Willow Project Socialization As An Introduction To Petroleum Engineering At Yos Sudarso Metro High School

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Abstract.

The Willow Project is located on Alaska's north slope, within the National Petroleum Reserve, which is held by the United States federal government. Based on the topics being discussed, a strong desire was developed, particularly among Yos Sudarso Metro High School students, to learn about the causes for oil drilling, as well as the impacts and benefits of drilling from diverse perspectives. Concerning the community service that according to Willow Project theme, the lecturers as the facilitators of this community service assisted students who wanted to find a solution to the Willow Project issue, where they hoped that there would be several points regarding the impact and benefits of academia in the energy sector, particularly petroleum engineering. As a result of socialization regarding the Willow Project drilling, impacts and benefits have been imparted in the Community Service activities, which are separated into environmental impacts, climate impacts, and social impacts. Following an overview of the impact of the Willow Project drilling, the benefits of the drilling are explained, including job creation and economic benefits, energy independence, and tax revenue. The crux of the impacts and benefits given is that it is still envisaged that fossil energy would be used to increase jobs in the nearby community and globally. Aside from that, it is desired that the development of renewable energy, the reduction of drilling in conservation areas, and the preservation of environmental integrity would continue.

Keywords: *Oil, Environment, Energy, Petroleum, and Willow Project.*

I. INTRODUCTION

Conoco Phillips' Willow Project is an oil drilling venture with the Conoco Phillips company as the contractor [10]. The project is located on the north slope of Alaska in the National Petroleum Reserve area, which is owned by the United States federal government [8]. The area where the project is planned holds up to 600 million barrels of oil. The oil will take years to reach the market because the project has not yet been built [7].

Fig 1. The Working Area of Willow Project [9]

The Willow Project covers an area the size of Maine, United States. The project would produce up to 180,000 barrels of oil per day, the use of which would result in at least 263 million tons or 239 million metric tons equivalent of greenhouse gas emissions over 30 years, according to a federal environmental review [9].The Willow Project is a domino effect from Saudi Arabia joining a multilateral cooperation association of countries in various developing and leading fields, namely BRICS (Brazil, Russia, India, China, and South Africa). Saudi Arabia, which is the main oil trading partner of the United States as a provider of oil trade, is now turning towards collaborating with BRICS [1]. Therefore, the United States is looking for a solution to meet its domestic oil needs so that instability does not occur which has a direct impact on all sectors and aspects in the United States. Therefore, the Willow Project is a solution to this problem amidst international political dilemmas [6].Conoco Phillips first proposed the Willow Project in 2017. The business asked the Bureau of Land Management (BLM) for permission to perform seismic exploration and drilling on federal properties in the National Petroleum Reserve-Alaska [5]. The BLM released a draft environmental impact statement (EIS) for the project in 2018, identifying potential biological consequences and proposed mitigation strategies [4].

The BLM released the final EIS for the project in September 2019, recommending the issuance of a permit for the Willow Project. The BLM issued a record of decision sanctioning the project in October of that year. However, environmental groups and the Native Village of Nuiqsut, a settlement near the proposed drilling site, filed legal challenges to the proposal. The group claims that the project will harm the local ecology and violate indigenous peoples' rights. President Biden's administration stopped licenses for the project in February 2021, citing environmental concerns.The government directed that the project's permits and environmental impact statement be reviewed. President Biden's government approved the Willow Project in March 2023, subject to various stipulations aimed at limiting the project's impact on the environment and indigenous tribes. The project is expected to provide significant money for Conoco Phillips and the state of Alaska, in addition to creating jobs and supporting the local economy [3].Based on the circulating news, a high sense of curiosity was formed, especially for Yos Sudarso Metro High School students to find out the reasons for oil drilling, as well as the impacts and benefits of drilling seen from various aspects. From this community service activity, it is expected that from introducing the world of petroleum engineering, can increase their interest in deepening their knowledge of the world of energy.

II. METHODS

The method used in this community service is a long-distance approach with a partner, namely SMA Yos Sudarso Metro. Due to the long distance from the home cities of the instructors and participants (Jakarta-Lampung), all forms of correspondence were carried out digitally. Regarding with the community service theme Willow Project, the instructors helped students who wanted to find a solution to the Willow Project issue, where they hoped that there would be several points regarding the impact and benefits from an academic perspective in the energy field, especially petroleum engineering.After that, the instructors collected relevant literature regarding the topic of the Willow Project, starting from the background of the Willow Project, the working area of the Willow Project, as well as its impacts and benefits. Not only from the energy side but impacts and benefits are also cited from various sides such as economic, social, and environmentalAt the time of implementation, community service activities were carried out via Zoom Meeting, due to the quite long distance, and also as a form of maintaining the safety and comfort of both instructors and participants.

Even though there is a long distance, it does not reduce the enthusiasm for this community service activity.Next is the display of the flow diagram in Figure 2. By creating a flow diagram which is a form of visualization of the stages that have been carried out in this community service activity, it is hoped that it can provide a clear picture for readers regarding the community service flow that has been implemented. Starting with correspondence between extension workers and partners, determining the title of community service, a literature study on relevant topics, administrative preparation, implementing community service, and ending with preparing reports

and community service output. In this method, most of it is done virtually. Regarding literature studies, several journals and other publications have been selected that are within the limits of the last ten years, to maintain the latest news and technology.Visually, the following is a flow diagram regarding the methods used in this community service activity:

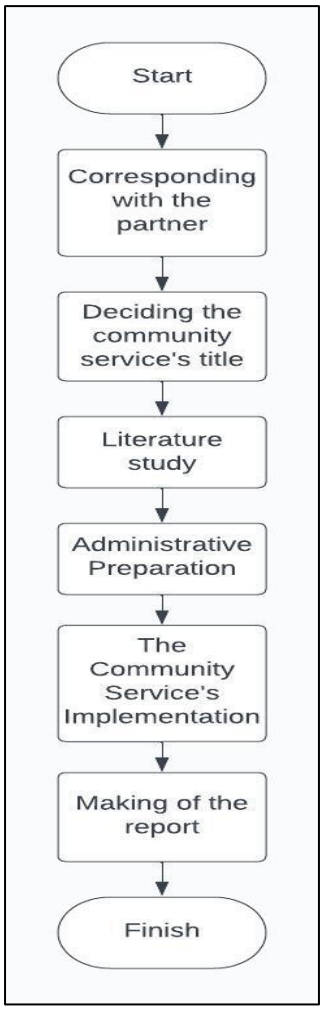

Fig. 2 Flow Diagram

III. RESULT AND DISCUSSION

In this community service activity, the impacts and benefits as a result of socialization regarding Willow Project drilling have been conveyed. The following are the impacts of the Willow Project drilling which are divided into environmental impacts, climate impacts, and social impacts. Starting from the environmental impact, namely the Willow Project is located in an ecologically sensitive area, and its development could endanger the local environment. This project could disrupt wildlife habitats and cause air and water pollution. Furthermore, regarding climate impacts, the Willow Project will contribute to greenhouse gas emissions, which are the main cause of climate change. Opponents of the project argue that the United States should shift away from fossil fuels and invest in renewable energy. The last one is regarding social impacts, namely the Willow Project will have an impact on traditional lands and livelihood sources of indigenous communities in the area. Native Village Nuiqsut has expressed concern that the project will destroy the livelihood resources the community relies on for food and cultural practices [2,3].After explaining the impact of drilling on the Willow Project, the following is an explanation of the benefits of drilling on the Willow Project, including job creation and economic benefits, energy independence, and tax revenues.For its job creation and economic benefits, the Willow Project is expected to create thousands of jobs in Alaska and generate billions of dollars in revenue for the state and federal government.

This project will also create jobs in supporting industries such as transportation and logistics.Further to energy independence, the Willow Project was part of former President Trump's administration's "energy dominance" policy, which aimed to make the United States energy-independent by increasing domestic oil and gas production. This project will help reduce the United States' dependence on foreign oil and improve its energy security. Then it comes to tax revenues, where this project will generate significant tax revenues for the state and federal governments. This income can be used to fund public services and infrastructure projects [3].After conveying the impacts and benefits to the community service participants, the instructor also conveyed opinions from the academic side regarding the Willow Project drilling. The opinions that have been expressed are as follows: As an academic in the field of petroleum engineering, the existence of the Willow Project will certainly support many aspects, such as the economy, especially opening up employment opportunities for both local and international workers; If we look at it from the perspective of new and renewable energy, one of the impacts of this project is that it will produce huge carbon emissions which could impact the whole world (global warming is getting worse), while currently the government is trying to accelerate the transition. energy, so as not to depend on fossil energy; Regarding carbon as a result of combustion, currently a lot of research is being carried out regarding Carbon Capture Storage and Utilization (CCUS), as a form of using CO_2, rather than as an air pollutant, with CCUS, CO_2 can be "captured" using certain methods, then stored, and can be reused as an injection material for the Enhanced Oil Recovery (EOR) process.

The following is a picture of the material delivery and discussion session:

Fig 3. Socialization and Discussion Sessions

IV. CONCLUSION

The existence of the Willow Project in the United States is quite controversial, making many levels of society want to know more about this issue, one of which is Yos Sudarso Metro High School students. As a form of student curiosity from Yos Sudarso Metro High School regarding Willow Project drilling, the community service team conducted outreach regarding the impacts and benefits of the Willow Project, which included presentations and discussions. The impacts and benefits presented are a collection of literature studies and are complemented by opinions from instructors seen from the perspective of petroleum engineering academics.The essence of the impacts and benefits that have been conveyed is that it is still hoped that the use of fossil energy will increase employment opportunities for local and international communities. However, apart from that, there is still hope for the development of renewable energy, to minimize drilling in conservation areas, to maintain environmental integrity.

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REFERENCES

[1] Amanda, S., Azalia, G. & Berliana, Y. Willow Project dan Potensi Dampaknya dalam Lingkup Internasional. ***Jurnal Panorama Hukum*** 8, 24–37 (2023). https://doi.org/10.21067/jph.v8i1.8794

[2] Battistoni, A. Climate Still Changes Everything. Dissent 70, 21–25 (2023).

[3] Compare Electricity. The Willow Project: What This Means for America. Compare Electricity https://compareelectricity.com/research/the-willow-project/ (2023).

[4] Johnson, C. B., Parrett, J. P., Seiser, P. E. & Shook, J. E. AVIAN STUDIES IN THE WILLOW PROJECT AREA, 2018. (2019).

[5] Kalman, G. The Willow Project:Pumping Gas into the House Fire that is Climate Change.UWIRE Text 1 (2023).

[6] Lewlandy, L., Amri, I. F., Christina, N. & Pangaribuan, J. B. Analisis Perspektif Hukum Internasional Terkait Willow Project yang Berdampak Bagi Iklim Dunia. ***Journal on Education*** 5, 16494–16500 (2023).

[7] Nilsen, E. The Willow Project has been approved. Here's what to know about the controversial oil-drilling venture.CNNhttps://edition.cnn.com/2023/03/14/politics/willow-project-oil-alaska-explained-climate/index.html (2023).

[8] Szymczak, P. D. Alaska's North Slope May Yet See Its Renaissance in Arctic Exploration. ***Journal of Petroleum Technology*** 73, 17–22 (2021). https://doi.org/10.2118/1021-0017-JPT

[9] Thiessen, M. & Brown, M. Willow oil project approval intensifies Alaska Natives' rift. The Columbian https://www.columbian.com/news/2023/mar/16/major-oil-project-approval-intensifies-alaska-natives-rift/(2023).

[10] U.S. Department of the Interior Bureau of Land Management. Willow Master Development Plan Environmental Impact Statement SUPPLEMENT TO THE DRAFT. vol. 1 (2020).