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## Coal Domestic Market Obligation (DMO) policy implementation in Indonesia to achieve energy security

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### Abstract

As a country that still uses coal-fired power plants as the main electricity producer, the coal crisis that happened in 2009-2011 had a big impact on Indonesia. Therefore, to avoid disruptions in electricity productivity, the government established a coal DMO policy for coal producers in Indonesia. The implementation of this policy has succeeded in ensuring the stability of coal supply in Indonesia in the following years. However, at the end of 2021, Indonesia experienced another coal crisis despite the implementation of DMO policy. Therefore, this paper aims to explain hoe coal DMO impact security energy in Indonesia and we also try to describe the implementation of DMO policy in Indonesia. The data used in the study were obtained from literature studies from various publications related to coal DMO policy in Indonesia. The result shows that the coal crisis at the end of 2021 occurred as an impact of the supply of coal DMO that was not in accordance with the provisions (35000 MT of the total 5.1 million MT). Despite that, we also found that coal DMO plays important roles in ensuring the energy security in Indonesia.

**Keywords:** DMO; Coal; Public policy; Energy security

### 1. Introduction

Indonesia is one of the countries that still utilizes coal-fired Steam Power Plants to meet most of its electricity needs. Even based on PP No. 22 of 2017 concerning the General National Energy Plan (RUEN), Indonesia is projected to still utilize electricity from coal for around 30% in 2025, and 25.3% in 2050 [1]. So that Indonesia still needs coal supplies for the next few decades.

According to the Ministry of Energy and Mineral Resources (KESDM), Indonesia still has 38.84 billion tons of coal reserves with an average annual production of 600 million tons. So that the age of coal reserves owned by Indonesia is estimated to reach 65 years [2]. However, in reality, in 2009-2011, Indonesia experienced difficulties in meeting domestic coal needs due to improper management processes. So the government issued the Minister of Energy and Mineral Resources Regulation No. 34 of 2009, which regulates the Prioritization of Supply of Mineral and Coal Needs for Domestic Interest [3], which includes the determination of DMO (Domestic Market Obligation). With the implementation of the DMO policy, the coal producers are obliged to sell some of the coal produced for domestic purposes [4]. DMO is a policy offered by the government in managing coal for domestic purposes [5].

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However, at the end of 2021, Indonesia experienced another domestic coal crisis. The coal crisis that occurred at that time was said to be bigger than the previous coal crisis. This forced the government to take extreme steps to ban coal exports. The coal crisis that occurred was allegedly caused by coal producers who did not fulfill their DMO. In which, the DMO (equal to 25% of the annual coal production plan approved by the government) should be able to meet the domestic coal needs in Indonesia.

As previously explained, most of the electricity demand in Indonesia is still met by coal-fired power plants. Thus, the coal crisis can affect the electricity supply from the State Electricity Company (PLN) and disrupt energy security in Indonesia. Disrupted energy security will have a negative impact on national defense in Indonesia. Although in the end the problem of the coal crisis can be resolved, an in-depth study related to the DMO needs to be carried out to prevent the coal crisis from arising due to the same thing. Therefore, this paper was created with the aim of looking at the relationship between DMO and energy security through a study of its criteria, namely: availability, accessibility, affordability, acceptability and sustainability (4A+1S) and its politics, while taking into account the following aspects: communication, resources, disposition and bureaucratic structure in terms of national defense.

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## **2. Material and methods**

This research uses qualitative method and literature study. The materials used in this research is gathered from various publications and papers related to coal DMO implementation in Indonesia. These publications are legally obtained from the internet using the keyword such as: 'coal DMO in Indonesia'; 'Indonesian coal DMO'; 'the implementation on coal DMO in Indonesia'; and 'coal crisis in Indonesia'. Then, based on those materials we use qualitative descriptive to build the conclusion.

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## **3. Results and discussion**

### **3.1. Indonesian Coal Crisis in 2021**

From January 1 to January 31, 2022, the government imposed a ban on coal exports for holders of Mining Business Permits (IUP) or IUPKs for the Production Operation stage, IUPK as Continuation of Contract/Agreement Operations and PKP2B [6]. This decision was taken in connection with the domestic coal crisis that occurred in Indonesia. So as to ensure that PLN's generating activities continue to be carried out, and meet the electricity needs of most Indonesians. According to the General for Mineral and Coal of the Ministry of Energy and Mineral Resources, Ridwan Jamaludin, this prohibition policy had to be taken because otherwise around 20 PLTUs with a power of around 10850 megawatts (MW) would be extinguished. And this can disrupt the stability of the national economy [6].

Ridwan also explained that the domestic coal crisis is related to the realization of coal supply every month to PLN, which is below the DMO percentage obligation. This shortfall then accumulated and resulted in a coal supply deficit that occurred at the end of the year at PLN's power plants. Where from 5.1 million metric tons (MT), only 35000 MT was fulfilled as of January 1, 2022 [6]. Although in the end the government decided to lift the ban for companies that have fulfilled the DMO, the Indonesian government's policy of banning coal exports has also influenced the increase in global reference coal prices (HBA). HBA rose to US\$ 188.38 per ton in February 2022. This price increased by US\$ 29.88 per ton compared to HBA in 2022. This is related to the high demand in the world market for coal. So that the export ban by the government causes coal to become increasingly scarce [7].

The condition of the coal crisis can threaten energy security in Indonesia if it is not handled properly. And energy security is one of the important factors that can affect the development of a nation. Therefore, if the energy security of a nation is poor, then the safety of the nation can be threatened. So that the coal crisis that occurs is a form of threat that must be resolved to maintain national defense. Therefore, a more in-depth study on the effect of coal DMO on energy security and national defense needs to be carried out. This study can be carried out by looking at the relationship between DMO and the criteria for energy security 4A and 1S, as well as by looking at its political aspects in the form of: resource communication, disposition and bureaucratic structure in terms of national defense.

### **3.2. The Relation of Coal DMO and Energy Security in Indonesia**

The DMO policy came into effect as a result of the difficulties in meeting domestic coal demand that occurred during the 2009-2011 period. As a result of these problems, many domestic coal-using industries have difficulty operating, thus indirectly affecting the nation's economic condition [8]. So it is not wrong to say that the DMO policy was taken as one of the government's efforts to improve national energy security in Indonesia. Namely through prioritizing domestic coal

supply by PKP2B, IUP and IUPK to domestic coal users. To understand more about the relationship between DMO policy and national energy security, the following will explain its impact on each of the 4A and 1S energy security criteria.

As previously explained, the energy sector plays an important role for the sustainability of development in a country. Therefore, energy management which includes supply, utilization and exploitation must be carried out in a sustainable manner [9]. The DMO policy is one of the efforts taken by the government to ensure the long term domestic availability of coal [10].

Guaranteeing the domestic availability of coal is very important, because basically the current DMO policy still regulates the fulfillment of national coal needs of 25% of the total coal produced in the Annual Work Plan and Budget. Where 80% of the quota is used to meet electricity needs in Indonesia, and the rest is used for other domestic sector needs [11]. Given that most of the electricity consumed by Indonesians is the result of coal-fired power plant generation, the implementation of this DMO will also ensure the availability of electricity supply for Indonesian citizens.

In addition, coal mining companies must support the security of domestic coal supply by selling their coal production to domestic coal consumers as needed. Thus, there are two strategic consequences from the implementation of this DMO: 1) there must be a determination of the value of domestic coal demand; and 2) there must be a determination of the minimum percentage of domestic coal sales (PMPBDN) for coal production from producers [10]. So it can be concluded that the determination of this DMO provides guarantees of coal accessibility for domestic entrepreneurs who need coal, as well as for citizens to enjoy electricity from the coal.

### **3.3. The Impact of Coal DMO**

The implementation of this DMO has an impact on the decline in revenue from coal producers [12]. This is related to the determination of the HBA which is lower than the price of coal exported abroad. The pricing is based on the Decree of the Minister of Energy and Mineral Resources No. 139.K/HK.02/MEM.B/2021 which was ratified on August 4, 2021 [13]. The determination of the HBA is mainly applied to coal that is used for public purposes, such as to meet the needs of electricity. So that the electricity produced by PLN can be enjoyed by consumers at affordable prices. Thus the determination of the HBA can guarantee the ability of the community to enjoy the electrical energy produced (affordability).

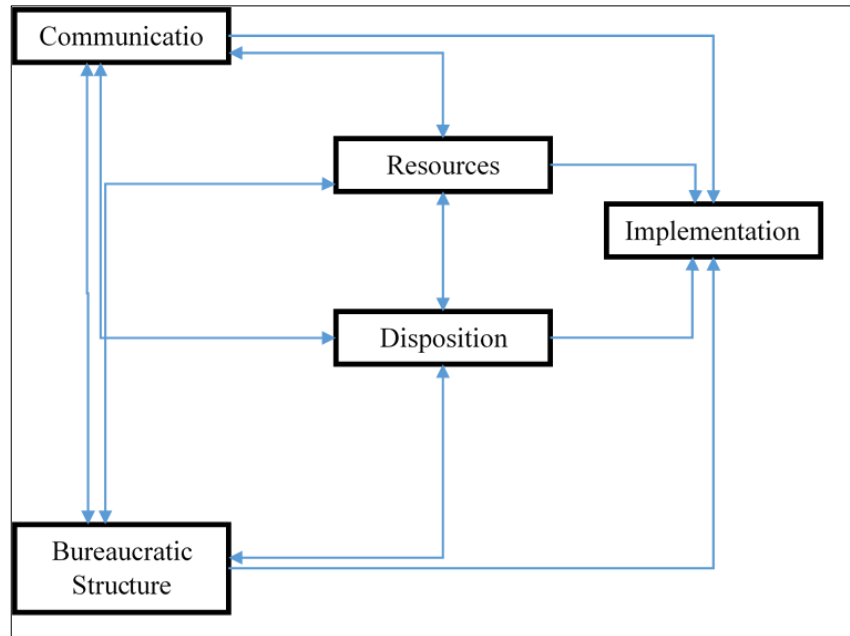
Meanwhile, the determination of the DMO is also quite important to create a positive investment climate. Because with this DMO, it can be a guarantee from the Indonesian government for the availability of coal for industrial needs in Indonesia. So that this DMO policy is also an affirmation for entrepreneurs who depend on coal as their industrial fuel not to hesitate to invest in Indonesia [14]. Increasing investment in Indonesia will of course have a negative impact on the people of Indonesia. Because by increasing investment in Indonesia, it will increase employment opportunities for the community, besides that, the nation's income will also support development in Indonesia. This positive impact can be achieved with the acceptance (acceptability) from the community.

As previously explained, the availability of coal supply can also support development in Indonesia. Because to support the energy transition, adequate infrastructure is needed. Where for infrastructure development, of course, coal is needed as an energy source to support the development process. In addition, the creation of a positive investment climate as a result of the DMO will trigger more investors to invest in NRE projects in Indonesia. So that the determination of the coal DMO will support the sustainability of energy in Indonesia, both from coal fuel and from New and Renewable Energy (EBT) through the development of the infrastructure needed for the energy transition.

Based on the description above, it can be understood that the establishment of a DMO policy can support the achievement of energy independence so as to ultimately maintain energy security in Indonesia [5]. Energy security can support Indonesia's economic development and development. Positive economic growth can improve the welfare of Indonesian citizens and support national defense.

### **3.4. Coal DMO implementation in Indonesia**

The achievement of the above conditions can be realized if it is supported by good policy implementation. According to Edward III, as a public policy, to examine its implementation, it can be seen from four factors, namely communication, resources, attitude/disposition, and bureaucratic structure [15]. The relationship of the four factors can be seen in Figure 1. The four factors must be implemented continuously, because each factor has a close relationship with other factors. The following is a description of these factors.



**Figure 1** Variables of public policy implementation based on Edward III [15]

#### 3.4.1. Communication

Policy implementation can be said to be effective if each individual who is responsible for the policy can understand the goals and measures to be achieved [15]. And for this to be done, of course, good communication is needed between these individuals. Likewise, with the coal DMO policy. In its implementation there must be clear communication from the actors involved, namely the stakeholders and the Director General of Mineral and Coal as the party responsible for establishing and ratifying the DMO, coal mining entrepreneurs (IUP holders in the Coal Production Operation stage, IUPK in the Coal Production Operation stage, Agreement Coal Mining Concession in Production Operation stage, IUPK as Continuation of Contract/Agreement Operation, and Coal Transportation and Sales Permits), as well as domestic coal consumers. With good communication between the above DMO policy actors, each individual will clearly understand the objectives and measures of this policy. So that the coal DMO policy can be implemented effectively.

#### 3.4.2. Resource

The resource factor of the coal DMO policy is not only coal itself, the resource components referred to in this case include the number of staff, expertise from policy implementers, related information needed in implementing the policy, the authority to ensure the implementation of the policy as expected, and facilities -Supporting facilities for policy implementation, including infrastructure and funds needed for policy implementation [15]. As previously explained, the policy implementing staff involves not only the government but also coal mining entrepreneurs and domestic coal users. Meanwhile, in terms of authority, it is clearly regulated in several related laws and regulations [4]:

- The 1945 Constitution of the Republic of Indonesia;
- Law No. 30 of 2007 concerning Energy;
- Law Number 4 of 2009 concerning Mineral and Coal Mining;
- Law Number 11 of 2020 concerning Job Creation
- Government Regulation No. 23 of 2010 concerning the Implementation of Mineral and Coal Mining Business Activities;
- Regulation of the Minister of Energy and Mineral Resources of the Republic of Indonesia Number 11 of 2020 concerning the Third Amendment to the Regulation of the Minister of Energy and Mineral Resources Number 7 of 2017 concerning Procedures for Determining Standard Prices for Sales of Metal Minerals and Coal;
- Decree of the Minister of Energy and Mineral Resources of the Republic of Indonesia Number: 139.K/HK.02/Mem.B/2021 concerning the Fulfillment of Domestic Coal Needs; and
- Decree of the Minister of Energy and Mineral Resources of the Republic of Indonesia Number: 58.K/HK.02/MEM.B/2022 concerning the Selling Price of Coal to Fulfill the Domestic Needs of Raw Materials/Industrial Fuels.

Meanwhile, the information referred to for example is information needed to determine domestic coal needs, information on domestic coal production, information on coal prices, and so on.

#### *3.4.3. Disposition*

The attitude of policy implementers is one of the factors that affect the effectiveness of policy implementation. There are three forms of attitude/response of implementing a policy, namely [15]:

- Executor awareness
- Implementing instructions/directions to respond to the program towards acceptance or rejection
- Response intensity

Related to the implementation of the coal DMO policy, all layers of policy implementation must be responsible for the policy, both in terms of providing domestic coal supply, coal export quotas, and also coal production limits in areas that have been set by the government [5].

#### *3.4.4. Bureaucratic structure*

Bureaucratic structures are characteristics, norms, and patterns of relationships that occur repeatedly in executive bodies that have both potential and real relationships with what they have in carrying out policies [15].

In terms of implementing the coal DMO policy, KESDM and the Directorate General of Mineral and Coal as the policy implementer are obliged to implement all laws related to the DMO policy [5]. Meanwhile, the bureaucrats as the implementers of the coal DMO policy must be able to achieve the objectives of the policy.

The four factors above have a close relationship and influence each other. So if one factor is not implemented properly, then the other factors will be affected. This will result in the implementation of policies that are not optimal.

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## **4. Conclusion**

The coal DMO policy is one of the public policies aimed at overcoming the problem of the lack of domestic coal supply in Indonesia. This policy is one of the government's efforts in managing coal in Indonesia. The implementation of a good coal DMO policy can support the energy security of the Indonesian nation. This can be seen by linking the 4A and 1S criteria with the coal DMO policy. Where this policy will support the availability of domestic coal in Indonesia, ensure that the domestic coal stock can be used (accessibility) by domestic coal consumers, set prices that are affordable for domestic coal users (affordability), creating a positive investment climate and increasing the nation's economic growth so that it can be accepted by the community (acceptability), as well as creating energy in Indonesia (sustainability), both directly and indirectly.

To assess the effectiveness of the implementation of the coal DMO policy, it can be seen from 4 factors, namely communication, resources, disposition, and bureaucratic structure. These four factors have a close relationship and influence each other. Only if these four factors can be implemented properly can the implementation of the coal DMO policy be successful.

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## **Compliance with ethical standards**

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### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

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