup> Maryanto and others.

<sup>15</sup> Dmitry Rudenko and Georgii Tanasov, 'The Determinants of Energy Intensity in Indonesia', *International Journal of Emerging Markets*, 17.3 (2022) <<https://doi.org/10.1108/IJOEM-01-2020-0048>>.

<sup>16</sup> Hadi Setiawan, 'Geothermal Energy Development in Indonesia: Progress, Challenges and Prospect', *International Journal on Advanced Science, Engineering and Information Technology*, 4.4 (2014) <<https://doi.org/10.18517/ijaseit.4.4.405>>.

<sup>17</sup> Nugroho Agung Pambudi, 'Geothermal Power Generation in Indonesia, a Country within the Ring of Fire: Current Status, Future Development and Policy', *Renewable and Sustainable Energy Reviews*, 2018 <<https://doi.org/10.1016/j.rser.2017.06.096>>.

4) The *PLTP* projects are aligned with the long-term development target in achieving net-zero emissions.

The government has issued related regulations as follows:

- (1) Presidential Regulation (*PERPRES*) Number 98 of 2021 the Implementation of Carbon Economic Value for Achieving Nationally Determined Contribution Targets and Controlling Greenhouse Gas Emissions in National Development;
- (2) ESDM (Geothermal) Field:
  - a) Law No. 21 of 2014 concerning Geothermal as amended by Law No. 11 of 2020 concerning Job Creation;
  - b) Government Regulation No. 79 of 2014 concerning National Energy Policy;
  - c) Presidential Regulation No. 22 of 2017 concerning the General Plan of National Energy;
  - d) Regulation of the Minister of Energy and Mineral Resources Number 22 of 2019 concerning Guidelines for the Implementation of Inventory and Mitigation of Greenhouse Gases in the Energy Sector;
  - e) Regulation of the Minister of Energy and Mineral Resources Number 37 of 2018 concerning Geothermal Working

Area Offering, Geothermal Permit Granting, and Geothermal Business Assignment;

After the issuance of Law number 11 of 2020 concerning Job Creation, the Government has also issued Government Regulation (PP) 5 of 2021 concerning the Implementation of Risk-Based Business Licensing and PP 25 of 2021 related to the implementation of the ESDM sector, including the geothermal sector.

Geothermal is a source of thermal energy contained in hot water, water vapor, and rocks along with associated minerals and other gases that are genetically inseparable in a geothermal system<sup>18</sup>. Geothermal utilization is divided into 2 (two) types of utilization as follow<sup>19</sup>

- (1) Indirect Utilization is the exploitation of Geothermal utilization through the process of converting heat and/or fluid energy into electrical energy. Geothermal for Indirect Utilization located throughout Indonesia, including Production Forest Areas, Protected Forest Areas, Conservation Forest Areas, and Marine Areas.
- (2) Direct Utilization is the business activity of utilizing Geothermal directly without converting from heat

<sup>18</sup> Dian Kurnia Anggreta, Gumilar Rusliwa Somantri, and Semiarto Aji Purwanto, 'Social Acceptance: Mapping the Perspectives of Stakeholder in the Development of Geothermal Power Plants in West Sumatra, Indonesia', *International Journal of Sustainable Development and Planning*, 17.4 (2022) <<https://doi.org/10.18280/ijSDP.170402>>

<sup>19</sup> Pambudi.

and/or fluid energy into other types of (NSPK)<sup>20</sup>. The licensing mechanism has energy for non-electrical purposes. changed into:

contained in Article 5 (1) Geothermal Implementation by the Central Government as referred to in Article 4 paragraph (2) for Direct Utilization which is in:

- (1) Across provincial areas, including Production Forest Areas and Protected Forest Areas;
- (2) Conservation Forest Area;
- (3) Conservation areas in waters; and
- (4) Sea area of more than 12 (twelve) miles measured from the coastline towards the high seas throughout Indonesia.

Changes in provisions regarding geothermal in the Job Creation Law are contained in Article 15 which states that *"Further provisions regarding norms, standards, procedures and criteria for Geothermal business for Direct Use as referred to in Article 11, including Geothermal energy prices shall be regulated by Government Regulations."* In addition, it is derived from its derivative provisions, namely Government Regulation No. 25 of 2021 which contains Licensing in the form of direct utilization, all of which will later refer to the Standard Norms of Procedures and Criteria

1) For the type of geothermal business and licensing itself is divided into two types, namely direct and indirect geothermal utilization (such as *PLTP*). After the issuance of PP 5 of 2021, direct geothermal utilization does not require a permit. The licensing is not from the Regional Government level, but from the licensing of entrepreneurs. In the past, there was a direct geothermal utilization permit, but now there is none.

2) Geothermal utilization in marine or coastal areas. After the *UUCK*, there is no need for a recommendation process to the relevant ministries or sectors, *"In the event that Geothermal business activities for Indirect Utilization are located in conservation areas in the waters, Geothermal License holders must obtain permission from the minister who organizes government affairs in the marine sector."*

In order to support Geothermal Utilization, the Government has issued a number of regulations that facilitate its implementation in conservation forests so that there is coordination with forestry and other ministries in efforts to utilize geothermal

<sup>20</sup> Winsherry Tan, 'The Needs For Public Services Relating To The Legalization of Public Documents In Education', *SASI*, 28.4 [2022] <<https://doi.org/10.47268/sasi.v28i4.1151>>.

resources, including several regulations that have been issued by the government <sup>21</sup>:

**Law No. 5 of 1990 concerning the Conservation of Biological Natural Resources and Their Ecosystems**

This law regulates the area protection, namely Nature Reserve Areas (KSA) consisting of Nature Reserves and Wildlife Reserves and Nature Conservation Areas (KPA) consisting of National Parks, Nature Parks, and Forest Parks. These designations are one of the efforts to reserve all types of ecosystems and habitat types that are still intact with sufficient area before they are already damaged <sup>22</sup>.

The government ever planned that 10% of the total land in Indonesia would be designated as a conservation area. If fulfilled, the rate and number of species loss can be maintained. The most complex Nature Reserve and Nature Conservation Area in terms of biodiversity, area, and problem is the National Park. It is a nature conservation area that has an original ecosystem, managed with a zoning system that is used for the purposes of research, science, supporting tourism, and recreation cultivation. <sup>23</sup>

Article 30

*Nature conservation areas have the function of protecting life-supporting systems, preserving the diversity of plant and animal species, as well as sustainable use of biological natural resources and ecosystems.*

Article 31

*(1) Within national parks, botanical forest parks, and natural parks, activities can be carried out for the purposes of research, science, education, supporting cultivation, culture, and natural tourism.*

*(2) Activities as referred to in paragraph (1) shall be carried out without reducing the main functions of each area.*

**Law No. 41 of 1999 on Forestry as well as post-UUCK regulations**

In Article 6 paragraph (2) of Law No. 41 of 1999, the Government determines forests based on their main functions into three types, namely Conservation Forests, Protection Forests; and Production Forests. The explanation of Conservation Forests is further elaborated into three categories of conservation debt, including natural reserve forest areas, nature conservation forest areas, and hunting parks. Forest

<sup>21</sup> Pambudi.

<sup>22</sup> Muhammad Ikhwan Lubis, 'Implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Law No. 5 of 1990 on the Conservation of Biological Natural Resources and Its Ecosystems in Law Enforcement Efforts and Guarantees of Environmental Rights in Gunung Leuser National Park, Indonesia', *Journal of Indonesian Legal Studies*, 2.1 (2017) <<https://doi.org/10.15294/jils.v2i01.16635>>.

<sup>23</sup> SH Dr. Budi Riyanto, *Reformasi Kebijakan Penggunaan Kawasan Hutan: Menuju Sinergitas Kegiatan Sektor Pertambangan Dan Kehutanan* (Bogor: Lembaga Pengkajian Hukum Kehutanan dan Lingkungan).

management include forest utilization and forest area use<sup>24</sup>.

Meanwhile, the permission for the use of forest areas for the purposes of mining/Geothermal activities are granted by the minister by considering certain area and period limits as well as environmental sustainability. Article 24 stated *"the utilization of forest areas can be carried out in all forest areas except nature reserve forests and core zones as well as forest zones of national parks"*. So, the use of geothermal is allowed in the Law. The legal basis used is in Article 38 paragraphs 1 and 3 which states that the use of forest areas for development purposes outside forestry activities can only be carried out within production forests and protected forests.

Meanwhile, the utilization of forest areas for mining purposes, the permit is granted by the minister by considering certain area and period limits and also environmental sustainability in accordance with Government Regulation (PP) Number 23 of 2021 concerning Forestry Implementation.

Through the Omnibus Law concept, the government can revise 79 laws

through only one law. This change is included in the forestry law with the issuance of Law No. 11 of 2020 concerning *UUCK* and then its derivative regulation Government Regulation (PP) No. 23/2021 concerning Forestry Implementation. Here are the changes in forest use<sup>25</sup>:

- (1) The Job Creation Law distinguishes the term use of forest areas from the utilization of forest areas. These two terms are not new because they already exist in Law Number 41/1999 on forestry. Several articles mention it in laws. For example, article 16 paragraph 2 which stated *"forest area stewardship includes activities to implement functions and the use forest areas"*. This means that the use of forests is regulated in stewardship which is part of forest planning.
- (2) Article 21 of the Forestry Law states that forest management includes the utilization of forests and the use of forest areas. Meanwhile, the term of forest utilization is found in articles 23-29. Article 24 stated *"the utilization of forest areas can be carried out in all forest areas except nature reserve forests as well as the core zones and*

<sup>24</sup> Gunawan Widjaja, 'THE ROLE OF ADAT FOREST AND ADAT LAW COMMUNITY IN ENVIRONMENTAL PROTECTION IN INDONESIA', *Xinan Jiaotong Daxue Xuebao/Journal of Southwest Jiaotong University*, 57.3 (2022) <<https://doi.org/10.35741/issn.0258-2724.57.3.6>>.

<sup>25</sup> Adnan Hamid, 'A Critical Study of the Job Creation Law No. 11 of 2020 and its Implications for Labor in Indonesia', *International Journal of Research in Business and Social Science* (2147- 4478), 10.5 (2021) <<https://doi.org/10.20525/ijrbs.v10i5.1271>>.

*forest zones of national parks*". Article 38 paragraphs 1 and 3 state that the use of forest areas for development purposes outside forestry activities can only be carried out within production forests and protected forests. Meanwhile, the use of forest areas for mining purposes, the permit was granted by the minister by considering certain area, period limits, and environmental sustainability.

- (3) The Job Creation Law changes article 38 paragraph 3 to *"the use of forest areas is carried out through borrowing by the central government by considering certain area and period limits as well as environmental sustainability"*. Since permission is no longer granted by the minister, paragraph 5 of this article, which provides for the granting of permission requires the approval of the House of Representatives (*DPR*) is deleted.
- (4) As for the forest utilization, the Job Creation Law adds one article, namely article 29A which stated *"the utilization of protected forests and production forests can be with social forestry"*. The technicalities will be further explained in government regulations. Then, the government regulation on this matter was issued on February 2, 2021 of *PP* Number 23/2021 concerning forestry

implementation. Article 32 only mentions the use of forest areas for development purposes outside forestry activities. The area is restricted only to production forests and protected forest areas. In *PP* 23/2021, the use of forest areas is regulated in articles 89-116. It mainly regulates the types of forest land use outside strategic and unavoidable forestry activities, such as mining, power generation, transmission, and distribution electricity, as well as new and renewable energy technologies, public roads, toll roads, railways, reservoirs, dams, defense industries. All activities must not change the function of the forest area.

The use of forest areas with specific purposes is divided into three types: the use of forest areas with special purposes, the use of forest areas with special management, and the use of forest areas for food security. Social forestry, rehabilitation, religious purposes, food estate, and research involve in this category. The use of forests is regulated in articles 126 to 161.

Forest utilization aims to obtain optimal, fair, and sustainable benefits of forest products and services for the welfare of the community. Its activities, among others, are the utilization of

environmental services, non-timber products. Forest utilization can be in production forests, conservation forests, and protection forests.

**Presidential Regulation (PERPRES) Number 112 of 2022 concerning the Acceleration of Renewable Energy Development for Electricity Supply**

After the issuance of the *UUCK*, the government issued Presidential Regulation Number 112 of 2022 to control the utilization, use, and allocation of land, as well as to succeed in targeting national conservation land use opportunities. Previously, in Law No. 5 of 1990, conservation areas could only carry out three activities, namely: (1) protection of life support systems; (2) preservation of biodiversity and its ecosystems, and (3) sustainable use of biological natural resources and ecosystems. This article is used as the basis is article 23 paragraph (4) which provides attribution authority to the Minister and relevant ministers, particularly in spatial planning (ATR / BPN), heads of institutions, or local governments that are required to provide the necessary support in the development of power plants that utilize renewable energy sources in accordance with their authority.

Article 23 paragraph (4)

(4) The Minister who organizes government affairs in the field of land and spatial planning shall provide support as referred to in paragraph (1) in the form of giving priority to the development of power plants that utilize renewable energy sources in planning the allocation of national governance, as well as facilitating licensing in the field of land and spatial planning for the use of Wasted Energy in order to reduce

(5) The Minister who organizes government affairs in the field of environment and forestry provides support as referred to in paragraph (1) regarding the ease of licensing in forest areas and cost relief in the context of developing Renewable Energy.

**Procedures for Utilizing Conservation Area Forests**

In the use of conservation forests for geothermal activities, it is carried out in stages, including preliminary survey activities, exploration approvals, feasibility studies, exploitation, and utilization<sup>26</sup>. The explanation is as follows:

1. Conduct a Preliminary Survey

<sup>26</sup> Donna Asteria and others, 'Forest Conservation by the Indigenous Baduy Community in the Form of Customary Law', *Journal of Cultural Heritage Management and Sustainable Development*, 2022 <<https://doi.org/10.1108/JCHMSD-12-2020-0171>>.

Preliminary Survey is an activity that includes collecting, analyzing, and presenting data related to information on geological, geophysical, and geochemical conditions, as well as surveying temperature slopes if necessary, to estimate the location and the existence of Geothermal resources.

Before carrying out geothermal activities, a study of the Effect and Mitigation of Geothermal Utilization on Socio-Cultural Aspects and Biodiversity in Conservation Areas is carried out as follows:

- (1) Conduct identification and inventory land and regional conditions, including identifying the actual land cover, both managed by area managers for business activities and in collaboration with other parties including the community.
- (2) Conduct a landscape management analysis of conservation forest areas by considering:
  - a. Plan for the utilization of geothermal environmental services in conservation areas (technical considerations).
  - b. The condition of biodiversity potential in conservation forest areas (ecological considerations).
  - c. The level of dependence of communities on conservation forest areas (social, economic and cultural considerations).
  - d. Identification and analysis stakeholder roles.
  - e. Identification and analysis of stakeholders' role for making models of regional landscape management and social engineering which includes the roles, positions, and authorities as well as the involvement of communities, community leaders, indigenous leaders, non-governmental organizations, government agencies, and universities in the management of conservation forest areas.
- (3) Conduct an impact analysis, namely an analysis of the impacts that will occur, including ecological, social, economic, and cultural impacts as well as the influence of stakeholders in order to mitigate possible impacts on the planned implementation of geothermal exploration activities in conservation areas in the future.
- (4) Preparation for landscape management models and social

engineering of conservation forest areas for geothermal.

- (5) Conduct consultations with stakeholders, by consulting with the Ministry of Environment and Forestry, the geothermal industry, the Ministry of Energy and Mineral Resources, and the community regarding the results of the preparation of area management models and social engineering of conservation forest areas for geothermal.

## 2. After Obtaining Approval with Exploration

Exploration is a series of activities that include geological, geophysical, geochemical, test drilling, and exploration well drilling which aims to obtain information on sub-surface geological conditions to find and obtain estimates of Geothermal reserves.

### 3. Feasibility Study

Feasibility studies are conducted as studies **to obtain detailed information on all aspects related to determining the technical, economic, and environmental feasibility of a proposed Geothermal utilization business plan and/or activity.**

Within the Exploration period as IPB holders are required to conduct a Feasibility Study which includes the activities of:

- (1) determination study of reserves in suitable Work Areas for exploitation;
- (2) environmental permits;
- (3) development well construction plan and reinjection well;
- (4) design of steam field facilities;
- (5) planned capacity of Electric Power Generation and its generation stages;
- (6) economic feasibility;
- (7) plans for Electric Power Generation and Electric Power Transmission systems;
- (8) Geothermal resource maintenance plan for exploitation activities;
- (9) Geothermal environmental services utilization permit plan, if there is a plan for the use of environmental services in conservation forest areas;
- (10) occupational safety and health plans;
- (11) environmental protection and management plan; and
- (12) Geothermal post-exploitation plan

### 4. Exploitation

Exploitation is a series of activities in certain Working Areas which include drilling development wells and reinjection wells, building field, supporting facilities, and Geothermal production operations.

### 5. Geothermal Utilization

The implementation of the Electricity Supply Business for the public interest must be in accordance

with the national Electricity General Plan and the Electricity Supply Business plan.

#### **Land Use of Geothermal Power Plant (PLTP) Project**

In line with the Government's plan to increase the role of new and renewable energy (EBT)<sup>27</sup> in the national energy mix which is targeted to reach 23 by 2025, the use of technology and land efficiency commitments, PLTP projects in conservation areas only require 0.6 hectares of land per MW of power plants<sup>28</sup>. So as not to damage forest conservation areas, following with the mandate of Law Number 5 of 1990 which emphasizes the management of conservation forest areas refers to the following:

1. ensure the maintenance of ecological processes that support life support systems for the continuity of human development and welfare (protection of life support systems);
2. ensure the preservation of the diversity of genetic resources and types of ecosystems to support development, science, and technology that enable the

fulfillment of human needs that use biological natural resources for welfare (preservation of germ sources);

3. control the ways of utilizing biological resources so that their sustainability is guaranteed due to the side of unwise science and technology.

No	Power Plant	Contractor	Capacity
1	Geothermal power plant (PLTP), PLTP (PLN GG) will Ulubelu Lampung (Way Kambas National Park)	PT PLN Gas & Geothermal plant inconduct a joint study for the development of Geothermal Power Plants (PLTP) with PT Pertamina Geothermal Energy (PGE).	100 – 110 ha to 110 MW
2	Rantau Dedap geothermal power plant (PLTP) in Muara Enim, South Sumatra, (protected forest area of	PT Supreme Energy Rantau Dedap (SERD)	50 – 60 ha to 55 MW

<sup>27</sup> Maw Maw Tun and others, 'Renewable Waste-to-energy in Southeast Asia: Status, Challenges, Opportunities, and Selection of Waste-to-energy Technologies', *Applied Sciences (Switzerland)*, 2020 <<https://doi.org/10.3390/app10207312>>.

<sup>28</sup> Davindra Dirgantara, 'Persepsi Masyarakat Tentang Rencana Pembangunan PLTP Gunung Talang-Bukit Kili Di Kabupaten Solok', *Jurnal Kapita Selekta Geografi*, 1. September (2018).

	Jambul			
	Gunung Patah)			
3	Salak	Star Energy	228	ha
	geothermal	Geothermal	(IPJLPB)	
	power plant	Salak (SEGS)	to	377
	(PLTP) bogor		MW	
	(in the area of			
	Mount			
	Halimun			
	Salak National			
	Park)			

Table 3 : Geothermal Utilization in Conservation Forest Areas

The Geothermal Exploitation Scheme in the Conservation Forest Area is as follows:



Table 4: Flow of the PUBM Smart Book Geothermal Utilization scheme by the Directorate General of EBTKE of the Ministry of Energy and Mineral Resources

#### D. Conclusion

Based on the provisions of Article 33 paragraph (3) of the Constitution of the Republic of Indonesia Year 1945 which states that: "Earth and water and the *natural resources contained therein are controlled by the state and utilized for the greatest prosperity of the people.*" The energy sector that has great potential to be maximized is through Geothermal utilization that can also be said to be one of the energy sources that does not

cause much damage to the surrounding environment. Law Number 21 of 2014 concerning Geothermal which allows for the utilization of geothermal in conservation areas which previously in Law Number 41 of 1999 concerning forestry could not be carried out forestry activities in conservation forest areas, this is emphasized in the changes of the *UUCK* geothermal sector that is given more convenience in the use of conservation forests as stated in **Article 5 (1) the Implementation UUCK Geothermal by the Central Government as referred to in Article 4 paragraph (2) is Geothermal utilization activities for Indirect Utilization located throughout Indonesia, including production forest areas, protected forest areas, conservation forest areas, and marine areas.**

In this amendment to the Job Creation Law in Article 15, it is stated that "*Further provisions regarding norms, standards, procedures, and criteria for Geothermal exploitation for Direct Utilization as referred to in Article 11 including the price of Geothermal energy are regulated by Government Regulations.*" The ease of geothermal investment in direct utilization is no longer requires *DPR* approval so that the Government can directly regulate with *PP* only. Of course, it must be addressed with good supervision, because species in conservation forests must also be maintained geothermal development by not damaging forest ecosystems, especially in the

preliminary survey before the issuance of geothermal permits, an ecological, social, economic, cultural impact analysis, and stakeholder influence that must be carried out in order to mitigate possible impacts on the planned implementation of geothermal exploration activities in conservation areas in the future.

One other factor is that the land use of geothermal power plants (PLTP) that is very low compared to the use of other energy sectors. It can be an added value from the use of this sector, so it must be accompanied by good post-Geothermal exploitation recovery. The regulations issued by the government are (1) Law No. 5 of 1990 concerning the Conservation of Biological Natural Resources and their Ecosystems (2) Law No. 41 of 1999 concerning Forestry as well as post-UUCK regulations, and (3) Presidential Regulation (PERPRES) Number 112 of 2022 concerning the Acceleration of Renewable Energy Development for the Provision of Electricity. For conservation forest areas in the Sumatra area has many animals that must be preserved. Geothermal utilization is required to follow certain standards and norms by not damaging the landscape area of forest areas.

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