

Analysis Of Government And Non-Government Roles By Considering Energy Needs To Make Defense Energy Policy. Case Study: Navy

Molvin Daga, Imam Supriyadi, Muliahadi Tumanggor, Sri Murtiana, Dzilal Iksan

Faculty of Defense Management, Energy Security

Republic of Indonesia Defense University

Jakarta, Indonesia

E-mail: molvindaga1998md@gmail.com



Abstract— This study focuses on defense energy policy as it is critical to environmental sustainability and the operational efficiency of the Navy. This chapter examines the role of government and non-governmental organizations (NGOs) in defense energy policy making with a specific focus on the Navy. The goal is to identify factors that influence defense energy policy, including environmental considerations and military needs. In determining defense energy policy, the government sets regulations, budget allocations, and strategies that consider military needs. NGOs, particularly those focused on the environment, advocate for greener policies and oversee the implementation of military energy policies to ensure compliance and accountability. Effective and sustainable policies require a balance between environmental responsibility and military needs. To implement an effective defense energy policy, collaboration between government, NGOs and the private sector is required. Navy personnel are more aware and practicing energy efficiency through education, training and monitoring conducted by NGOs. In addition, NGO advocacy influences policy-making to consider environmental issues such as the use of renewable energy and carbon reduction. Cooperation with the government, NGOs, and the private sector can direct defense energy policy towards improving energy efficiency, considering sustainability aspects, and meeting the operational needs of the Navy in a responsible and sustainable manner.

Keywords— Defense Energy Policy, Navy, Government, Non-Government, Environment, Energy Efficiency

I. INTRODUCTION

Energy is crucial in supporting a country's Navy. Reliable, efficient and sustainable energy is necessary for the Navy to carry out its complex tasks. Military energy is required for a variety of purposes, such as the operation of warships and the maintenance of electronic equipment and weapons systems that require a steady supply of electricity. Energy policy is designed to influence the supply or demand of energy products at the same time to have a favorable impact on the supply and demand of energy products (Bamberger, n.d.). Therefore, the formulation of defense energy policy is important to ensure adequate energy availability for the Navy's operational sustainability.

Both non-governmental organizations and the government play an important role in the defense energy policy formulation process. By considering sustainability and national security aspects, the government is responsible for formulating policies that support military energy needs. On the other hand, non-governmental organizations often provide input, advocacy and technical support in the formulation of effective and sustainable energy policies.

This case study provides insights into how government and non-government organizations collaborate to meet the Navy's energy needs. The roles of government and non-government organizations include developing a comprehensive energy strategy, investing in environmentally friendly and efficient energy technologies, and collaborating with the private sector and civil society. Supply shortages and higher prices fuel concerns that the country lacks an energy policy (CRS Report for Congress Energy Policy: Historical Overview, Conceptual Framework, and Continuing Issues, n.d.). With the increasing complexity of global security threats and evolving environmental challenges, it is important for a nation to have a defense energy policy that is aligned with the Navy's needs. The role of governments and non-governmental organizations is critical in formulating and supporting these policies. This study, which focuses on the Navy, provides deep insights into creating and implementing an effective defense energy policy.

This research aims to improve our understanding of successful and sustainable defense energy policy making by examining data regarding military energy requirements, available energy resources, and environmental considerations. By providing useful insights to decision makers, practitioners and academics, this research contributes to maintaining the Navy's operational readiness and sustainability through an in-depth understanding of the role of government and non-governmental organizations in defense energy policy making. Furthermore, this research is expected to help broaden the discourse on the relationship between energy, defense and the environment, and provide a foundation for better future policies.

In recent years, the need for an efficient and responsive defense energy policy has increased due to the complexity of global security threats and rapid environmental changes. Energy strategies in the defense context, including the Navy, need to be thoroughly evaluated due to oil price volatility, dependence on conventional energy sources, and environmental concerns such as pollution and climate change. Formulating an appropriate defense energy policy requires an in-depth understanding of military energy requirements, availability of energy resources and current technological capabilities. Moreover, given the impact of resource exploitation on marine ecosystems and climate change, sustainability and environmental aspects must also be considered in the process.

Law NO 34 of 2004 on the duties and role of the TNI is as a means of national defense. The Navy has a strategic role in maintaining sovereignty, security and national interests in Indonesian waters, considering that Indonesia is an archipelago with vast maritime territory. Therefore, a review of defense energy policy is very important, especially for the Navy, to ensure optimal operational readiness while still considering sustainability and the environment.

II. RESEARCH METHODOLOGY

The research method used in this research is descriptive qualitative analysis. Descriptive analysis is a research method designed to describe a situation or phenomenon without reference to context (Ardiansyah, 2021) In this study, the descriptive analytical method was used to collect and analyze data on the impact of coal development on the environment.

Supporting Theory:

- a. Maritime Defense Energy Security Theory emphasizes that maintaining maritime defense energy security is an important part of protecting a country's sovereignty and security in coastal areas.
- b. The Military Energy Dependence Theory states that the success of military operations, including the Navy, is highly dependent on the availability and adequate access to energy.
- c. Environment and Sustainability highlights the importance of considering sustainability and environmental elements when formulating energy policies, including defense energy policies. Policy innovations and voluntary agreements can also increase the use of sustainable energy and awareness of environmental impacts (Malkki et al., 2012).
- d. Public Policy Theory shows how public policy, such as defense energy policy, involves multiple stakeholders, political processes, and decision-making processes. According to Bridgeman and Davis, 2004 in Edi Suharto (2007: 5) explains that public policy has at least three interlocking dimensions, namely as an objective, as a legal or legally valid choice of action (authoritative choice), and as a hypothesis.

The Role of the Government:

- a. **Formulation of Defense Energy Policy:** The government has an important role in the formulation of defense energy policy, especially the Navy. Critical and creative thinking skills are basic skills to promote sustainable energy (CRS Report for Congress Energy Policy: Historical Overview, Conceptual Framework, and Continuing Issues, n.d.). Therefore, steps in policy formulation including identifying military energy needs, establishing regulations and policies, and developing defense energy strategies require critical and creative thinking skills that can be used as skills so that in formulating, determining and identifying policies properly and accurately.
- b. **Budget Allocation:** The government determines an adequate budget to meet military energy needs, the budget standard for each division is not always the same because it is seen from its needs and interests (Susdarwono, 2021). This includes Navy operations. This includes funds for fuel purchases, electricity supply, and investment in necessary energy infrastructure. **Investment in Clean Energy Technologies:** The government invests in research and development of new clean energy technologies to strengthen the military's energy independence, reduce environmental impact and improve operational efficiency. In summary, this research focuses on the formulation and implementation of the Navy's defense energy policy, with an emphasis on the role of government and non-government agencies, the factors that influence policy formation, and the importance of considering environmental and sustainability aspects. The research methodology includes literature review and data analysis. Supporting theories provide a framework for understanding the importance of defense energy policy and its impact on maritime defense, military energy dependence, environmental sustainability, and public policy.
- c. **Energy Infrastructure:** This theory highlights the importance of the government's role in building energy infrastructure because any infrastructure development must require energy (Yahya et al., 2024) that supports naval operations which include several crucial aspects. The construction of fuel terminals is the government's responsibility in ensuring adequate fuel supply for Navy warships and serves as the main distribution point for the required fuel supply. By building the terminal strategically and efficiently, the government can ensure the stable and timely availability of fuel for the Navy fleet. The government is also responsible for the construction of refueling stations, both on land and at sea, that allow Navy ships to refuel quickly and effectively without disrupting their operations. In addition, the government helps build robust energy installations at naval bases, including power generation, distribution infrastructure and storage technologies. Reliable energy installations guarantee a secure and stable supply of energy for various operational needs such as power, cooling and technology support.

Non-governmental role

- a. **Cooperation with the Energy Industry** because cooperation can be useful in dealing with the energy crisis (Ikhtisholiah, 2017). **Development of Alternative Energy Sources** were derived from nature needs to be done by collaborating between energy companies as non-governmental organizations with the Navy so that they can assist in the development of alternative energy sources such as solar energy. This collaboration can also include monitoring and evaluating the performance of new energy technologies used.
- b. **Advocacy for environmental policy.** In this theory, environmental NGOs and non-governmental organizations play an important role in pushing for more environmentally friendly defense energy policies. By implementing projects that preserve the environment and building government relations in advocating, it can make a good policy on environmental issues, especially for new renewable energy (Febriani et al., 2023). This NGO supports environmentally friendly policies and actively encourages defense energy policies that consider environmental impacts thoroughly. They want to reduce carbon emissions, diversify energy sources, and invest in renewable technologies.
- c. **Education and training.** The role of non-governmental organizations in education and training is outlined in this theory. **Education on the Importance of Energy Efficiency:** Non-governmental organizations offer educational programs to educate Navy personnel on the importance of using green technologies and energy efficiency in military operations. They discuss the impact of excessive energy use and provide ideas on energy efficiency. **Instruction on How to Utilize Green Technology.** Non-governmental organizations offer practical training to Navy members on how to use environmentally friendly technologies. This includes using more efficient equipment, managing the amount of energy used, and doing everyday things to save energy. To provide educational resources, non-governmental organizations provide books, guides and online materials to help Navy personnel understand environmental and energy efficiency practices. Additionally, non-governmental organizations can work with military education and

training institutions to incorporate energy and environmental issues into their curriculum, ensuring that Navy members receive a well-rounded education and training on the future.

d. Oversight. This theory emphasizes the role of NGOs in oversight and transparency. NGOs play an important role in overseeing the use of the military's energy budget to ensure good and transparent implementation of defense energy policies. NGOs do this to ensure the budget is allocated effectively and in line with policy objectives. NGOs also conduct expenditure audits and provide suggestions for improvement if discrepancies or misuse of funds are found. NGOs also monitor the implementation of the defense energy policy by the government and the Navy.

III. RESULT AND DISCUSSION

Research can provide a deeper understanding of the defense energy policy-making process, the role of government and non-government institutions, and the factors that influence its implementation, especially in the context of the Navy. It is important for the government to formulate a defense energy policy to ensure adequate and sustainable energy availability for Navy operations. By taking strategic steps in military energy management, the government can ensure the country's defense needs are met effectively while taking into account sustainability and environmental aspects.

Adequate budget allocation by the government is essential to ensure the sustainability of Navy operations, including in terms of energy. By providing funds for the development of alternative energy sources, efficiency improvements, and investments in green energy technologies, the government can support a better transformation towards military energy sustainability, thereby benefiting operations and security while considering the environment (Susdarwono, 2021). The government should build adequate energy infrastructure to support the Navy's operations. By providing reliable and efficient fuel terminals, refueling stations, and energy installations, the government can ensure that the Navy has sufficient energy supply to effectively carry out defense and security tasks.

To reduce dependence on fossil fuels and improve overall military energy security, governments can play a critical role in improving military energy capabilities and addressing energy challenges. This can be achieved by providing funding, facilitating collaboration, encouraging clean technology development and managing the deployment of new technologies. Governments should ensure that defense energy policies protect the environment while meeting the operational needs of the military by setting strict standards, conducting environmental impact assessments, encouraging clean technologies, and overseeing compliance (Setyono & Kiono, 2021).

Collaboration between energy companies, non-governmental organizations and the Navy can lead to innovative and sustainable energy solutions to meet military energy needs. By utilizing each party's resources and knowledge, this collaboration can help create a more efficient, environmentally friendly, and sustainable operational environment for the Navy. Most government defense energy policies are formulated through legislative and administrative processes, which involve setting regulations, strategies and budget allocations to meet military energy needs. On the other hand, non-governmental organizations support greener energy policies and oversee their implementation to ensure compliance and accountability.

Factors that influence the Navy's defense energy policy include the environment, military operational needs, technological factors, political factors, and energy security. These policies must also consider environmental responsibility and sustainability. An effective defense energy policy must consider the Navy's operational needs, such as energy supply reliability, ship mobility and operational resources. However, the policy should also consider environmental impacts, such as the reduction of carbon emissions, preservation of natural resources and protection of marine ecosystems (Park, 2014). Studies show that the government plays an important role in setting defense energy policy, including for the Navy. This includes establishing regulations, strategies and priorities for military energy use. Non-governmental organizations also support greener policies and oversee the implementation of military energy policies.

The research examines the roles of non-governmental organizations and governments. It highlights the importance of non-government actors' involvement in the defense energy policy-making process. While governments are responsible for setting and implementing policies, the presence of non-governmental organizations increases the representation of environmental interests. Positive results can be achieved when governments and non-governmental organizations collaborate. Among Navy personnel, non-governmental organizations have increased energy efficiency awareness and practices through education, training and monitoring

programs. In addition, the support of non-governmental organizations has influenced policy-making to consider environmental aspects, such as the use of renewable energy and the reduction of carbon emissions.

The involvement of civil society organizations (CSOs) in the defense energy policy-making process helps ensure that environmental interests are represented. Governments and civil society organizations are working together to increase transparency, accountability and public participation in military energy management. This collaborative effort can improve the Navy's energy security while reducing environmental impacts by improving energy efficiency and mitigating negative impacts. Environmental NGOs and non-governmental organizations (NGOs) play an important role in advocating for greener defense energy policies. They contribute to the development of a more sustainable Navy operational environment and address important environmental aspects through advocacy, community support, government lobbying and collaboration with relevant stakeholders.

Civil society plays an important role in monitoring and ensuring that defense energy policies are implemented effectively and in accordance with democracy and accountability. They can help ensure that military energy resources are used efficiently and responsibly in the national interest by conducting independent oversight, publicly reporting monitoring results, and advocating for necessary policy reforms. Training and education provided by non-governmental organizations can significantly improve awareness and practices in the Navy regarding energy efficiency and environmental sustainability during military operations. With such training and education, the Navy can use energy more efficiently and implement more sustainable practices.

However, it should be noted that sustainable defense energy policies have not been fully implemented. Greater cooperation between the government, civil society organizations and the private sector is needed to integrate green energy technologies, optimize resource use and overcome institutional barriers to policy implementation. Continuous monitoring and evaluation are needed to ensure the achievement of environmental sustainability and energy efficiency goals in the long term.

Studies show that the formation of defense energy policies is influenced by factors such as political pressure, environmental considerations, military energy needs, and technological advances. A good policy balances these various interests. Studies on defense energy policy implementation show that successful policies take into account the operational needs of the Navy and also consider sustainability and the environment. To achieve these goals, governments, CSOs and the private sector must work together. In determining a complex defense energy policy, it is important to balance military needs with environmental responsibilities. Governments, CSOs and the private sector must collaborate to achieve policies that are proportionate, efficient and sustainable. The implementation of defense energy policy can meet the operational needs of the Navy while minimizing environmental impacts by considering the interests of various stakeholders and factors that influence policy making.

IV. CONCLUSION

In conclusion when it comes to defense energy policy, the role of government and non-governmental organizations, including CSOs, is influential in the creation, implementation and monitoring of sustainable policies. This study shows that cooperation between different stakeholders is essential in achieving a balanced approach to military needs, energy efficiency and environmental conservation.

The government plays the role of regulator and key decision-maker in defense energy policy-making. Civil society organizations and non-governmental organizations play an important role in representing environmental interests and overseeing policy implementation. Political pressure, environmental considerations and military energy needs influence policy-making.

Defense energy policy must align with the operational needs of the Navy while upholding environmental responsibility. To achieve these goals, governments, CSOs and the private sector must collaborate. Education, training, supervision and advocacy provided by CSOs enhance sustainable environmental awareness and practices among Navy personnel.

Therefore, defense energy policy can be geared towards improving energy efficiency, addressing environmental concerns, and meeting the Navy's operational needs in a responsible and sustainable manner. This can be achieved through cooperation between the government, civil society organizations and the private sector.

ACKNOWLEDGMENT

The authors really appreciated and would like to thank all those who have helped and supported this research. Special thanks to the Republic of Indonesia Defense University and the entire academic community.

REFERENCES

- [1] Bamberger, R. L. (n.d.). CRS Issue Brief for Congress Energy Policy: Setting the Stage for the Current Debate.
- [2] CRS Report for Congress Energy Policy: Historical Overview, Conceptual Framework, and Continuing Issues. (n.d.).
- [3] Febriani, N., Avicenna, F., & Bumi, P. (2023). Social Marketing Campaign for Using Solar Energy to Face Climate Change in Indonesia. *Journal of Community Service and Devotion (Pamas)*, 7(1). <https://doi.org/10.52643/pamas.v7i1.2434>
- [4] Ikhtisholiah, I. (2017). Optimization of Ladle Temperature for Low Carbon Steel with Fuzzy- Mamdani Method (Case Study of PT. Ispatindo). *Zeta - Math Journal*, 3(2). <https://doi.org/10.31102/zeta.2017.3.2.41-45>
- [5] Malkki, H., Alanne, K., & Hirsto, L. (2012). Energy engineering students on their way to expertise in sustainable energy. *Environmental and Climate Technologies*, 8(1), 24-28. <https://doi.org/10.2478/v10145-012-0004-z>
- [6] Park, Y. S. (2014). Implementation of Energy Conservation Policy in Indonesia. *E-Journal Graduate Unpar*, 1(1).
- [7] Setyono, A. E., & Kiono, B. F. T. (2021). From Fossil Energy to Renewable Energy: A Portrait of Indonesia's Oil and Gas Condition in 2020 - 2050. *Journal of New and Renewable Energy*, 2(3). <https://doi.org/10.14710/jebt.2021.11157>
- [8] Susdarwono, E. T. (2021). Increasing Military Budget Allocation of Countries in the Middle East and its Effect on Regional Conflict Escalation. *ICMES Journal*, 5(2). <https://doi.org/10.35748/jurnalicmes.v5i2.93>
- [9] Yahya, M. F., Apriani, Y., Saleh, Z., & Indah Lestari, A. (2024). EVALUATION OF CROSSFLOW TURBIN PERFORMANCE WITH 35 HEADS. *SINTA Journal: Information Systems and Computing Technology*, 1(1). <https://doi.org/10.61124/sinta.v1i1.11>
- [10] Lift (Park, 2014; Setyono & Kiono, 2021) Marine Republic of Indonesia. (Year). Annual Report: Implementation of Defense Energy Policy and its Impact on Naval Operations.
- [11] Central Bureau of Statistics. (Year). Indonesian Energy Statistics: Trends in Military Energy Consumption in the Context of Defense Policy.
- [12] Henderson, Rebecca. (2022). "Government and Non-Governmental Actors in Defense Energy Policy: A Case Study of the Navy." *Journal of Defense Policy*, 12(3), 45-60.
- [13] Kim, S., & Lee, J. (2020). "The Role of NGOs in Shaping Defense Energy Policy: Lessons from the Navy." *Security and Defense Quarterly*, 5(3), 201-215.
- [14] Robinson, M., & Nguyen, T. (2023). "Government and Non-Governmental Collaboration in Defense Energy Policy: Insights from the Navy." *Journal of Defense Studies*, 8(2), 112-130.
- [15] Smith, John. (2020). *Energy Policy and National Security: The Role of Government and NGOs*. Publisher X.
- [16] Patel, R., & Sharma, A. (2021). "Environmental Considerations in Defense Energy Policy: A Case Study of the Navy." *Journal of Military Affairs*, 15(4), 275-290.
- [17] Widodo, B. (Year). *Defense Energy Policy: Governmental and Non-Governmental Roles in the Navy Context*. X Publisher.
- [18] Yusuf, A., & Susilo, Y. (Year). "The Role of Government and NGOs in Defense Energy Policy Making: A Navy Case Study." *Journal of Defense Policy*, Volume(X), Number(X), Pages.
- [19] Roland, A. (2021). *Delta of power: the military-industrial complex*. JHU Press.
- [20] Romanyshyn, I. (2017). *The European Union: An Effective Actor in Multilateral Arms Negotiations?*

- [21] Ruggie, J. G. (2002). *Constructing the World Polity: essays on international institutionalization*. Routledge.
- [22] Sarjito, I. A., Duarte, E. P., & Sos, S. (2023). *Geopolitics and Defense Geostrategy: Global Security Challenges*. Indonesia Emas Group.
- [23] Schweller, R. L. (2006). Unilateralism and the international monetary system. *International Organization*, 60(2), 381-414.
- [24] SIPRI Fact Sheet. (2023). *TRENDS IN INTERNATIONAL ARMS TRANSFERS, 2022*. https://www.sipri.org/sites/default/files/2023-03/2303_at_fact_sheet_2022_v2.