

THE ENERGY RESISTANCE IN INDONESIAN NAVAL TECHNOLOGY COLLEGE STUDENT'S PERSPECTIVE

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ABSTRACT

Energy security can be understood as a condition to meet the energy needs of the wider community, using the principles of availability, affordability, accessibility, acceptability and sustainability. Indonesia is a country that has enormous potential for energy resources, both fossil energy potential and renewable energy potential. In the current condition, the consumption of energy supply in Indonesia mostly comes from non-renewable energy sources, which if carried out in a sustainable manner will result in reduced reserves of fossil energy sources and contribute to increased greenhouse gas emissions which will lead to changes in the environment. climate globally. Instilling an understanding of the importance of maintaining energy security can be done through educational institutions and outreach to the wider community. One of the educational institutions owned by the Indonesian Navy is STTAL, from the studies conducted by STTAL students there are still few that discuss energy security in the Indonesian Navy. Based on these problems, the researchers wanted to know the perspectives of STTAL students who were analyzed from the knowledge, attitudes and concerns about energy security using a descriptive methodology through a quantitative approach. From this study, it can be seen that the attitudes and concerns of students are already in the high criteria but for knowledge it is still in the medium criteria, so it needs to get further attention.

Keywords: energy security, student perspective, knowledge, attitude, concern.

1. INTRODUCTION

1.1 Background

Energy security is a topic that is very often discussed in all aspects these days. The need for energy in Indonesia is still largely dependent on the use of fossil energy with a scale of using fossil energy of 88.8% (Hakim, 2021). According to Dwi Soetjipto, who serves as the Head of SKK Migas, he said that in 2020 the need for crude oil is 1.6 million barrels per day and will increase to 2 million barrels per day in 2030. The problem is that most of the crude oil for consumption is the result of imported products. Existing oil fields are only able to produce around 700 thousand barrels per day in 2020, and this figure will decrease every year due to the lack of exploration and still relying on oil and gas blocks, most of which have an old age (Setiawan, 2021). This raises public concern over the availability of energy supplies in Indonesia, because the use of new and renewable energy to replace fossil energy is still very low, which is around 11.2% of the total.

Several strategies implemented by the government to overcome this are by establishing energy security as one of the national development

priorities as contained in the Energy Law No. 30 of 2007, Government Regulation no. 79 of 2014 concerning the National Energy Policy, the National Medium-Term Development Plan (RPJMN) 2020-2024, Ministerial Regulations and the Strategic Plan of MEMR 2020-2024. The problem of energy security is a very complex problem and will not be solved by the government itself, one of which is the energy problem is the excessive use of fuel, environmental pollution, doubts about the use of new and renewable energy and many others that occur around our environment, all of which requires efforts of cooperation and concern from all parties to be able to overcome the problem of energy security.

Energy will be used as a defense support, which with energy will obtain a nation's military reliability, with energy it will make the main weapon system (defense equipment) reliable and strong and with energy it will create energy security both in times of peace and war. The military defense of a nation will function to protect energy, where natural resources and infrastructure which are vital state objects will be protected from all threats, disturbances and obstacles originating from within the country and abroad. Natural resources which are the heritage of the

Indonesian nation must always be maintained and used as much as possible for the prosperity of the people and the next generation of the nation.

One of the main components in Indonesian defense is the Indonesian Navy, which has duties as stated in Law Number 34 of 2004 concerning the Indonesian National Army in Article 9 which states that the Indonesian Navy has the task of carrying out the duties of the TNI in the maritime sector in the field of defense, upholding law and maintain security in the marine area of national jurisdiction in accordance with the provisions of national law and ratified international law, carry out the tasks of naval diplomacy in the context of supporting foreign policy policies set by the government, carry out the duties of the TNI in the development and development of the naval force, carry out empowerment of marine defense areas.

In carrying out this task, of course, the Navy requires a defense system that can support the achievement of the main tasks that are the responsibility of the Navy. Most of the defense equipment used today still relies on the use of fossil energy as its main energy source. It can be seen that the existing naval bases still depend on the use of electrical energy sourced from the State Electricity Company (PLN), and these bases have reserves of electrical energy originating from diesel engines fueled by diesel fuel, warships The current Indonesian Navy operates entirely by using HSD diesel as fuel for the ship's diesel engine. Due to the large number of defense equipment that depends on the use of fossil energy, of course this will pose a threat to the Indonesian Navy itself. We can all know that the longer the amount of fossil energy will decrease, so that it will reduce Indonesia's energy security. In line with these problems, it is hoped that the Indonesian Navy can participate in developing marine technologies by utilizing new and renewable energy sources to save energy. To be able to develop these marine technologies, the Indonesian Navy requires human resources who can develop these technologies, including by opening schools based on marine technology.

One of the educational institutions owned by the navy is the College of Naval Technology (STTAL)

which is an educational unit whose mission is to organize higher education programs to produce human resources with Indonesian character and personality, based on quality science and technology and relevant to the needs of defense in the military sector. , maritime and navy, carry out research and development of defense science and technology in the military, maritime and naval fields in an effort to realize the independence of the main weapon system (defense equipment), carry out community service through empowering maritime potential. In line with this, it is hoped that graduates from the Naval High School (STTAL) who have been provided with development education in the field of marine technology can develop marine technology by referring to the use of new and renewable natural resources to strengthen defense in the military, maritime, and naval fields. This of course will have an impact on energy security as well as will affect national security.

Each STTAL student at the end of his education will be given a research assignment which is used as a graduation requirement. Research is a human effort to produce a new discovery, create new knowledge or products to solve or find a solution to a problem that exists in everyday life (Timotius, 2017). Where the purpose of the research is to summarize and apply all educational activities that have been carried out to solve problems in their field of expertise or certain fields of study in a systematic, creative, critical, weighty and logical manner, which is based on data from precise and accurate information and is supported appropriate analysis and put it in the form of scientific writing. Research conducted by STTAL students has different forms and levels of discussion depending on the educational strata they follow, in which the form of a thesis is for S2 strata students, skripsi are for S1 strata students and a final project for D3 strata. From the research that has been done by STTAL students, there are still few that discuss the development of marine technology and strategies by utilizing new and renewable energy to strengthen Indonesia's energy security. From the data obtained in the Academic Information System (Siakad) of the STTAL library, it can be seen in table 1 as follows

Table 1. Number of Thesis, Skripsi and Final Project for STTAL Students

NO	TYPES OF RESEARCH	YEAR	TOTAL	RESEARCH ON ENERGY
1.	THESIS	2015-2021	129	1
2.	SKRIPSI	1989-2021	1540	4
3.	FINAL PROJECT	2008-2021	172	1

From the table above, it can be seen that the research produced through thesis, skripsi and STTAL students' final project is still very little that discusses energy security in the Indonesian Navy. There is still very little research that discusses energy security in the Indonesian Navy, so the problem can be formulated as follows, why are few STTAL students applying their knowledge to develop energy security in the Navy. From these problems, the authors aim to find out the perspectives of STTAL students in terms of knowledge, attitudes and concern for energy security in the Indonesian Navy. The results obtained from this study are expected to provide a description for further researchers on the perspective of STTAL students on energy security so that they can provide data on whether it is necessary to introduce energy security in the STTAL environment.

2 LITERATURE REVIEW

2.1 Student Perception

Understanding perception in general states that perception is a person's perspective on an object (Deviyanti, 2017). Perception is a pattern of the human mind in everyday life associated with an idea. Davidoff (1981) argues that, the realization of perceptions between individuals has similarities between one individual and another, but the ability to think, experience life and concepts will not be the same. And this will lead to the possibility of differences in viewpoints (perceptions) between one individual and another (Akbar, 2015).

According to the opinion above, perception can be an alternative to a decision whether the decision can be implemented or not. So that the perspective will produce an interpretation of the object being observed. A perception can be something that is positive or negative.

2.2 Knowledge

Knowledge is a collection of facts, and knowledge is more regarded as a process of formation (construction) that is continuous, evolving and changing. Human knowledge is mostly obtained from the senses of sight and hearing (Notoatmodjo, 2007). Our knowledge is our own construction (Von Glasersfeld, 1996). Knowledge or cognitive is a very important area to shape a person's behavior (Overt Behavior). According to the constructivist approach, knowledge is not the facts of reality that are analyzed, but a person's cognitive construction of objects, experiences, and their environment. Knowledge is the continuous training of those who are reorganized every time for new knowledge. Von Glasefeld (1996) states that knowledge is not an imitation of reality. Knowledge is not a description of the real world, but

knowledge is always the result of cognitive construction of reality through its own activities. Humans form schemas, categories, concepts, and knowledge structures needed for knowledge. Therefore, knowledge is not about the world without observation, but about human creations which are built from experience or the world experienced. Knowledge cannot simply be transmitted from the teacher's brain to his students. Students need to interpret what they have learned and adapt it to their experience. Without the experience of a person, knowledge cannot be formed. Experience needs to be interpreted, that experience is not only a physical experience, but also a cognitive and mental experience.

2.3 Attitude

Attitude is a term in psychology related to perception and behavior. The term attitude in English can be referred to as attitude which has a meaning in response to stimuli. Tendency to respond to a stimulus or current situation at hand. Attitude as a form of emotion, namely emotion supports or does not have emotion towards an object. Attitudes are behavioral patterns of tendencies or anticipatory readiness, adapting to social situations or simply what reactions to social stimuli have been coordinated. Attitude can also be interpreted as a positive or negative aspect or evaluation of an object (Rinaldi, 2016).

2.4 Concern

Concern is a form of real action taken by the community in dealing with a problem at hand. In the Big Indonesian Dictionary, caring is participation or participation. Social care is an attitude of attachment to the life of the general public, an attitude of empathy towards every human being to help others or others (Poewadarmintira., 1980).

2.5 Energy Security

Energy security can be understood as a condition to meet the energy needs of the wider community, using the principles of availability, affordability, accessibility, acceptability and sustainability. These five basic principles must be met to maintain good energy security. The five basic aspects can be explained as follows:

- a. Availability aspect is the availability of energy, both in the form of fossil energy and new and renewable energy
- b. Affordability aspect is the affordability of consumers to obtain or pay energy prices.

- c. Accessibility aspect is the ease of energy users to get final energy from primary energy that has been explored and processed to reach the user's location using transmission and distribution lines.
- d. The acceptability aspect is the acceptance of energy used to meet the interests of the community.
- e. The sustainability aspect is the availability of energy in the long term and sustainable to meet the needs of the community without having to sacrifice future generations. (Nurrohim, 2012).

3. RESEARCH METHODS

The research was conducted using a descriptive method with a quantitative approach. Where in this study there is no way to compare variables with other samples and look for relationships between one variable and another (Sugiyono, 2016). The research was conducted at the Naval College of Technology (STTAL). The time of the study was on January 7, 2022 with the population being postgraduate students of Systems Analysis and Operations Research (ASRO) batches 8 and 9, undergraduate programs batches 41 and 42 and diploma three batches 15,16 and 17. From the population of postgraduate students' batches 8 and 9 will overall sampling was taken because the population was less than 30. Students of the 41st and 42nd undergraduate and Diploma 3 programs will be randomly sampled according to the calculation of the Issac and Michael formula as follows:

$$s = \frac{\lambda^2 \cdot N \cdot P \cdot Q}{d^2 (N - 1) + \lambda^2 \cdot P \cdot Q}$$

- s = Number of samples
- N = Total population
- λ^2 = Chi Square, with dk = 1, error rate 1%, 5% and 10%
- d = 0,05
- P = Q = 0,5

4. RESULTS AND DISCUSSION

4.1 Knowledge

The results of the questionnaire on 161 respondents to STTAL students' knowledge of energy security can be seen in the following diagrams. Figure 1 will show a knowledge diagram of the question, is wind the biggest renewable energy potential in Indonesia. From 161 respondents who answered correctly as many as 43 respondents or 26.7% of respondents while those who gave wrong answers

were 118 respondents or 73.3% of respondents.

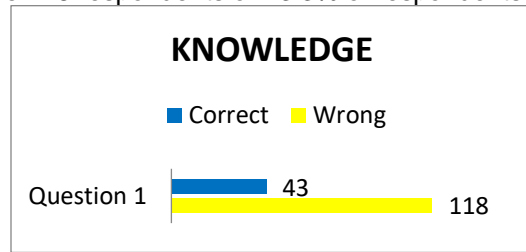


Figure 1. Knowledge of question 1

Figure 2 will show the respondent's knowledge of the definition of energy security, for the correct order of the definition of energy security is availability, affordability, accessibility, sustainability, acceptability. Of the 161 respondents who answered correctly as many as 25 respondents or 15% of respondents, while those who gave wrong answers were 136 respondents or 85% of respondents.

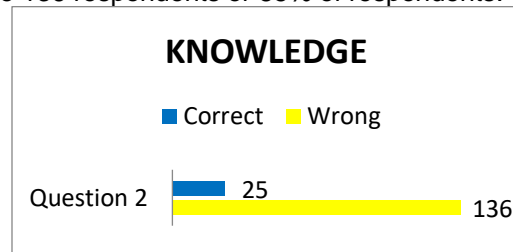


Figure 2. Knowledge of question 2

Figure 3 will show respondents' knowledge of the largest power plant in Indonesia, with the question whether the natural resource that dominates power generation in Indonesia is coal. Of the 161 respondents who answered correctly as many as 139 respondents or 86.3% of respondents while those who gave wrong answers were 22 respondents or 13.76% of respondents. For the correct answer, according to data released by the Ministry of Energy and Mineral Resources, 62.98% of coal-fueled power plants are power plants (ESDM, 2020).

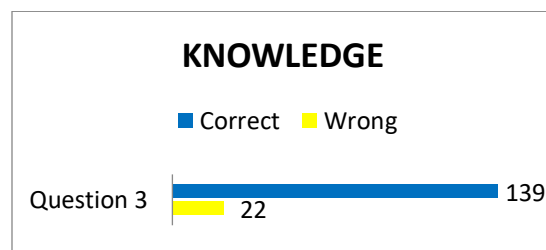


Figure 3. Knowledge of question 3

Figure 4 shows the respondents' understanding of energy sources derived from fossils,

with the question whether the natural resources derived from fossils are oil, coal, natural gas.

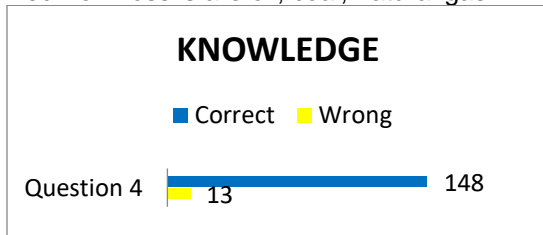


Figure 4. Knowledge of question 4

Figure 5 shows the respondents' understanding of non-renewable energy sources, by asking whether the elements of renewable natural resources are diesel, gasoline, avtur.

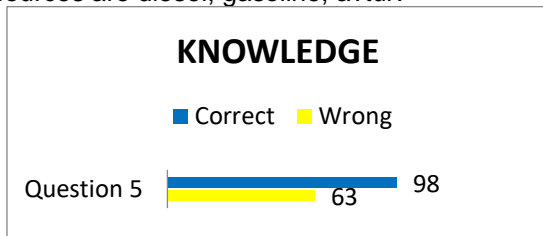


Figure 5. Knowledge of question 5

Figure 6 shows the respondents' understanding of Indonesia's coal energy reserves. Is the largest fossil energy reserve in Indonesia is coal.

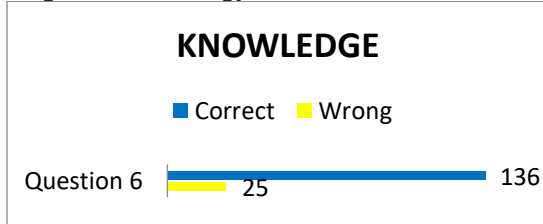


Figure 6. Knowledge of question 6

Figure 7 shows the respondents' understanding of Indonesia's energy security index. With the question, is the current energy security index in Indonesia very resilient.

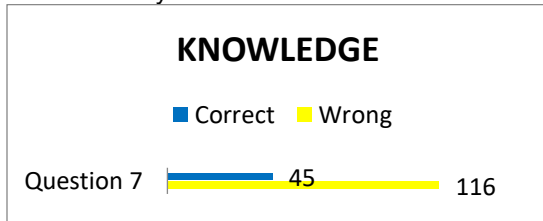


Figure 7. Knowledge of question 7

Figure 8 shows the respondents' knowledge of the relationship between energy security and national security. With the question, does energy security affect national security.

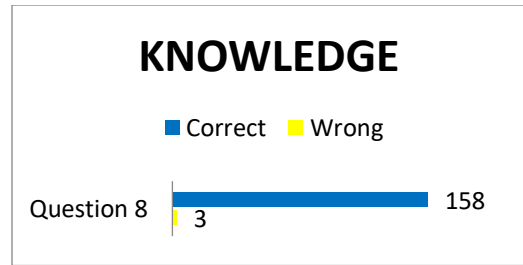


Figure 8. Knowledge of question 8

Figure 9 shows the respondents' understanding of government regulations governing energy policy. The ninth question, does Government Regulation Number 79 of 2014 regulate the Ratification of the Paris Agreement the United Nations Framework Convention on Climate Change.

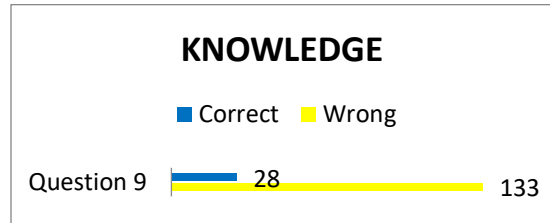


Figure 9. Knowledge of question 9

Figure 10 shows the respondents' knowledge of the legislation on the management of national resources. The tenth question, what is RI Law No. 23 of 2019 regarding the management of national resources for national defense.

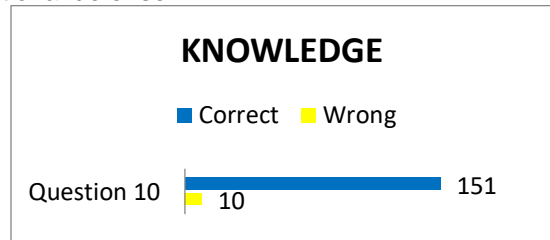


Figure 10. Knowledge of question 10

From the data above, it shows that respondents still do not understand questions number 1, number 2, number 7 and number 9. And respondents have understood questions number 3, number 4, number 5, number 6, number 8 and number 10. obtained by different respondents and will be classified with several assessment criteria, namely a value of 10-9 criteria is very high, a value of 8-7 criteria is high, a value is 6-5 medium criteria, a value of 4-3 criteria is low, a value of 2-0 criteria is very low

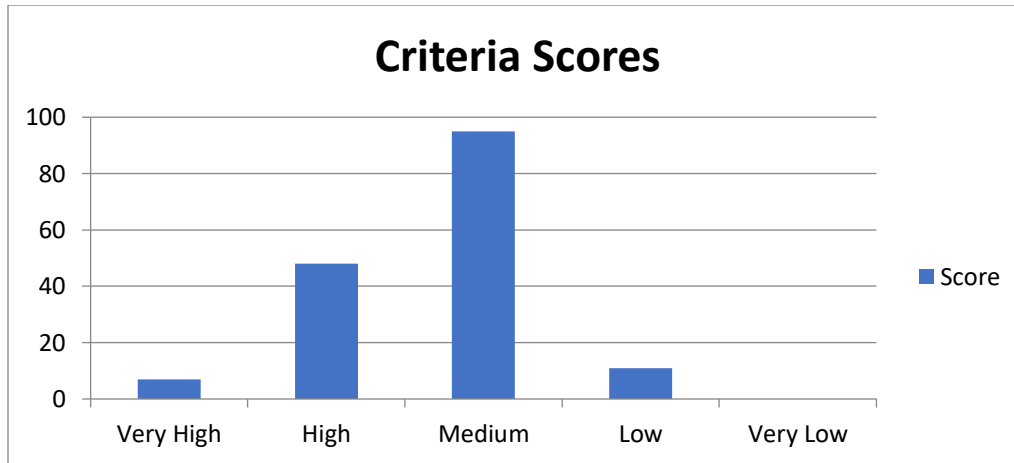


Figure 11. Knowledge criteria score

The number of criteria scores obtained can be seen as shown in Figure 11. From the diagram, it is shown that 7 respondents have scores in the very high category, 48 respondents have scores in the high category, 95 respondents have scores in the medium category, and 11 respondents have scores in the low category. There are no respondents who have a value with a very low category. The picture above shows that STTAL students' understanding of energy security knowledge is in the medium category.

4.2 Attitude

Table 2 shows the results of respondents' attitudes towards energy security. In the first question, do you agree with the development of PLTS in Indonesian Navy housing? From these questions resulted in the following answers 78 respondents answered strongly agree or equivalent to 48.2%, 75 respondents answered agree or equivalent to 46.6%, 4 respondents answered doubtful or equivalent to 2.5%, and 4 respondents answered disagree or equal to 2.4%.

On the second question, do you agree with the use of bio-diesel on warships. From these questions resulted in the following answers 37 respondents answered strongly agree or equivalent

to 23%, 83 respondents answered agree or equivalent to 51.6%, 19 respondents answered doubtful or equivalent to 11.8%, 17 respondents answered disagree or equivalent to 10.6%, and 5 respondents answered strongly disagree or equal to 3.1%.

In the third question, do you agree with the construction of a nuclear power plant (Nuclear Power Plant)? From these questions resulted in the following answers 50 respondents answered strongly agree or equivalent to 31.1%, 69 respondents answered agree or equivalent to 42.9%, 18 respondents answered doubtful or equivalent to 11.2%, 19 respondents answered no agree or equal to 11.8%, and 5 respondents answered strongly disagree or equal to 3.1%.

On the fourth question, do you agree with the restrictions on imports of petroleum? From these questions resulted in the following answers 59 respondents answered strongly agree or equivalent to 36.6%, 79 respondents answered agree or equivalent to 49.1%, 11 respondents answered doubtful or equivalent to 6.8%, 10 respondents answered no agree or equal to 6.1%, and 2 respondents answered strongly disagree or equal to 1.2%.

Table 2. Results of respondents' attitudes

No	Question	Results
1.	Do you agree with the development of PLTS in Indonesian Navy housing?	Strongly Agree = 78 (48.4%) Agree = 75 (46.6%) Doubtful = 4 (2.5%) Disagree = 4 (2.5%) Strongly Disagree = 0 (0%)
2.	Do you agree with the use of bio-diesel on warships?	Strongly Agree = 37 (23%) Agree = 83 (51.6%) Doubtful = 19 (11.8%) Disagree = 17 (10.6%)

		Strongly Disagree = 5 (3.1%)
3.	Do you agree with the construction of a nuclear power plant (Nuclear Power Plant)?	Strongly Agree = 50 (31.1%) Agree = 69 (42.9 %) Doubtful = 18 (11.2%) Disagree = 19 (11.8%) Strongly Disagree = 5 (3.1%)
4.	Do you agree with the restrictions on imports of petroleum?	Strongly Agree = 59 (36.6%) Agree = 79 (49.1%) Doubtful = 11 (6.8%) Disagree = 10 (6.2%) Strongly Disagree = 2 (1,2%)
5.	Do you agree with the construction of PLTP (Geothermal Power Plant)?	Strongly Agree = 52 (32.3%) Agree = 92 (57.1%) Doubtful = 8 (5%) Disagree = 7 (4.3%) Strongly Disagree = 2 (1,2%)
6.	Do you agree with reducing the use of HSD Solar to be replaced with Bio Solar?	Strongly Agree = 32 (19.9 %) Agree = 93 (57.8%) Doubtful = 15 (9.3%) Disagree = 18 (11.2%) Strongly Disagree = 3 (1.9%)
7.	Do you agree with the energy saving program?	Strongly Agree = 89 (55.3%) Agree = 72 (44.7%) Doubtful = 0 (0 %) Disagree = 0 (0 %) Strongly Disagree = 0 (0 %)
8.	Do you agree with the development of renewable energy at TNI AL bases?	Strongly Agree = 58 (36 %) Agree = 93 (57.8%) Doubtful = 8 (5%) Disagree = 2 (2.1%) Strongly Disagree = 0 (0%)
9.	Do you agree with the development of renewable energy based defense equipment?	Strongly Agree = 53 (32.9 %) Agree = 97 (60.2%) Doubtful = 10 (6.2%) Disagree = 1 (0.6%) Strongly Disagree = 0 (0%)
10.	Do you agree with the prohibition of motorized vehicles that are more than 10 years old?	Strongly Agree = 42 (26.1%) Agree = 59 (36.6%) Doubtful = 18 (11.2%) Disagree = 36 (22.4%) Strongly Disagree = 6 (3.7 %)

On the fifth question, do you agree with the construction of PLTP (Geothermal Power Plant). From these questions resulted in the following answers 52 respondents answered strongly agree or equivalent to 32.3%, 92 respondents answered agree or equivalent to 57.8%, 8 respondents answered doubtful or equivalent to 5%, 7 respondents answered disagree or equivalent to 4.3%, and 2 respondents answered strongly disagree or equivalent to 1.2%.

On the sixth question, do you agree with reducing the use of HSD diesel to be replaced with bio-diesel? From these questions resulted in the following answers 31 respondents answered

strongly agree or equivalent to 19.9%, 93 respondents answered agree or equivalent to 57.8%, 5 respondents answered doubtful or equivalent to 9.3%, 18 respondents answered no agree or equal to 11.2%, and 3 respondents answered strongly disagree or equal to 1.9%.

On the seventh question, do you agree with the energy saving program. From these questions resulted in the following answers 89 respondents answered strongly agree or equivalent to 55.3%, 72 respondents answered agree or equivalent to 44.7%.

On the eighth question, do you agree about the development of NRE at TNI AL bases. From

these questions resulted in the following answers 58 respondents answered strongly agree or equal to 36%, 93 respondents answered agree or equivalent to 57.8%, 8 respondents answered doubtful or equivalent to 5%, 2 respondents answered disagree or equivalent to 2.1%, and none of the respondents answered strongly disagree.

From the ninth question, do you agree with the development of NRE-based defense equipment. From these questions resulted in the following answers 53 respondents answered strongly agree or equivalent to 32.9%, 97 respondents answered agree or equivalent to 60.2%, 10 respondents answered doubtful or equivalent to 6.2%, 1 respondent answered no agree or equal to 0.6%, and none of the respondents answered strongly disagree.

From the tenth question, do you agree with the prohibition of motorized vehicles that are more than 10 years old? From these questions resulted in the following answers 42 respondents answered strongly agree or equivalent to 26.1%, 59 respondents answered agree or equivalent to 36.6%, 18 respondents answered doubtful or equivalent to 11.2%, 36 respondents answered no agree or equal to 22.4%, and 6 respondents answered strongly disagree or equal to 3.7%.

Thus, based on the results of data collection on 161 respondents, an assessment score was obtained, namely a score of 50-43 very high criteria, 42-35 high criteria, 34-27 moderate criteria, 26-19 low criteria, 18-10 very low criteria. The number of criteria scores obtained can be seen in Figure 12.

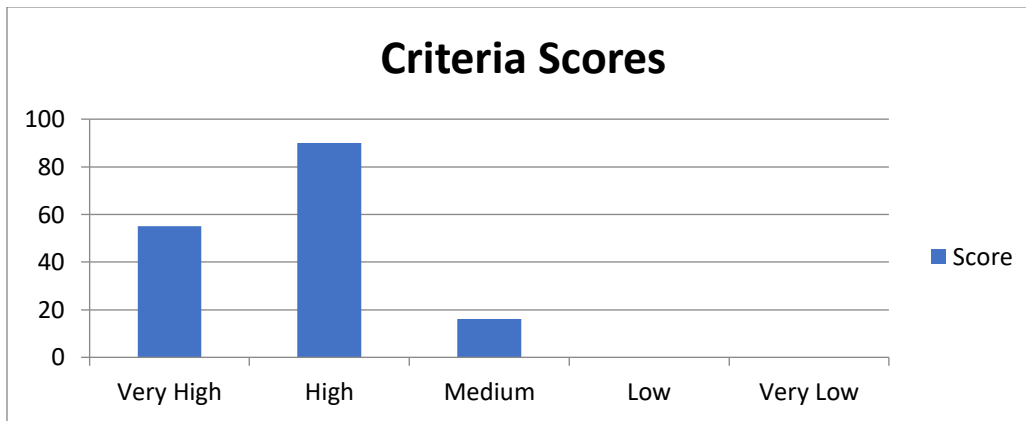


Figure 12. Score of attitude criteria

From the diagram, it is shown that 55 respondents have scores in the very high category, 90 respondents have scores in the high category, 16 respondents have values in the medium category and 11 respondents have values in the low category. There are no respondents who have a value with a very low category with a very low category. The picture above shows that STTAL students' attitudes towards energy security are in the high category.

4.3 Concern

To find out the respondent's perspective on energy security, apart from asking through the knowledge and attitude variables which results can be seen from the discussion above, the researcher also asked about the concern variable as shown in Figure 13. Of 161 respondents or 100% of respondents stated turning off the lights when not used. In terms of turning off the air conditioner when leaving the room as many as 161 or 100% of respondents stated that

they turned off the air conditioner when leaving the room.

In terms of saving energy through motor vehicle maintenance, there were 144 respondents or 89.4% of respondents who performed timely vehicle maintenance and 17 respondents or 10.6 who did not perform timely maintenance. Concern for the use of adequate water as many as 160 respondents or 99.4% of respondents who agreed to save water and as many as 1 respondent or 0.6% of respondents who did not agree with saving water. Purchasing electronic equipment that uses energy-saving technology is also an attitude of concern for energy security as many as 115 respondents or 71.4% who agree to purchase energy-efficient electronic equipment even though at high prices and as many as 46 respondents or 28% of respondents who disagree towards the purchase of energy-efficient electronic equipment at a high cost.

Concern for energy can also be applied to the fulfillment of electrical energy in the household and as many as 60 respondents or 37.3% of respondents who use renewable energy at home

and as many as 101 respondents or 62.7% of respondents who still do not use renewable energy for households. For energy savings by charging HP, there are 61 respondents or 37.9 respondents who save when charging their cellphones and 100 respondents or 62.1% of respondents who have not made savings when charging their cellphones.

For concern for the enforcement of energy saving culture in the surrounding environment, as many as 146 respondents or 90.7% of respondents who asked to participate in enforcing discipline in an energy-saving culture and as many as 15 respondents or 9.3% did not care about enforcing discipline in the surrounding environment. Participation in developing new or renewable energy in the surrounding environment as many as 151

respondents or 93.8% agreed to participate in the development of new and renewable energy in the surrounding environment and as many as 10 respondents or 6.2% of respondents who were not willing to develop new renewable energy in the surrounding environment.

Concern for energy security can also be carried out on campus with research on the development of new and renewable energy, from the data obtained as many as 52 respondents or 32.3% of respondents are willing to conduct research on the use of new and renewable energy and as many as 109 respondents or 67.7% respondents are not willing to conduct research on the use of new and renewable energy.

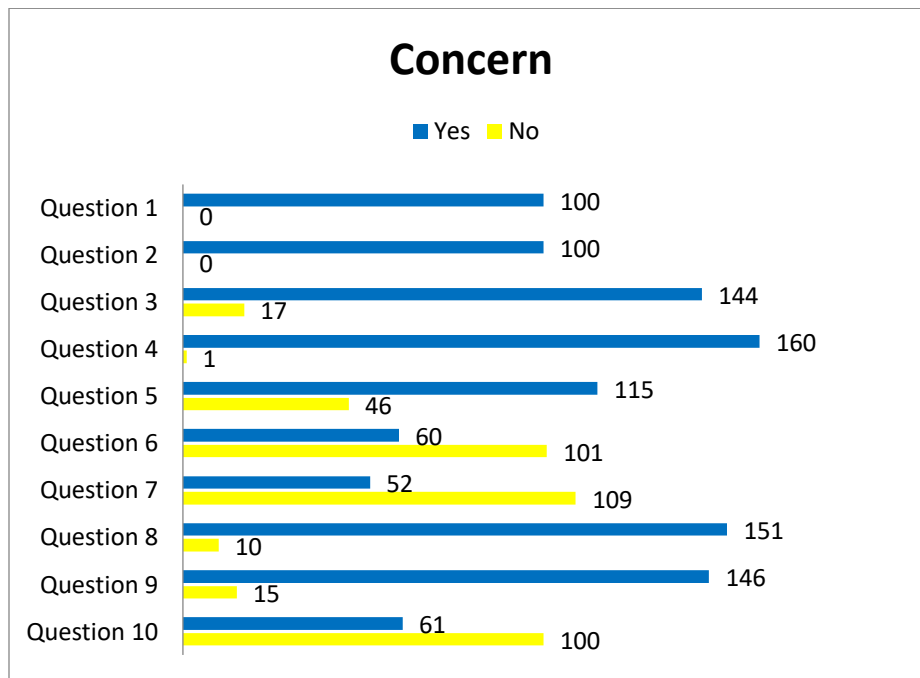


Figure 13. The results of the respondents' concern assessment

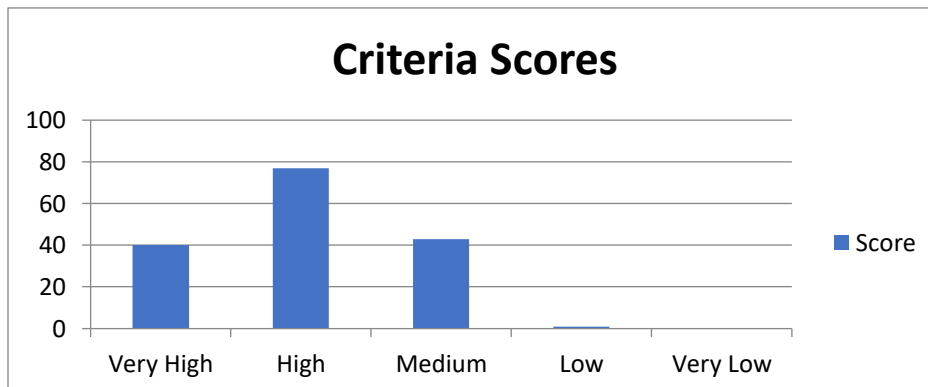


Figure 14. The score of the concern criteria

The concern criteria score can be seen as in Figure 14 with the assessment criteria, namely a score of 10-9 criteria is very high, a score of 8-7 criteria is high, a value is 6-5 moderate criteria, a score of 4-3 criteria is low, a score of 2-0 criteria is very low. The results of the assessment obtained are 40 respondents have a very high score category, 77 respondents are in a high category, 43 respondents are in a medium category and only 1 respondent is in a low category. According to the data above, the level of concern for STTAL students towards energy security is in the high category

5. CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions

Based on a series of data processing, scenario preparation and analysis of research results, some conclusions can be drawn as follows:

a. From the student's knowledge of energy security, it has an assessment score of 5-6 or can be categorized as moderate. This shows that respondents' knowledge of energy security is still lacking. This can be proven from:

- 1) A total of 136 respondents or 85% of respondents still do not understand the definition of energy security.
- 2) A total of 133 respondents or 82.6.9% of respondents still do not understand the importance of overcoming the impacts of climate change.
- 3) A total of 118 respondents or 73.3% of respondents still do not understand about the greatest potential of renewable energy that Indonesia has.
- 4) A total of 116 respondents or 72.1% of student respondents still do not understand about the energy security index in Indonesia.

b. From the attitude of most students has an assessment score of 35-42 with a very high category. The attitude results show that STTAL students already have a good attitude towards energy security. This is evidenced by as many as 89 respondents or 55.3% agree to carry out an energy-saving culture.

c. For concern, most students have a score of 7-9 or with high criteria. This can be proven as many as 161 respondents or 100% of respondents agree to turn off the lights when leaving the room and turn off the air conditioner when leaving the room. However, for students' awareness of the need to conduct research in the field of using new renewable energy, it is proven that 109 respondents or 67.7% of

respondents are not willing to conduct research on the use of new and renewable energy.

d. From these conclusions, it can be seen that the STTAL student's perception of energy security is quite good but still needs to be improved in terms of knowledge of energy security. By increasing knowledge of energy security, it is hoped that student research on the use of new and renewable energy will increase, so that it will create strong energy security within the Indonesian Navy.

5.2 Suggestions

Based on the results of the research that the author has done, there are several inputs in improving and developing this research in the future, namely:

a. Educational institutions within the Indonesian Navy that function to develop Human Resources (HR) must work together to streamline socialization and conduct campaigns to identify the need to maintain energy security both within the Navy and the surrounding community.

b. Because promotion is the most effective way and effort to improve energy security in Indonesia, it is necessary to have social media that explains the need to maintain energy security, with massive, educative and fun delivery so that all levels of society understand what energy security is and what our functions are. must care about Indonesia's energy security.

a. It is necessary to add courses or syllabus on energy security to STTAL students, so that it is expected that graduates from STTAL students are able to develop technologies by utilizing new and renewable energy sources in the environment where they work and in the surrounding community.

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