CHAPTER III
FORECAST IMPACT OF IMPORTANT

Activities to increase electricity generating capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District , Bengkalis Regencyt, Riau Province has broad implications to the components of the surrounding environment. This activity is also expected to have a significant impact, both directly and indirectly to environmental components geobiofisik-chemical, biological, social, economic and cultural as well as public health.

Forecasts of significant impacts that will be explored is the development dariidentifikasi possible impact arising from activities to increase electricity generating capacity power plant PLTG/MG Duri against environmental baseline early. Forecast magnitude (magnitude) and the critical nature of the impact (importance) which is conducted also based on the results of observations (observation), and interviews with participants in the field survey at the site and surrounding activities. Explanation of forecasts prepared following the impact of the results of the classification and scale prioritas by Environmentalists components and phases of the action plan. The concept is also continuing discussions and integrated with the environmental management plan and environmental monitoring plan. It is considered more proportional for an integrated understanding of environmental issues. Besides, also in terms of the discussion of the evaluation and treatment in the management of RKL also will be efficient and effective.

3.1. Impact Magnitude Forecast

Forecast magnitude will be carried out on any significant impacts resulting from the scoping process activities to increase electricity generating capacity power plant PLTG/MG Duri. The magnitude of the impact is the difference between the condition scale of environmental quality at the time the assessment without the project (without project) and the condition scale of environmental quality with the project (with the project) activities to increase power generating capacity of the power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Outskirts of subdistrict, Bengkalis Regency, Riau Province.

$$\textbf{Impact Magnitude Forecast} = SKL_{wkdp} - SKL_{wktp}$$

Where:

SKL_{wktp} : Scale Study of Environmental Quality On Time Without Project
SKL_{wkdp} : Scale Environmental Quality On Time Study With Projects

The magnitude of the expected impact and assessed in the Environmental Quality Scale will be displayed in numeric scale (1 s.d 5) is presented in Table 3.1.

Table 3. 1
Interpretation of Environmental Quality Scale

Skala	Environmental Quality
1	Very bad
2	Bad
3	Moderate
4	Good
5	Very good

The difference in value over the scale of the environmental conditions used to determine the amount of both positive and negative impacts. The magnitude scale is determined as follows:

4: Very large 3: Large 2: Medium 1: Small

To determine the value of the environmental quality scale used different criteria to each hypothetical significant impacts resulting from the process scoping. Determination of criteria based on some scientific considerations, environmental quality standards and based on professional judgment adjusted types of planned activities and the actual environmental conditions and factual contained in the location and surrounding activities. Significant impacts predicted to occur and environmental quality criteria for each of the hypothetical impacts arising from the increase in power generation capacity of the power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province.

3.1.1. Pre-Construction Phase

The activities in the pre-construction power plant PLTG capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province consists of the public consultation and acceptance of labor.

3.1.1.1. Public Consultation

Public consultation activities increase power generating capacity of the power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis regency, Riau Province will have an important impact on the environment component in the form of hypothetical changes in attitudes and perceptions.

3.1.1.1.1. Attitudes and Public Perception

Attitudes and perceptions are very important in the conduct of an increase in electricity generation capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province. Public consultation event to explain the increase in generating capacity, providing information about the activities to be carried out, including impacts that would be caused, and to accommodate all aspiration community to support capacity-building activities PLTG/MG Duri.

Public consultation will be an impact on changes in attitudes, perceptions and social conflict. On the other hand Public consultation is an attempt to accommodate a variety of input and issues raised by the public, which is expected to create a favorable climate and to avoid conflicts of interest. Public consultation activities should be done wisely and well targeted, because of their negative assumption among the public that the increase of electricity generation capacity power plant PLTG/MG will give a negative impact on the surrounding community.

The activities carried out so that the public consultation were negative views of society can turn into a positive, that is by explaining in detail the importance of capacity building activities for the generation of electrical energy supply to the general public. On the other side also conveyed how attempts are made to minimize the negative impact arising from these activities, so that community concerns will not occur or be minimized.

When the implementation of the public consultation carried out, the general public will support the activity (100% of 25 respondents) in view of the benefits that are vital to society, but in fact local community still has concerns about the negative impact caused.

The scale of the environmental quality of the emergence of attitudes and perceptions before Reviews their public consultation activities namely (SKLwktp) = 2 (bad) and environmental quality scale after Reviews their public consultation activities are (SKLwkdp) = 5 (excellent), so the magnitude of the impact is **+3 (big Positive).**

The establishment of environmental quality onset of attitudes and perceptions before their public consultation activities increase power generating capacity of the power plant PLTG/MG namely (SKLwktp)=2 (bad) based on the consideration that during this time the environmental management measures have not been implemented in the form of:

- The exclusion of local people as workers in accordance with the specifications and needs.
- Do not repair roads damaged by the mobilization of machine tools PLTG/MG previous Duri.
- Do not fix the river dredged the harbor area of the landing place machine tools PLTG/MG spines on previous activities.

The establishment of environmental quality onset of attitudes and perceptions with their public consultation activities are (SKLwkdp)=5(excellent) based on the following considerations:

- With the public consultation, the PT. PLN (Persero) will improve environmental management activities of electricity generation power plant PLTG/MG in accordance with the directives as well as complaints of surrounding communities, especially the use of local labor.

- Results of the public consultation showed that the public has begun to show positive attitudes and perceptions towards an increase in electricity generation capacity power plant PLTG/MG Duri.

3.1.1.2. Acceptance of Labor

Activity hiring increase power generating capacity of the power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District , Bengkalis Regency, Riau Province will have an important impact hypothetical against environmental components job and business opportunities, community income as well as attitudes and perceptions community.

3.1.1.2.1. Employment and Seek

Recruitment activity increased capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province will have an impact on their employment and business opportunity.

Opening up employment and business opportunity will increase house hold income communities. Although the amount of labor required is not much or limited in a short time, but still a great means for local people, especially because of the scarcity of employment opportunities that exist in the study area.

Scale environmental quality employment and business opportunity before their recruitment activities, namely (SKLwktp) = 2 (bad) and environmental quality scale after their local manpower recruitment activity is (SKLwkdp) = 4 (good), so the magnitude of the impact is **+2 (Positive Medium).**

The establishment of environmental quality employment before their recruitment activities on the increase of electricity generation capacity power plant PLTG/MG namely (SKLwktp)= 2 (bad) based on the consideration in the form of:

- The population of the Balai Pungut Village aged 20-54 years (labor force) large enough to reach 798 people (44.82%).

- Job opportunities and employment opportunities are very limited or less, so people are expecting all their work and business opportunities.

The establishment of environmental quality with the activities of recruitment is (SKLwkdp) = 4 (excellent) based on the following considerations:

- The number of workers required during the construction phase of 62 people, is expected to be 60-70% can be filled by the local workforce.

- The number of workers needed at this stage of the operation as many as 45 people, is expected to be 60-70% can be filled by the local workforce.

3.1.1.2.2. Community Revenues

Recruitment activity increased capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District , Bengkalis Regency, Riau Province will have an impact in the form of an increase in people's income.

Opening up employment and business opportunity will increase household income communities. Although the amount of labor required is not much or limited in a short time,

but still a great means for local people, especially because of the scarcity of employment opportunities that exist in the study area.

Scale environmental quality employment and business opportunity before their recruitment activities, namely (SKLwktp)= 2 (bad) and environmental quality scale after their local manpower recruitment activity is (SKLwkdp) = 4 (good), so the magnitude of the impact is **+2 (Positive Medium).**

The establishment of environmental quality employment before their recruitment activities on the increase of electricity generation capacity power plant PLTG/MG namely (SKLwktp) = 2 (bad) based on the consideration in the form of:

- The amount of income of the people in the study area average of Rp.750.000,-.up to Rp.1.250.000, - per month for casual laborers or unskilled laborers.
- Job opportunities and employment opportunities are very limited or less, so people are expecting all their work and business opportunities.

The establishment of environmental quality with the activities of recruitment is (SKLwkdp)=4 (excellent) based on the following considerations:

- The amount of revenue for the people who will work on activities to increase power generating capacity of the power plant PLTG/MG ranges between Rp.1.500.000,- up to Rp. 2,500,000,- per month for manual workers.
- There will be an increase in income of the community around the study area is Rp.750.000,- up to Rp.1,250,000 per month for manual workers.

3.1.1.2.3. Attitudes and Public Perception

Recruitment in capacity building electricity generation power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province will impact the changes in attitudes and perceptions.

Recruitment should prioritize local labor, especially for certain jobs requiring less skill so high that attitudes and perceptions towards capacity building activities PLTG/MG These spines can be better. Therefore, the proponent is expected to be able to absorb the local workforce optimally suit your needs and can improve people's ability to compete with migrant employment. If work opportunities seldom given to local manpower, then this will lead to social unrest and jealousy, which eventually became a social conflict, both between local communities with initiatives as well as between local people and migrant employment.

The scale of the environmental quality of the local labor availability before their recruitment activities, namely (SKLwktp)= 2 (bad) and environmental quality scale after their local manpower recruitment activity is (SKLwkdp) = 5 (excellent), so the magnitude of the impact is **+3 (big positive).**

The establishment of environmental quality local workforce before their recruitment activities on the increase of electricity generation capacity power plant PLTG/MG namely (SKLwktp)= 2 (bad) based on the consideration in the form of:

- The population of the Balai Pungut Village aged 20-54 years (labor force) large enough to reach 798 people (44.82%).

- Job opportunities and employment opportunities are very limited or less, so people are expecting all their work and business opportunities.

The establishment of environmental quality with the activities of recruitment is (SKLwkdp)= 5 (excellent) based on the following considerations:

- The number of workers required during the construction phase of 62 people, is expected to be 60-70% can be filled by the local workforce.

- The number of workers needed at this stage of the operation as many as 45 people, is expected to be 60-70% can be filled by the local workforce.

3.1.2. Construction phase

Activity in the construction phase of the power plant PLTG capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province consists of the mobilization of equipment and materials; Land clearing, stockpiling and manufacture of drainage channels; and the construction and installation of power plant PLTG/PLTMG.

3.1.2.1. Mobilization of Heavy Equipment and Material And Machines Plant

Mobilization of equipment and materials to increase the capacity of electricity generation power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province will be an important impact on the hypothetical to the components of the environment in the form of road damage and traffic accidents and road changes in attitudes and perceptions.

3.1.2.1.1. Generated Traffic

Mobilization of equipment and materials for activities to increase power generation capacity of the power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, the Province will give rise to the rise in traffic. These impacts may occur due to the outflow - entry of heavy equipment and construction equipment to increase plant capacity PLTG/MG Duri who will be using roads that are traversed by the surrounding community. With the road conditions is the road environment will be worse if passed heavy equipment and vehicles with high weight and also will disrupt the activities of people who pass through these roads, so accessibility and community activities will also be affected. Mobilization of equipment and materials to be temporary and for a moment, that lasts only during transport equipment generating engines implemented.

Scale environmental quality improvement of seizure traffic before Reviews their mobilization equipment and materiality are (SKLwktp)= 4 (good) and the scale of the quality of the environment after the activity is (SKLwkdp)= 1 (very bad), so the magnitude of the impact is **- 3 (negative big) ,**

The establishment of environmental quality improvement of traffic generation before their mobilization of equipment and materiality to increase power generation capacity power plant PLTG/MG namely (SKLwktp)= 4 (excellent) based on considerations such as:

- The road to be traversed by the mobilization of equipment and materials is the way everyday people who mostly just on a motorbike. Frequency vehicle both motorcycles and four-wheeled vehicles are very rare.

The establishment of environmental quality improvement of traffic generation to their mobilization of equipment and material is (SKLwkdp)= 1 (very poor) based on the following considerations:

- Mobilization of equipment and materials will use heavy vehicles with an average frequency of about 2-3 trucks per day during this stage of the activity. This will greatly disrupt user activity surrounding streets.

3.1.2.1.2. Road damage

Mobilization of equipment and materials for activities to increase power generation capacity of the power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province will have an impact on road damage. These impacts may occur due to the outflow - entry of heavy equipment and construction equipment to increase plant capacity PLTG/MG Duri who will be using roads that are traversed by the surrounding community. With the road conditions is the road environment will be worse if passed heavy equipment and vehicles with high weight and also will disrupt the activities of people who pass through these roads, so accessibility and community activities will also be affected. Mobilization of equipment and materials to be temporary and for a moment, that lasts only during transport equipment generating engines implemented.

The scale of the environmental quality of road conditions before Reviews their mobilization equipment and materiality are (SKLwktp)= 4 (good) and the scale of the environmental quality as their activities are (SKLwkdp)= 1 (very bad), so the magnitude of the impact is **- 3 (big negative).**

The establishment of environmental quality deterioration of the road before their mobilization of equipment and materiality to increase power generation capacity power plant PLTG/MG namely (SKLwktp) = 4 (excellent) based on considerations such as:

- The condition of roads that will be passed mobilization of equipment and material quite well and have not encountered any traffic accidents over the years.

- Roads linking Kulim River with the location of the power plant PLTG/MG Duri is the road used by the local community to perform daily activities.

The establishment of environmental quality deterioration of the road with their mobilization of equipment and material is (SKLwkdp)=1(very poor) based on the following considerations:

- Mobilization of equipment and material through the roads used by the public will damage the road conditions due to the weight of cargo mobilized large enough range to ±80 tonnes.

3.1.2.1.3. Traffic accident

Mobilization of equipment and material will have an impact on road traffic accidents. These impacts may occur due to the outflow - entry of heavy equipment and the equipment that will use roads that are traversed by the surrounding community. With the road conditions is the road environment will be worse if passed heavy equipment and

vehicles with high weight and also will disrupt the activities of people who pass through these roads, so accessibility and community activities will also be affected. Mobilization of equipment and materials to be temporary and for a moment, that lasts only during transport equipment generating engines implemented.

The scale of the environmental quality of a traffic accident before Reviews their mobilization of equipment and materiality are (SKLwktp)= 4 (good) and the scale of the environmental quality as their activities are (SKLwkdp) = 1 (very bad), so the magnitude of the impact is -**3 (Big Negative).**

The establishment of environmental quality road traffic accident before their mobilization of equipment and materiality to increase power generation capacity power plant PLTG/MG namely (SKLwktp) = 4 (excellent) based on considerations such as:

- The condition of roads that will be passed mobilization of equipment and material quite well and have not encountered any traffic accidents over the years.

- Roads linking River Kulim with the location of the power plant PLTG/MG Duri is the road used by the local community to perform daily activities.

Determination of the quality scale environmental damage and road traffic accidents with their mobilization of equipment and material is (SKLwkdp)= 1 (very poor) based on the following considerations:

- Mobilization of equipment and materials by road from Kulim River to the location of the power plant PLTG/MG Duri may result in traffic accidents, where the road used by the community to carry out daily activities.

3.1.2.2. Maturation Land

Land clearing activities Extra power plant PLTG/MG Pungut Duri Balai Pungut Village, Pingir District, Bengkalis Regency , Riau Province will have an important impact on the environment component in the form of hypothetical changes in surface runoff (run off) and a decrease in surface water quality.

3.1.2.2.1. Surface Water Flow

The flow rate is generally determined surface soil's ability to skip groundwater (infiltration) into the body of the ground in the rain, in addition to rainfall intensity and volume. Related to the maturation of land for construction of the power plant PLTG/MG Duri, changes in runoff associated with the state of the ground, because the ground surface is cleaned, leveled and compacted, especially for the project footprint (land surface characteristics will change). The changes will affect the surface characteristics of surface runoff coefficient. The greater the surface flow coefficient, the greater the rate of change of the surface flow on the intensity and volume of rain the same.

The scale of the environmental quality of surface water flow rate before their land activities maturation namely (SKLwktp)= 3 (moderate) and the scale of the environmental

quality as their activities are (SKLwkdp)= 1 (very bad), so the magnitude of the impact is **- 2 (negative medium**).

The establishment of environmental quality of surface water flow rate before their activities maturation land for the foundation of a power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The condition of the land for the addition of a generating machine power plant PLTG/MG Duri form of shrub land.

The establishment of environmental quality of surface water flow rate with the activities of maturation land is (SKLwkdp)=1 (very poor) based on the following considerations:

- Land to be used for the power plant PLTG/MG Duri will be backfilled and then solidified, whereby when it rains there will be a flow of surface water.

3.1.2.2.2. Surface Water Quality

Surface water quality will affect when it rains, where the materials were found on land that is being prepared for the project site, or even a pile of material; stripping the land will be carried along by the flow of surface water, much less open land clean, the water flow rate surface becomes faster. The materials in question will be pollutants or contaminants that cause surface water quality will be changed to decrease the quality of the previous (baseline). Surface water quality degradation due to activities of preparation of the land will increase the organic matter that enter the surface water bodies in addition to other solids (inorganic). The increased content of pollutants into the water surface causes the surface water quality will be changed from its initial hue.

The scale of the environmental quality of surface water quality prior to their activities, namely land maturation (SKLwktp)= 3 (moderate) and the scale of the environmental quality as their activities are (SKLwkdp)= 1 (very bad), so the magnitude of the impact is **- 2 (negative medium).**

The establishment of environmental quality of surface water quality prior to their maturation activity Land clearing land for the power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The condition of the water quality River Mandau and River Pelintai is still under environmental quality standards established under Government Regulation No. 82 year 2001.

The establishment of environmental quality of surface water quality with the activities of preparation of the land is (SKLwkdp)= 1 (very poor) based on the following considerations:

- The condition of the water quality River Mandau and River Pelintai will decline especially in the rainy season and will even exceed environmental standards established by the Government Regulation No. 82 year 2001.

3.1.2.3. The foundation of development Plant PLTG /MG Duri

Foundation construction activities PLTG/MG Pungut Duri Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province would affect a hypothetical important impact on environmental components such as changes in surface runoff (run off) and a decrease in surface water quality.

3.1.2.3.1. Surface Water Flow

The flow rate is generally determined surface soil's ability to skip groundwater (infiltration) into the body of the ground in the rain, in addition to rainfall intensity and volume. Related to the maturation of land for construction of the power plant PLTG/MG Duri, changes in runoff associated with the state of the ground, because the ground surface is cleaned, leveled and compacted, especially for the project footprint (land surface characteristics will change). The changes will affect the surface characteristics of surface runoff coefficient. The greater the surface flow coefficient, the greater the rate of change of the surface flow on the intensity and volume of rain the same.

The scale of the environmental quality of the rate of flow of surface water prior to any construction activity foundation is (SKLwktp) = 3 (moderate) and the scale of the quality of the environment after the activity is (SKLwkdp) = 1 (very bad), so the magnitude of the impact is **- 2 (negative medium).**

The establishment of environmental quality of surface water flow rates prior to their foundation activities power generation power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The condition of the land for the addition of a generating machine power plant PLTG/MG Duri form of shrub land.

The establishment of environmental quality of surface water flow rate with their development foundation activities is (SKLwkdp)= 1 (very poor) based on the following considerations:

- Land to be used for the power plant PLTG/MG Duri will be backfilled and then solidified, whereby when it rains there will be a flow of surface water.

3.1.2.3.2. Surface Water Quality

Surface water quality will Affect when it rains, where the foundation of development activities using building materials and other fluids and solids when spilled or left at the time of the foundation will pollute the marine environment.The materials in question will be pollutants or contaminants that cause surface water quality will decline from baseline conditions before. Surface water quality degradation due to construction of the foundation will increase the content of the organic pollutants and other chemicals.

The scale of the environmental quality of surface water quality prior to their activities, namely the construction of foundations (SKLwktp) = 3 (moderate) and the scale of the environmental quality as their activities are (SKLwkdp) = 1 (very bad), so the magnitude of the impact is **- 2 (being negative).**

The establishment of environmental quality of surface water quality prior to any development activity foundation Village power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The condition of the water quality River Mandau and River Pelintai is still under environmental quality standards established under Government Regulation No. 82 year 2001.

The establishment of environmental quality with the quality of surface water is the foundation of development activities (SKLwkdp) =1 (very poor) based on the following considerations:

- The condition of the river water quality river Mandau and river Pelintai will decline especially in the rainy season and will even exceed environmental standards established by the Government Regulation No. 82 year 2001.

3.1.2.4. Testing and Trials

Testing and trials PLTG/MG thorn in the Balai Pungut Village, Pingir District , Bengkalis Regency, Riau Province would affect important impact hypothetical on environmental components such as air quality deterioration, increased vibration, increased noise intensity and changes in the quality of physical work environment.

3.1.2.4.1. Air Quality

Testing and trial include preliminary testing and ready for testing (testing the performance and reliability testing). Testing is ready for this will last for 600 hours continuously without disconnection. As a result it is ready to have lasted long enough it will have an impact on air environment. Changes in ambient air quality resulting from the testing and trials, in addition to the electrical energy produced, also produced a product that is not expected that the exhaust gas in the form of NO_2, NH_3, SO_2 and particulate dust.

The scale of the environmental quality of air quality prior to their testing activities and test power plant PLTG/MG Duri namely (SKLwktp) = 3 (moderate) and the scale of the quality of the environment after the activity is (SKLwkdp) = 2 (bad), so the magnitude of the impact is **- 1 (negative small).**

The establishment of environmental quality air quality before their trials kegiatanpengujian and power generation power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The condition of the air quality is still normal and do not exceed the environmental standards set by the Government Regulation No. 41 year 1999 on Control and Air Pollution.

The establishment of environmental quality in the presence of air quality testing activities and testing are (SKLwkdp) = 2 (bad) based on the following considerations:

- The condition of ambient air quality will decrease when the tests and trials could even exceed the environmental standards set by the Government Regulation No. 41 year 1999 on Control and Air Pollution.

3.1.2.4.2. Vibration

Testing and trial include preliminary testing and ready for testing (testing the performance and reliability testing). Testing is ready for this will last for 600 hours continuously without disconnection. As a result it is ready to have lasted long enough it will affect the vibration. Vibration is a back and forth movement of the masses through a balanced state to a point of reference and cause vibration or vibration. In the natural environment is almost inevitable vibration, except in case of natural events (earthquakes, landslides, explosions and others). Vibrations that occur in the testing and pilot power plant PLTG/MG Duri this is the emergence of mechanical vibration caused by the spindle axis and blades and turbine generator. These vibrations occur due to an increase in the speed or frequency of vibration, where previously no vibration caused by the operation of the power plant PLTG/MG Duri capacity of 160 MW.

The scale of the environmental quality of the vibration before the testing and pilot power plant PLTG/MG Duri namely (SKLwktp) = 4 (good) and the scale of the quality of the environment after the activity is (SKLwkdp) = 3 (moderate), so the magnitude of the impact is **- 1 (negative small),**

Determination of the quality scale vibration environments prior to their testing activities and test Village power plant PLTG/MG namely (SKLwktp)= 4 (excellent) based on considerations such as:

- Results of the baseline measurement of vibration is below the environmental quality standards for building damage and human health.

Determination of the quality scale neighborhood vibe with the activities of the testing and trials is (SKLwkdp) = 3 (moderate) based on the following considerations:

- Vibration will occur at a rate of 0.2 mm/sec at a distance of 50 meters from the plant, while at a distance of 100-200 meters from the plant will occur vibration with a speed of 0.1 mm/sec.

3.1.2.4.3. intensity Noise

Testing and trial include preliminary testing and ready for testing (testing the performance and reliability testing). Testing is ready for this will last for 600 hours continuously without disconnection. As a result it is ready to have lasted long enough it will have an impact on the increase in noise. Activities generating machine is expected to make sounds with frequencies ± 85 db (A) at the center of sound in the engine plant. The time range that is allowed is at the location of the noise of ± 85 db (A) is 8 hours per day,

while testing and trial lasted 600 hours, so that the public or workers will be affected by exposure for 75 days.

The scale of the environmental quality of the noise prior to the testing and pilot power plant PLTG/MG Duri namely (SKLwktp) = 3 (moderate) and the scale of the quality of the environment after the activity is (SKLwkdp) = 2 (bad), so the magnitude of the impact is **- 1 (small negative).**

The establishment of environmental quality noise before their testing activities and testing of the power plant PLTG a power plant PLTG/MG namely (SKLwktp)= 3 (moderate) is based on considerations such as:

- The results of baseline measurements of noise in the power plant PLTG/MG Duri still under environmental quality standards established under Decision Minister Of Environment Kep-48/MENLH/11/1996 on Standards of Noise Level, which amounted to 66.7 db (A), while the nearest settlement of 54.7 db (A).

The establishment of environmental quality noise with their testing and trials is (SKLwkdp) = 2 (bad) based on the following considerations:

- Activities of testing and trials increase engine capacity PLTG/MG spines of 200 MW will increase the intensity noise either on-site power plant PLTG/MG Duri and in nearby residential areas.

3.1.2.4.4. Physical Work Environment Quality

Testing and trial include preliminary testing and ready for testing (testing the performance and reliability testing). Testing is ready for this will last for 600 hours continuously without disconnection. As a result it is ready to have lasted long enough it will have an impact on changes in the physical environment of work. Changes in the physical work environment which include increased noise, air quality deterioration, increased vibration.

The scale of the environmental quality of physical work before the testing and pilot power plant PLTG/MG Duri namely (SKLwktp) = 3 (moderate) and the scale of the quality of the environment after the activity is (SKLwkdp) = 2 (bad), so the magnitude of the impact is **- 1 (small negative).**

Scaling the quality of Reviews their physical work environment before testing activities and test Village power plant power plant PLTG/MG namely (SK LKTP) = 3 (moderate) is based on considerations such as:

- The quality of the physical work environment with the parameters of the noise, air quality and vibrations is still in normal circumstances and not exceed the environmental quality standards have been set.

Scaling the quality of their work environment physical by testing activities and testing are (SKLwkdp) = 2 (bad) based on the following considerations:

- Activities of testing and trials increase engine capacity PLTG/MG spines of 200 MW will increase the physical work environment parameters such as air quality, noise and vibration and can even pass environmental standards have been set.

3.1.3. Post-Construction Phase

Activity at the stage of post-construction power plant PLTG capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province consists of the demobilization of equipment and termination of employment. Both of these activities do not have an important impact on the hypothetical component surrounding environment.

3.1.4. Operation Phase

The activities at this stage of operations increase electricity generating capacity power plant PLTG/MG Duri from 160 MW to 360 MW consists of the recruitment, the production of electrical energy, maintenance of generators, waste management (including Hazardous and Toxic Materials), greening and corporate social responsibility (CSR).

3.1.4.1. Acceptance of Labor

Recruitment activity at this stage of the operation will affect the hypothetical important impact on environmental components in the form of their job and business opportunities, rising incomes and a change in attitudes and perceptions.

3.1.4.1.1. Employment and Opportunities Sought

Recruitment activity increased capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District , Bengkalis Regency, Riau Province will have an impact on their employment opportunities and opportunities to try. the opening of employment and business opportunity will increase of revenue household community. Although the amount of labor required is not much, or limited, but still a great meaning for the local community, especially because of the scarcity of employment opportunities that exist in the study area.

Scale environmental quality employment and business opportunity before their recruitment activities, namely (SKLwktp) = 2 (bad) and environmental quality scale after their local manpower recruitment activity is (SKLwkdp) = 4 (good), so the magnitude of the impact is **+2 (positive medium).**

The establishment of environmental quality employment before their recruitment activities on the increase of electricity generation capacity power plant PLTG/MG namely (SKLwktp) = 2 (bad) based on the consideration in the form of:

- The population of the Balai Pungut Village aged 20-54 years (labor force) large enough to reach 798 people (44.82%).

- Job opportunities and employment opportunities are very limited or less, so people are expecting all their work and business opportunities.

The establishment of environmental quality with the activities of recruitment is (SKLwkdp) = 4 (excellent) based on the following considerations:

- The number of workers required during the construction phase of 62 people, is expected to be 60-70% can be filled by the local workforce.

- The number of workers needed at this stage of the operation as many as 45 people, is expected to be 60-70% can be filled by the local workforce.

3.1.4.1.2. Community Revenues

Recruitment activity increased capacity Village power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District , Bengkalis Regency, Riau Province will have an impact in the form of an increase in revenue community. The opening employment and business opportunity will increase household income community. Although the amount of labor required is not much or limited in a short time, but still a great means for local people, especially because of the scarcity of employment opportunities that exist in the study area.

Scale environmental quality employment and business opportunity before their recruitment activities, namely (SKLwktp) = 2 (bad) and environmental quality scale after their local manpower recruitment activity is (SKLwkdp) = 4 (good), so the magnitude of the impact is **+2 (positive medium).**

The establishment of environmental quality employment before their recruitment activities on the increase of electricity generation capacity power plant PLTG/MG namely (SKLwktp) = 2 (bad) based on the consideration in the form of:

- The amount of income of the people in the study area average of Rp. 750.000,-.up to Rp.1.250.000, - per month for casual laborers or unskilled laborers.

- Job opportunities and employment opportunities are very limited or less, so people are expecting all their work and business opportunities.

The establishment of environmental quality with the activities of recruitment is (SKLwkdp) = 4 (excellent) based on the following considerations:

- The amount of revenue for the people who will work on activities to increase power generating capacity of the power plant PLTG/MG ranges between Rp.1.500.000,-up to Rp.2,500,000,- per month for manual workers.

- There will be an increase in income of the community around the study area is Rp.750.000,-up to Rp.1,250,000 per month for manual workers.

3.1.4.1.3. Attitudes and Public Perception

Recruitment in capacity building electricity generation power plant PLTG/MG Duri will impact the changes in attitudes and perceptions of labor comunity. Reception should prioritize local labor, especially for certain jobs requiring less skill so high that attitudes and perceptions towards raising activities generating capacity of the power plant PLTG/MG These spines can be better. Therefore, the proponent is expected to be able to absorb the local workforce optimally suit your needs and can improve people's ability to compete with migrant employment. If work opportunities seldom given to local manpower, then this will lead to social unrest and jealousy, which eventually became a social conflict, both between local communities with initiatives as well as between local people and migrant employment.

The scale of the environmental quality of the local labor availability before their recruitment activities, namely (SKLwktp) = 2 (bad) and environmental quality scale after their local manpower recruitment activity is (SKLwkdp) = 5 (excellent), so the magnitude of the impact is **+3 (big positive).**

The establishment of environmental quality local workforce before their recruitment activities on the increase of electricity generation capacity power plant PLTG/MG namely (SKLwktp) = 2 (bad) based on the consideration in the form of:

- The population of the Balai Pungut Village aged 20-54 years (labor force) large enough to reach 798 people (44.82%).

- Job opportunities and employment opportunities are very limited or less, so people are expecting all their work and business opportunities.

The establishment of environmental quality with the activities of recruitment is (SKLwkdp) = 5 (excellent) based on the following considerations:

- The number of workers required during the construction phase of 62 people, is expected to be 60-70% can be filled by the local workforce.

- The number of workers needed at this stage of the operation as many as 45 people, is expected to be 60-70% can be filled by the local workforce.

3.1.4.2. Electrical Energy Production

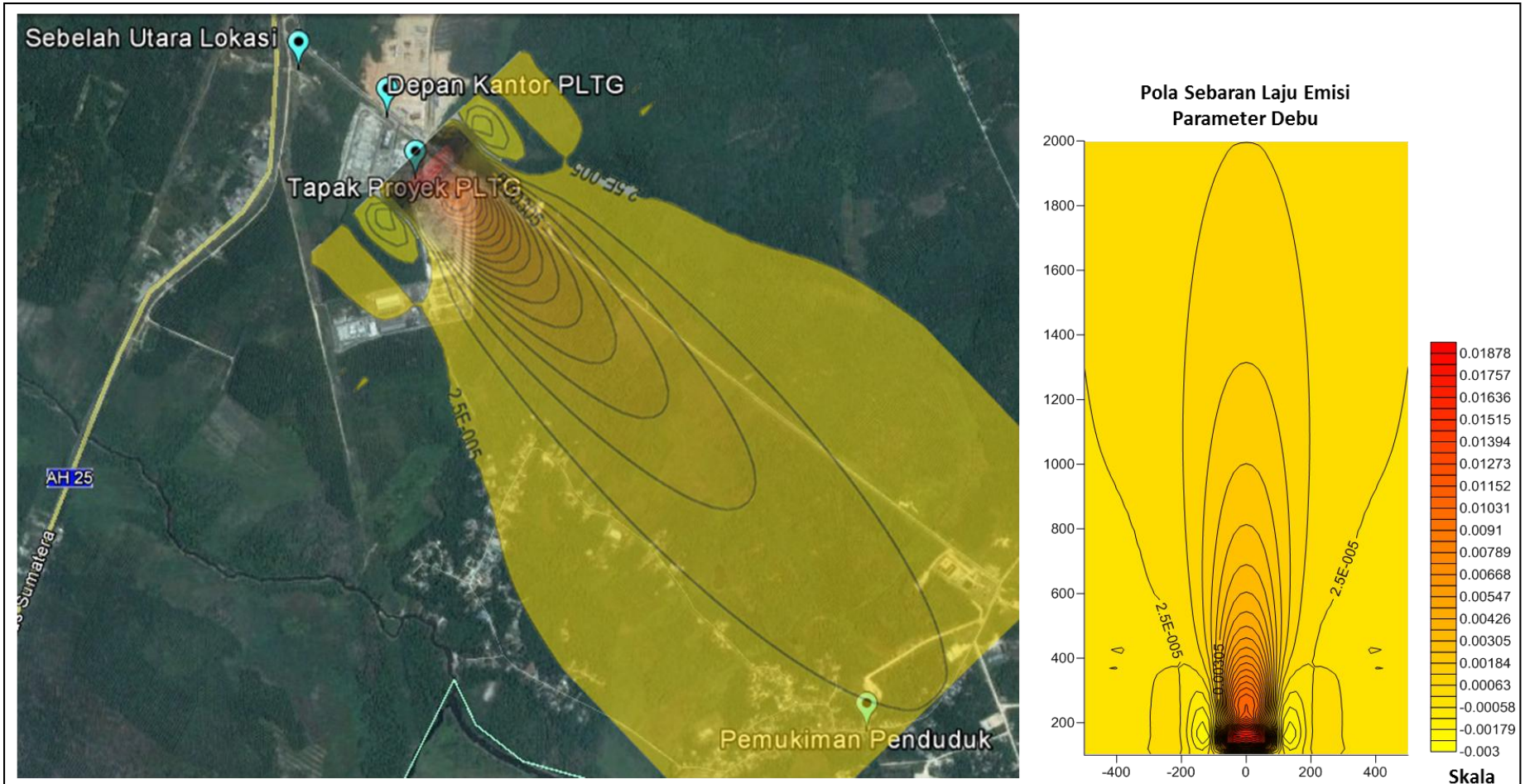
Electric energy production activities at this stage of the operation will affect the hypothetical important impact on environmental components such as air quality deterioration, the onset of vibration, increased noise intensity, the availability of electrical energy, the quality of the physical work environment, as well as increased regional economic and locally-generated revenue.

3.1.4.2.1. Air Quality

Production of electrical energy for quite some time (± 25 years) it will have an impact on air environment. Changes in ambient air quality resulting from the activities of

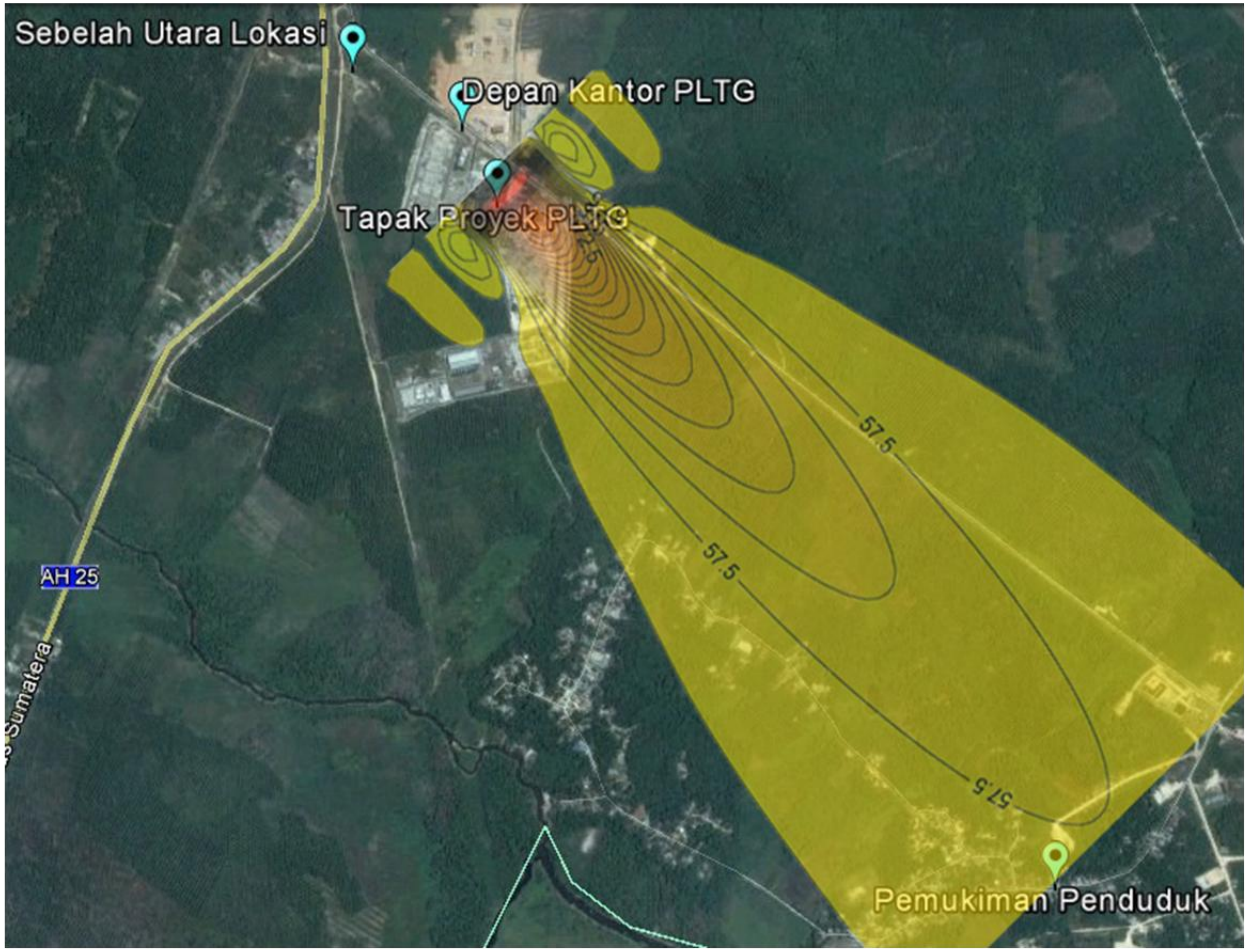
production of electrical energy, in addition to the electrical energy produced, also produced a product that is not expected that the exhaust gas in the form of NO_2, NH_3, SO_2 and particulate dust.

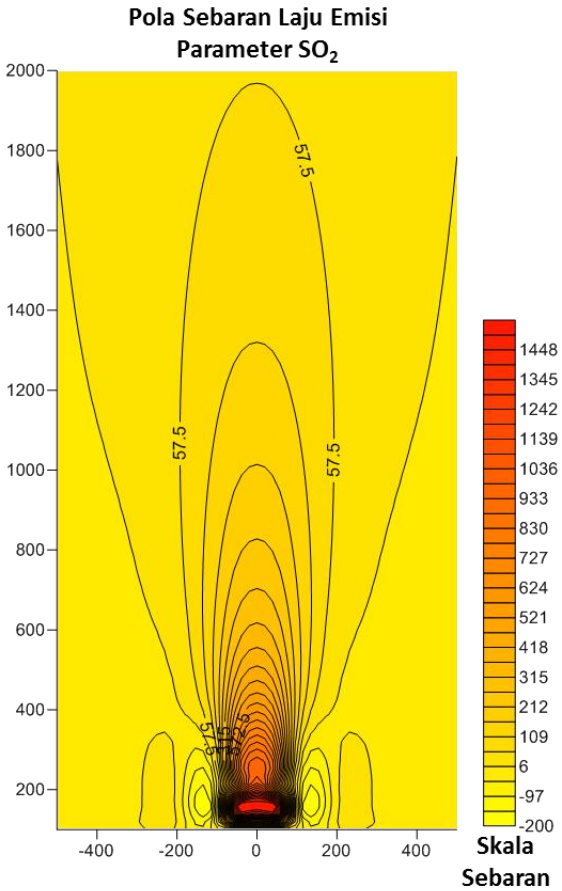
Here is the result of the modeling of the flue emissions after the addition of power capacity of 200 MW. Estimates of the dimensions of the chimney after the addition of 2 m in diameter with a height of 50 m. Then to exit gas velocity is assumed to 22.5 m/s wind speed and 2:27 m/s. Assuming these data, the higher the smoke posed to 74, .07 m.



Simulasi Sebaran Parameter Debu di Lokasi Kegiatan

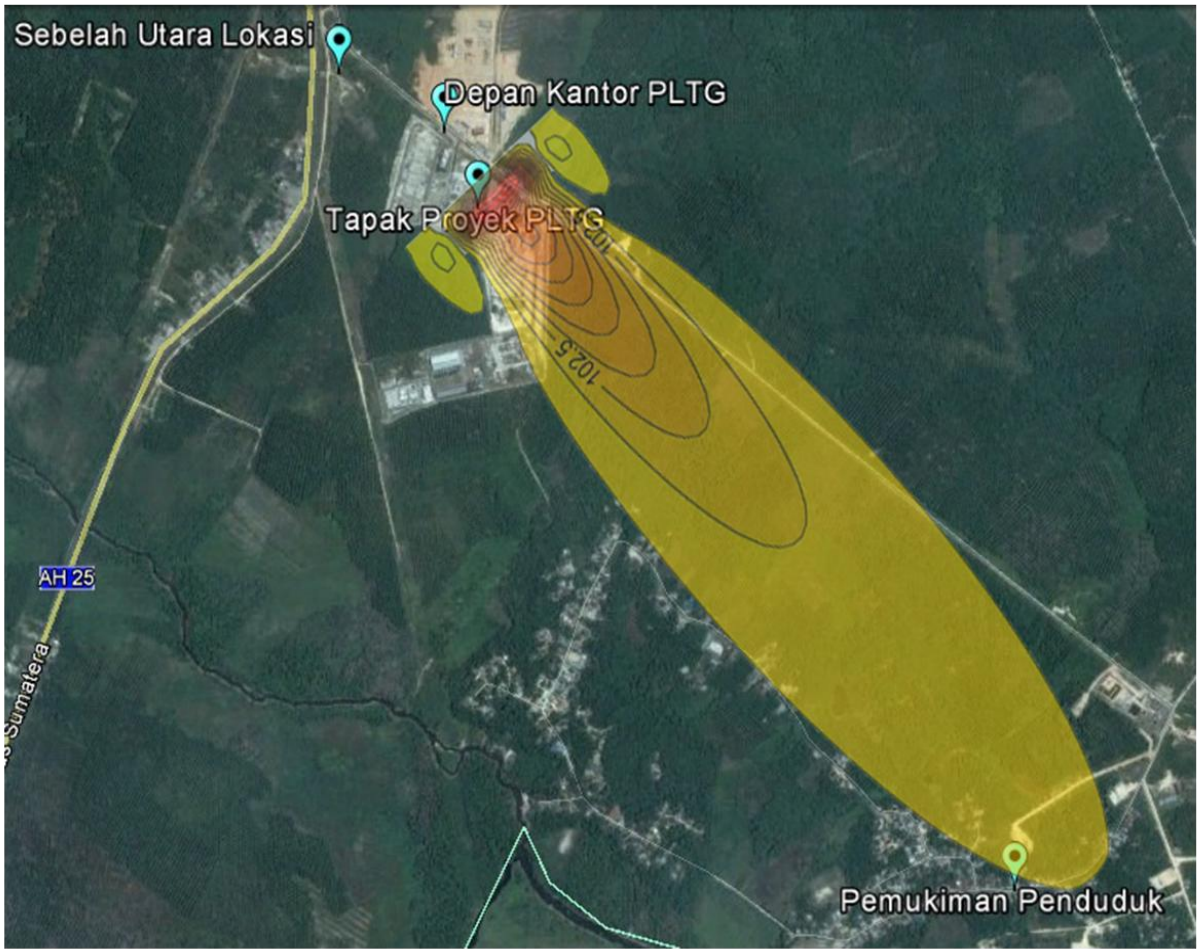
Picture 3.1.
Estimated Distribution Pattern and Simulation Distribution Rate of Dust Emissions After the addition of 200 MW

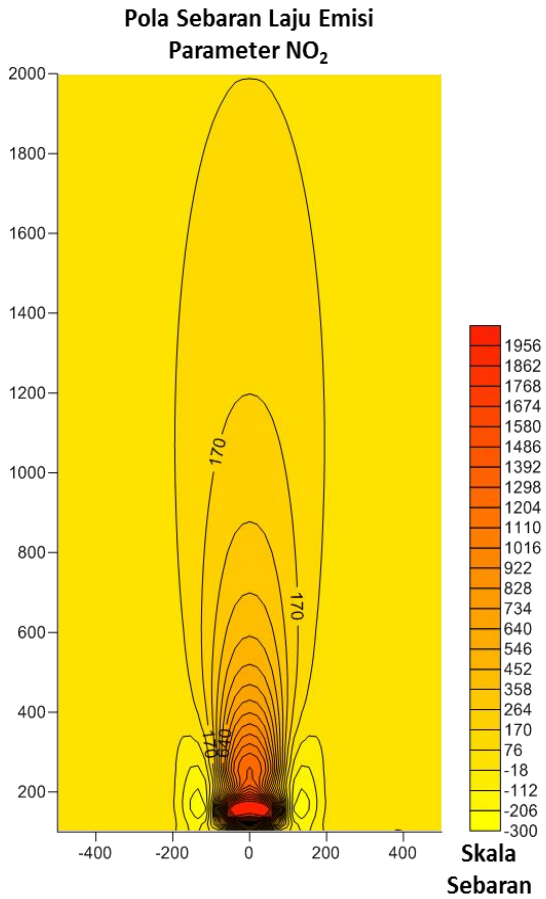




Simulasi Sebaran Parameter SO_2 di Lokasi Kegiatan

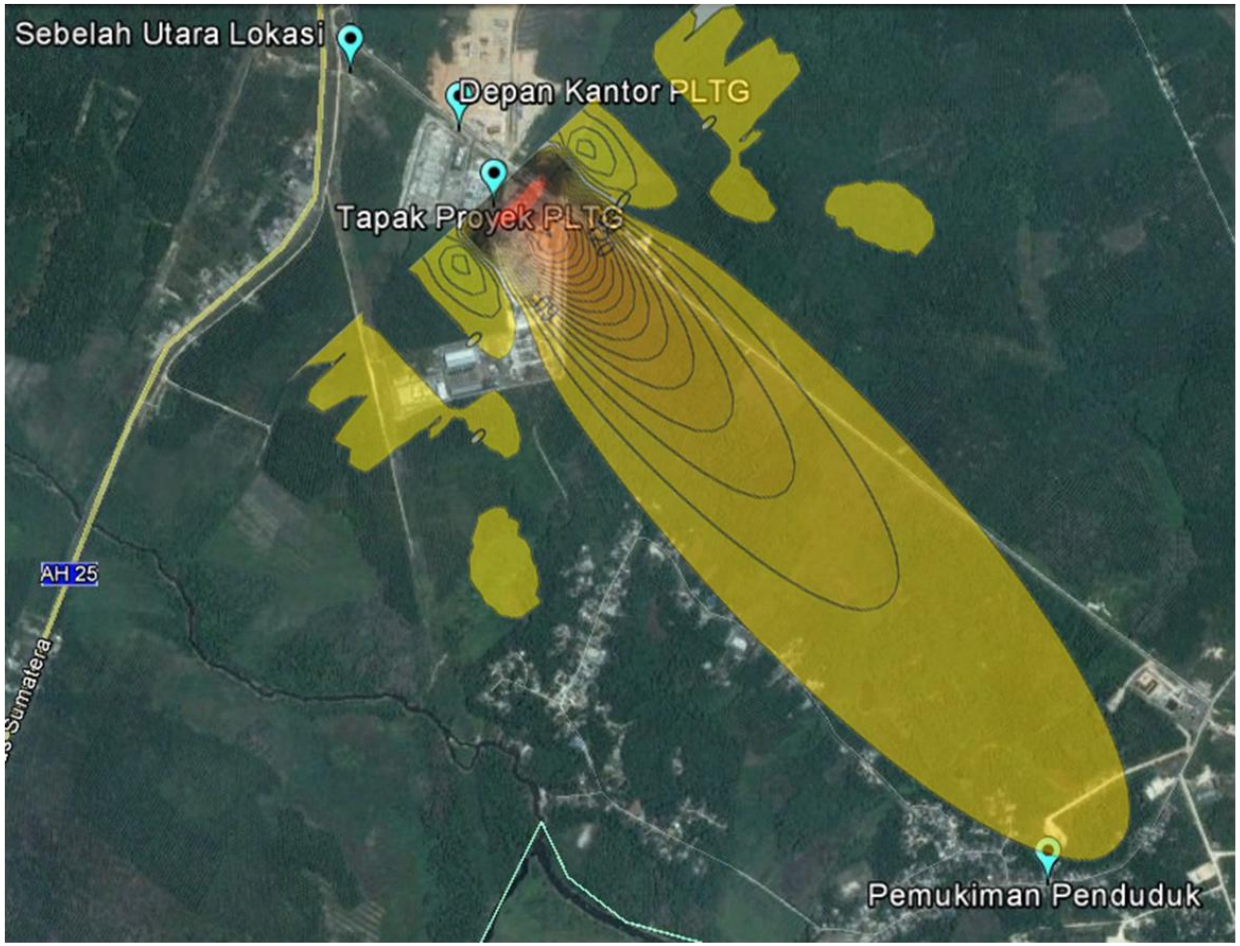
Picture 3.2.
Estimated Distribution Pattern and Simulation Distribution Rate of SO2 emissions After addition of 200 MW



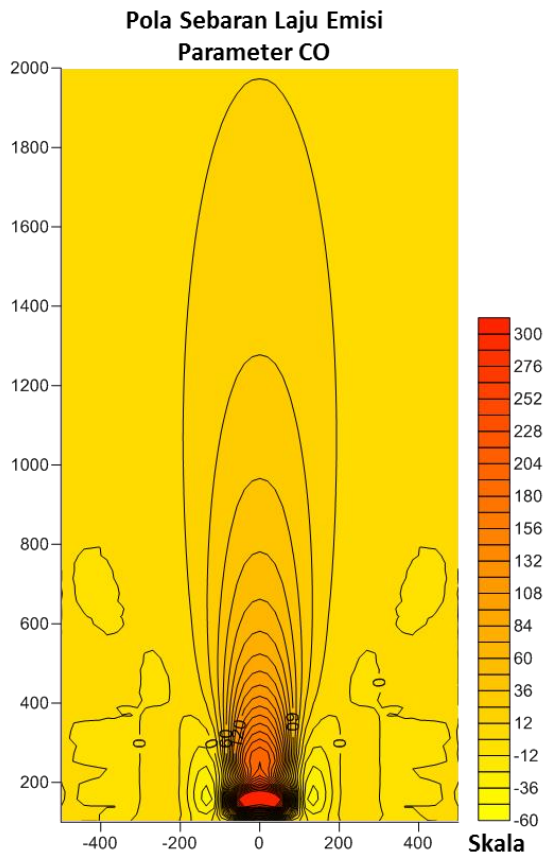


Simulasi Sebaran Parameter NO_2 di Lokasi Kegiatan

Picture 3.3.
Estimated Distribution Pattern and Simulation Distribution of NO2 emission rate after addition of 200 MW



Simulasi Sebaran Parameter CO di Lokasi Kegiatan



Picture 3.4.
Estimated Distribution Pattern and Simulation Distribution Rate of CO Emissions After the addition of 200 MW

Modelling produced is the use of the method of Gaussian Disperssion, where the rate of emission of dust emission is 2,298,612.68 ug/s, for SO_2 amounting to 10,970,651.41 g/s, then for NO_2 is 14,776,795.77 ug/s and CO amounting to 8,537,704.23 g / s. At a height of 2 m from the ground speed of each of the parameters of the spread to a distance of 2,000 m (2 km).

Assumptions of modeling after the addition of 200 MW indicates if the concentration of each parameter spread to all residential population, where the distance from the location of the power plant PLTG to the Settlement ± 2.000 m (2 km). But the results of the modeling dar indicate if the concentration distribution of emissions on human settlements has little value.

Therefore, based on the assumptions of the modeling with the addition of a power plant PLTG with a capacity of 200 MW does not have a large impact on the environment surrounding, especially settlements. And the concentration of each parameter is also still below quality standards. The following Figure 3.1, 3.2, 3.3. and 3.4 shows the results of the modeling assumptions Extra power of 200 MW.

The scale of the environmental quality of air quality before the production of electrical energy power plant PLTG/MG Duri namely (SKLwktp)= 3 (moderate) and the scale of the quality of the environment after the activity is (SKLwkdp)= 2 (bad), so the magnitude of the impact is **- 1 (negative small),**

The establishment of environmental quality air quality before Reviews their production activities electrical energy Village power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The condition of the air quality is still normal and do not exceed the environmental standards set by the Government Regulation No. 41 year 1999 on Control and Air Pollution.

Determination of the quality scale water quality environment with Reviews their electrical energy production is (sklep) = 2 (bad) based on the following considerations:

- The condition of ambient air quality will decrease when conducted electrical energy production can even exceed environmental standards established by the Government Regulation No. 41 year 1999 on Control and Air Pollution.

3.1.4.2.2. Vibration

Production of electrical energy for quite some time (± 25 years) then it will affect the vibration. Vibration is a back and forth movement of the masses through a balanced state to a point of reference and cause vibration or vibration. In the natural environment is almost inevitable vibration, except in case of natural events (earthquakes, landslides, explosions and others). Vibrations that occur in the production of electrical energy power plant PLTG/MG Duri this is the emergence of mechanical vibration caused by the spindle axis and blades and turbine generator. These vibrations occur due to an increase in the

speed or frequency of vibration, where previously no vibration caused by the operation of the power plant PLTG/MG Duri capacity of 160 MW.

The scale of the environmental quality of the vibration before the production of electrical energy trying to power plant PLTG/MG Duri namely (SKLwktp) = 4 (good) and the scale of the quality of the environment after the activity is (SKLwkdp) = 3 (moderate), so the magnitude of the impact is **- 1 (negative small),**

Determination of the quality scale vibration environments before their production of electrical energy Village power plant PLTG/MG namely (SKLwktp) = 4 (excellent) based on considerations such as:

- Results of the baseline measurement of vibration is below the environmental quality standards for building damage and human health.

Determination of the quality scale vibration environment with their energy production electricity is (SKLwkdp) = 3 (moderate) based on the following considerations:

- Vibration will occur at a rate of 0.2 mm / sec at a distance of 50 meters from the plant, while at a distance of 100-200 meters from the plant will occur vibration with a speed of 0.1 mm/sec.

3.1.4.2.3. Noise

Production of electrical energy for quite some time (± 25 years) it will have an impact on the increase in noise. Activities generating machine is expected to make sounds with frequencies ± 85 db (A) at the center of sound in the engine plant. The time range that is allowed is at the location of the noise of ± 85 db (A) is 8 hours per day, while production of electrical energy lasts for the life of plants.

The scale of the environmental quality of the noise before the production of electrical energy power plant PLTG/MG Duri namely (SKLwktp)= 3 (moderate) and the scale of the quality of the environment after the activity is (SKLwkdp)= 2 (bad), so the magnitude of the impact is **- 1 (negative small),**

The establishment of environmental quality noise before their production of electrical energy Village power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The results of baseline measurements of noise in the power plant PLTG/MG Duri still under environmental quality standards established under Kep-48/MENLH/11/1996 on Standards of Noise Level, which amounted to 66.7 db (A), while the nearest settlement of 54.7 db (A).

The establishment of environmental quality noise with Reviews their electrical energy production is (SKL wkdp) = 2 (bad) based on the following considerations:

- Activities of electric energy production capacity generating machine power plant PLTG/MG spines of 200 MW will increase the intensity noise either on-site power plant PLTG/MG Duri and in nearby residential areas.

3.1.4.2.4. Availability of Electrical Energy

Operation PLTG/MG Duri will generate electrical energy to be channeled through a switch yard and then to the transformer and substations that will increase the power available. Electrical energy to be generated from the increase in capacity of 200 MW which will be able to cope with peak load electricity needs and Bengkalis in Riau province.

Environmental quality scale before energy availability Reviews their activities to increase plant capacity PLTG/MG Duri namely (SKLwktp) = 2 (bad) and environmental quality scale after the capacity expansion is (SKLwkdp) = 3 (moderate), so the magnitude of the impact is **+1 (small positive),**

The establishment of environmental quality before energy availability Reviews their activities to increase the power generating capacity of the power plant PLTG/MG namely (SKLwktp) = 2 (bad) based on the consideration in the form of:

- The peak load electricity needs of 450 MW Riau Province is still less of 160 MW supplied from Central Sumatra interconnection system.

- There are still frequent power outages society in rotation when one of the generating machine is broken or under repair.

Determination of the quality scale energy availability environment electricity with their energy production electricity is (SKLwkdp) = 3 (moderate) based on the following considerations:

- Activities of electric energy production capacity generating machine power plant PLTG/MG Duri will increase the availability of electrical energy of 200 MW.

- Reliability and electrical systems Bengkalis Riau province will be better due to an increase in plant capacity PLTG/MG Duri.

3.1.4.2.5. Physical Work Environment Quality

Production of electrical energy power plant PLTG/MG Duri will last long enough then it will have an impact on changes in the physical environment of work. Changes in the physical work environment which include increased noise, air quality deterioration, increased vibration. The quality of the physical work environment is comfort of the room or place to do a job related components supportive environment. Some of the factors that affect the formation of a working environment conditions related to the ability of employees, including lighting, temperature, humidity, air circulation, noise, mechanical vibration, odor, color scheme, decor, music and security.

The scale of the environmental quality of physical work before their operating activities power plant PLTG/MG Duri namely (SKLwktp) = 3 (moderate) and the scale of the quality of the environment after the activity is (SKLwkdp) = 2 (bad), so the magnitude of the impact is **- 1 (negative small).**

Determination of the quality scale before their physical work environment of the plant operation activities of the power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The quality of the physical work environment with the parameters of the noise, air quality and vibrations is still in normal circumstances and not exceed the environmental quality standards have been set.

Determination of the quality scale with Reviews their physical work environment is generating operating activities (SKL wkdp) = 2 (bad) based on the following considerations:

- Event production of electrical energy generating power plant PLTG/MG spines of 200 MW will increase the physical work environment parameters such as air quality, noise and vibration and can even pass environmental standards have been set.

3.1.4.2.6. Regional economic and locally-generated revenue

Production of electrical energy during operation phase will provide the means to supply electric power supply, so it will support the local and regional economies. Electricity condition today is still cause for concern, which is still often done alternate electricity blackouts and restricts the electrical connections the new caused a lot of complaints from the public, including the business community, which led to losses due to frequent power cuts, so it must operate the generator itself at great cost ,

Activities to increase plant capacity PLTG/MG These spines will indirectly be able to overcome these problems and ensure power supplies in sufficient quantities and smoothly so will cause the industry, trade and services, a rapidly growing sector of the economy can be increased without the constraints of electrical energy, so it will be able to increase the local economy, regional locally-generated revenue even much better.

Scale environmental quality improvement of regional economies and locally-generated revenue prior to the operation of the power plant PLTG/MG Duri namely (SKLwktp) = 2 (bad) and the scale of the environmental quality as their activities are (SKLwkdp) = 3 (moderate), so the magnitude of the impact is **+1 (Positive small),**

The establishment of environmental quality improvement of regional economies and the locally-generated revenue before Reviews their activities to increase plant capacity/MG namely (SKLwktp) = 2 (bad) based on the consideration in the form of:

- Still many queues list of new customers for installing electrical connections to both residential as well as for business activities.

- There are still frequent alternate electricity blackouts due to power shortages to address peak load.

The establishment of regional economic improvement of environmental quality and locally-generated revenue with their capacity building activities are (SKLwkdp) = 3 (moderate) based on the following considerations:

- Capacity building machines PLTG/MG Duri will increase the supply of 200 MW of electrical power, so that the problem queue of new customers for installing electricity and blackouts in rotation can be addressed and ultimately will increase the passion the business world.

3.1.4.3. Maintenance Engineering Plant

The maintenance of the generating machine power plant PLTG/MG Duri Balai Pungut Village, Pingir District , Bengkalis Regency, Province Riau in operation phase will provide an important impact hypothetical impact on environmental components such as surface water quality degradation.

3.1.4.3.1. Surface Water Quality

The maintenance of the machine is work to optimize the work of the engine after operating for a certain time with the action parts replacement, replacement of lubricants, grease replacement, and so forth. These residual materials and cleaning materials used in the maintenance of the machine, is certainly not all of them carefully can be accommodated in the container provided. Most will flow to other places along the movement of water and wastewater into the pond and eventually discharged into the river after receiving treatment in the management of wastewater pond.

The scale of the environmental quality of surface water quality before any maintenance activities are generating machinery (SKLwktp) = 3 (moderate) and the scale of the environmental quality as their activities are (SKLwkdp) = 1 (very bad), so the magnitude of the impact is **- 2 (negative medium).**

The establishment of environmental quality of surface water quality prior to their maintenance activities power plant PLTG/MG namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The condition of the water quality River Mandau and River Pelintai is still under environmental quality standards established under Government Regulation No. 82 Year 2001.

The establishment of environmental quality of surface water quality with Reviews their maintenance activities plant is (SKLwkdp) = 1 (very poor) based on the following considerations:

- The condition of the water quality River Mandau and River Pelintai will decline especially in the rainy season and will even exceed environmental standards established by the Government Regulation No. 82 Year 2001.

3.1.4.4. Waste Management (Including Hazardous and Toxic Materials)

Waste Management activities (including Hazardous and Toxic Materials) generator power plant PLTG/MG Duri Balai Pungut Village, Pingir District, Bengkalis Regency, Provincial Operations Phase Riau will give a hypothetical Important Impact Of Environmental Components Form quality decline in surface air .

3.1.4.4.1. Surface Water Quality

Changes in surface water quality associated with waste management activities (Including Hazardous and Toxic Materials), the impact of the activities of handling liquid and solid wastes from operating activities PLTG/MG Duri. Operational generating machine regularly will also release liquid waste, solid and Hazardous and Toxic Materials waste and domestic waste. Hazardous and Toxic Materials waste management efforts will elaborate on the power of pollutants from the waste, because wastewater before being discharged

into the water body must first be managed in an WWTP to meet the quality standards to be poured into the river. Hazardous and Toxic Materials waste handling is done through collection actions in certain containers, before getting the appropriate management measures Hazardous and Toxic Materials standards.

The scale of the environmental quality of surface water quality before their management activities waste (including Hazardous and Toxic Materials), namely (SKLwktp) = 3 (moderate) and the scale of the quality of the environment after the activity is (SKLwkdp) = 1 (very bad), so the magnitude of the impact is **- 2 (Negatif Medium) ,**

The establishment of environmental quality of surface water quality before their management activities waste (including Hazardous and Toxic Materials), namely (SKLwktp) = 3 (moderate) is based on considerations such as:

- The condition of the water quality River Mandau and River Pelintai is still under environmental quality standards established under Government Regulation No. 82 year 2001.

The establishment of environmental quality of surface water quality with their waste management activities (including Hazardous and Toxic Materials) is (SKLwkdp) = 1 (very poor) based on the following considerations:

- The condition of the water quality River Mandau and River Pelintai will decline especially in the rainy season and will even exceed environmental standards established by the Government Regulation No. 82 year 2001.

3.1.4.5. Greening

Greening activities within the plant site PLTG/MG Duri Balai Pungut Village, Pingir District, Bengkalis regencyt, Riau Province pada operation phase will have an important impact on the hypothetical improvement of air quality, noise reduction and restoration of terrestrial vegetation.

3.1.4.5.1. Air Quality

Ambient air quality changes arising from greening activities is blackened by a power reduction of pollutant formed from flue gas activity power plant PLTG/MG Duri through the ability of plants grown disektiar greening plants. Planting trees reforestation carried out in the area of complex power plant PLTG/MG Duri and the buffer area at a certain distance in the area of plant and simultaneously limit the power plant PLTG/MG Duri with settlements.

The scale of the environmental quality of the water quality before Reviews their reforestation activities namely (SKLwktp) = 2 (bad) and the scale of the environmental quality as their activities are (SKLwkdp) = 3 (moderate), so the magnitude of the impact is **+1 (Positive small).**

The establishment of environmental quality Reviews their water quality before planting activity namely (sklep) = 2 (bad) based on the consideration in the form of:

- The condition of ambient air quality will decrease when conducted electrical energy production can even exceed environmental standards established by the Government Regulation No. 41 year 1999 on Control and Air Pollution.

The establishment of environmental quality with their air quality is the greening activities (SKLwkdp) = 3 (moderate) based on the following considerations:

- Green plants are planted in reforestation activities will be able to reduce the air pollution that occurs. Each plant has different characteristics in absorbing certain gases in the air, so it can be a good buffer against air pollution.

- Function of greening in the plant, utility area and buffer area is emphasized as an absorber of CO_2, producing oxygen, absorbing pollutants (heavy metals, dust, sulfur, etc.), noise barriers and inhibiting the rate of vibration velocity or vibration generated by the engine generator.

3.1.4.5.2. Noise

Change the noise generated from an act of greening activities dampening the noise generated from the power plant PLTG/MG Duri so the sound or noise that occurs can be reduced in volume to the residential areas around the plant site. Planting trees reforestation carried out in the area of complex power plant PLTG/MG Duri and the buffer area at a certain distance in the area of plant and simultaneously limit the power plant PLTG/MG Duri with settlements.

The scale of the environmental quality of the noise before the tree planting activity, namely (SKLwktp) = 2 (bad) and the scale of the environmental quality as their activities are (SKLwkdp) = 3 (moderate), so the magnitude of the impact is **+ 1 (positive small).**

The establishment of environmental quality noise before the tree planting activity, namely (SKLwktp) = 2 (bad) based on the consideration in the form of:

- Activities of electric energy production capacity generating machine power plant PLTG/MG spines of 200 MW will increase the intensity noise either on-site power plant PLTG/MG Duri and in nearby residential areas.

The establishment of environmental quality noise with their tree planting activity is (SKLwkdp) = 3 (moderate) based on the following considerations:

- Type of greening plants to be planted is a type of plant that besides being able to reduce the concentration of pollutants that contaminate air, can also reduce the noise generated activity generating machine, so the rate of increase in noise can be reduced.

- Function of greening in the plant, utility area and buffer area is emphasized as an absorber of CO_2, producing oxygen, absorbing pollutants (heavy metals, dust, sulfur, etc.), noise barriers and inhibiting the rate of vibration velocity or vibration generated by the engine generator.

3.1.4.5.3. Vegetation Army

Baseline conditions of terrestrial vegetation to plant locations (turbines, generators and compressors), the location of the site switch yard, utility and wastewater form beluar shrub and grass and there were no vegetation protected. The impact of the loss of vegetation will take place during the construction phase and will recover after greening activities.

The scale of the environmental quality of their quality of vegetation land before greening activities namely (SKLwktp) = 1 (very bad) and environmental quality scale after their reforestation activities are (SKLwkdp) = 3 (moderate), so the magnitude of the impact is **+2 (positive medium).**

The establishment of environmental quality terrestrial vegetation prior to planting activity at the site of the power plant PLTG/MG namely (SKLwktp)= 1 (very poor) based on the consideration in the form of:

- Location plan of development increase plant capacity power plant PLTG/MG Duri do land clearing activities that will eliminate the vegetation around it.

The establishment of environmental quality in the presence of terrestrial vegetation is greening activities (SKLwkdp) = 3 (moderate) based on the following considerations:

- Greening activities will be able to restore the function of vegetation lost during the construction phase with greening plants.

3.1.4.6. Corporate Social Responsibility (CSR)

Activity implementation of corporate social responsibility (CSR) Village power plant PLTG/MG Duri Balai Pungut Village, Pingir District, Bengkalis Regency, Province Riau in operation phase will have an important impact on the hypothetical changes in attitudes and perceptions.

3.1.4.6.1. Attitudes and Public Perception

Implementation of CSR program conducted in stages in accordance with the program PT. PLN (Persero) has been prepared. Implementation of this program is the mandate of the Constitution of the Republic of Indonesia No. 40 Year 2007 regarding Limited Liability Company. This activity is the embodiment of the company's concern for the environment around them, which will not only benefit the community, but is also useful for companies because of the impact of this activity is to add good image in the eyes of society and creating a mutually beneficial relationship between the company and CSR is important community activities conducted by the proponent to develop a good relationship with the community. With proper management of CSR, attitudes and perceptions will be positive, so that social conflicts will be minimized.

The scale of the environmental quality of the attitudes and perceptions before their CSR program activities, namely (SKLwktp) = 2 (bad) and environmental quality scale after their CSR activities are (SKLwkdp) = 5 (excellent), so the magnitude of the impact is **+3 (a big positive).**

The establishment of environmental quality before their CSR activities on the increase of electricity generation capacity power plant PLTG/MG namely (SKLwktp) = 2 (bad) based on the consideration in the form of:

- One of the negative attitudes and perceptions that developed in the study area in the form of lack of CSR activities undertaken by the proponent of the community Balai Pungut village, Pingir District , Bengkalis.

The establishment of environmental quality with their CSR activities are (SKLw dp) = 5 (excellent) based on the following considerations:

- Implementation of CSR is right on target and in accordance with the needs of the community will enhance positive attitudes and perceptions, so that social conflicts will be minimized.

Table 3. 2.
Magnitude of Impact Event Forecast Increased Plant Capacity Listrik PLTG/MG Duri in Balai Pungut Village, Pinggir District, Bengkalis Regency, Riau Province

No.	PART ENVIRONMENT	IMPACT SOURCE ACTIVITY PLAN	(SKL_{wkdp})	(SKL_{wktp})	Number Important Criteria
1.	Attitudes and Public Perception	Public Consultation	2	5	+3
		Acceptance of Labor (Construction & Operation)	2	5	+3
		Corporate Social Responsibility (CSR)	2	5	+3
2.	Employment and Seek	Acceptance of Labor (Construction & Operation)	2	4	+2
3.	Community revenues	Acceptance of Labor (Construction & Operation)	2	4	+2
4.	Generated Traffic	Mobilization Tools, Materials and Machinery Plant	4	1	- 3
5.	Road damage	Mobilization Tools, Materials and Machinery Plant	4	1	- 3
6.	Traffic accident	Mobilization Tools, Materials and Machinery Plant	4	1	- 3
7.	Surface Water Flow (Run Off)	maturation Land	3	1	- 2
		Development Foundation Plant	3	1	- 2
8.	Surface Water Quality	maturation Land	3	1	- 2
		Development Foundation Plant	3	1	- 2
		Maintenance Engineering Plant	3	1	- 2
		Waste Management (Including Hazardous and Toxic Materials)	3	1	- 2
9.	Air Quality	Testing and Trials	3	2	- 1
		Electrical Energy Production	3	2	- 1
		Greening	2	3	+ 1
10.	Vibration	Testing and Trials	4	3	- 1
	Noise	Electrical Energy Production	4	3	- 1
11.		Testing and Trials	3	2	- 1
		Electrical Energy Production	3	2	- 1

No.	PART ENVIRONMENT	IMPACT SOURCE ACTIVITY PLAN	(SKL_{wkdp})	(SKL_{wktp})	Number Important Criteria
	Physical Work Environment Quality	Greening	2	3	+ 1
12.		Testing and Trials	3	2	- 1
	Availability of Electrical Energy	Electrical Energy Production	3	2	- 1
13.	Regional economic and locally-generated revenue	Electrical Energy Production	2	3	+ 1
14.	vegetation Army	Electrical Energy Production	2	3	+ 1
15.	Noise	Greening	1	3	+ 2

3.2. Important properties Impact Forecast

To estimate changes in environmental quality, use methods that apply to each aspect of the environment studied adapted to the environmental impact assessment into account environmental conditions without and with the activities of electricity generation capacity power plant PLTG/MG Duri. Used in estimating the impact of some of the methods used either separately or combined. The method is by way of informal or qualitative includes measures by analogy, the use of a book of environmental quality, based on experience and literature.

The method of determining significant impacts based on guidance regarding the effect size is important in accordance with Law No. 32 year 2009 on the Protection and Environmental Management paragraph 5 of Article 22, paragraph 2, which is determined by several factors:

a). The large number of people who will be affected the business and/or activities;

b). The total area affected;

c). The intensity and duration of the impact;

d). Many other environmental components that will be affected;

e). The cumulative nature of the effects;

f). Reversibility or irreversibility of the impact;

g). The development of science and technology;

Therefore, based on the amount of votes and the important impact guided by the Law No. 32 Year 2009 will obtain assessment criteria **important (P)** and **Not Essential (TP).**

Based on the assessment criteria, could eventually be used to make a decision whether it is a large and important impact. Determination of the level of importance of this impact is i impacts are grouped depth I**mportant (P)** and **Not Essential (TP).** Guidelines for determination of the level of importance whether the impact effects **Important (P)** or **not important (TP**) is based on the following criteria:

1) The number of humans affected

Criteria P when there is approximately ≥ 10% of the population affected. Criteria TP if no humans were affected.

2) The area of distribution of impacts

Criteria P once the extent of the impact of ≥ 0.25 times the area of study, because at least in the area in an area of 0.25 from the area of space utilization studies diverse enough so that the high level of importance, the impact has been considered important. Criteria TP once the extent of the impact of ≤ 0.25 times the area of study.

3) The intensity and duration of the impact

Criteria P when the intensity equal to or greater than the threshold quality standards, and the effect lasts or not only for a moment. Criteria TP when low-intensity below the threshold quality standards and its impact lasts only for a moment.

4) **The number of other components that will be affecteder**

Criteria P if there are other components that are affected. Criteria TP when no other components are affected.

5) **The nature of the cumulative impact**

Criteria P if the impact will accumulate. Criteria TP if the impact will not accumulate.

6) **Reversibility or irreversibility of the impactreversibility**

Criteria P if the impact is not reversed. Criteria TP if the impact turned.

7) **The development of science and technology**

Criteria P if the impact can not be solved with science and technology is developing at the moment. Criteria TP if the impact can be mitigated by the development of science and technology is developing at the moment.

Based on the above limitations, the weighting for each parameter determining the impact of interest rate is set as presented in the following table.

Table 3.3.
Weighting Parameter Determinants of Importance Impact

No.	Parameter Determinants of Importance Impact	Weight
1.	The number of people affected	1
2.	The area of distribution of impacts	1
3.	The intensity and duration of the impact	1
4.	Many other components that will be affected	1
5.	The cumulative nature of the impact	1
6.	Reversibility or irreversibility of the impact	1
7.	Developments in science and technology	1
	Total	**7**

The determination of important impacts are:

1) If P ≥ 3 then included in the important categories (P).

2) If P <3 then included in the category is not important (TP)

Each parameter of the respective components of the environment including the impact of a hypothetical important for each stage and type of activity, were analyzed using these criteria. Will eventually obtained the number of criteria **P (Important**) and the number of **TP (Not Important).** The essential nature of each parameter impacts the environment are as follows:

3.2.1. Pre-Construction Phase

The activities in the pre-construction power plant PLTG capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District , Bengkalis Regency, Riau Province consists of the public consultation and acceptance of labor.

3.2.1.1. Public Consultation

Public consultation activities increase power generating capacity of the power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province will have an important impact on the environment component in the form of hypothetical changes in attitudes and perceptions.

3.2.1.1.1. Attitudes and Public Perception

a. The number of people affected

Public consultation activities have a positive impact on the perception of the public, where the results of the public consultation supported the villagers Outskirts considering the benefits that are vital to society, but in fact local community still has concerns about the negative impact that this inflicted. Perception not only perceived by people who follow the public consultation directly, but also other residents. Predicted more than ≥ 10% of the population affected the impact. So impact attitudes and perceptions can be categorized as **Important Criteria (P).**

b. The area of distribution of impacts

The area of distribution of impacts is the source or origin of the population that has positive and negative perceptions spread ≥ 0,25 from study area. So the impact of attitudes and perceptions of community support community against village can Outskirts **Important Criteria (P).**

c. The intensity and duration of the impact

The impact took place with high intentitas for public consultation activities conducted intensively by various methods, and lasts longer. So the impact of perception society to support Uptown Village community have **important Criteria (P).**

d. Many other environmental components affected

Other environmental component affected is the loss of unrest to people who feel uneasy due to the addition of generating capacity. So the public perception of the impact of public support Uptown Village have **Important Criteria (P).**

e. The cumulative nature of the impact

Impacts that occur can be accumulated from one person to another, therefore the impact of public perception of the Uptown Village community support has **important Criteria (P).**

f. Reversibility or irreversibility of the impact

Impact of attitudes and perceptions can turn around for a consistent proponent of the plan of activities presented at the public consultation stage. So the perception of the impact of public support of society to Village Outskirts criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology available today, the Outskirts kekhawatiaran village communities of the negative impact that would be caused by mining activities generating capacity has criteria **Not Importance (TP).**

Number of important categories of **Criteria (P)** the impact of the environmental component of public perceptions of the public consultation activities is **5.**

3.2.1.2. Acceptance of Labor

Activity hiring increase power generating capacity of the power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province will have an important impact hypothetical against environmental components job and business opportunities, community income as well as attitudes and perceptions community.

3.2.1.2.1. Employment and Seek

a. The number of people affected

Employment opportunities and trying to come from the recruitment activities during the construction phase. The number of people affected by 62 votes to less than 10% of the population affected and the impact categorized criteria **Not important (TP).**

b. The area of distribution of impacts

The area of distribution of impact is Pingir and surrounding village communities were widely expected impact of ≤ 0.25 times the area of study, so it tends to have **important Criteria (P).**

c. The intensity and duration of the impact

Employment opportunities and seeks the construction phase is predicted to have moderate intentitas where the impact took place during the construction phase, namely (± 1-2 years), so the impact is considered to have **important Criteria (P).**

d. Many other environmental components affected

Other environmental components affected are affecting people's income increase household economic community, thus categorized as **Important criteria (P).**

e. The cumulative nature of the impact

Impact does not accumulate and are categorized criteria are **not important (TP).**

f. Reversibility or irreversibility of the impact

The impact will be turned away after the construction is completed and considered to have **important Criteria (P).**

g. Developments in science and technology

With the development of science and technology available today it can not resolve the employment opportunities and seeks to have the criteria **Not important (TP).**

Number of categories of **Criteria important (P)** the impact of the environmental component of job opportunities and businesses is **4.**

3.2.1.2.2. Community revenues

a. The number of people affected

Increasing people's income derived from the activities of recruitment during the construction phase. The number of people affected enhancement income is 62 people so the number of people affected is less than 10% of the population affected. The impact of increased revenue from Recruitment activity categorized **Not Important (TP).**

b. The area of distribution of impacts

The area of distribution of the impact of increased revenue which baseboards and surrounding village communities were widely expected impact of ≤ 0.25 times the area of study. The impact of increased revenue from Recruitment activity affecting household economic communities categorized **Important Criteria (P).**

c. The intensity and duration of the impact

The increase in revenues during the construction phase is predicted to have moderate intentitas where the impact took place during the construction phase, namely (± 1-2 years). The impact of increased revenue from hiring that affect the household economy society categorized **Important Criteria (P).**

d. Many other environmental components affected

Other environmental component affected is the improvement of public welfare. Therefore, the impact of increased people's income from activities that affect hiring household economic communities categorized **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of increased revenue does not accumulate on the community. Therefore, the impact of increased public revenue affecting domestic economic communities categorized criteria are **not important (TP).**

f. Reversibility or irreversibility of the impact

The impact of increased income of the people in the construction phase will be turned away after the construction is completed. Therefore, the impact of increased public revenue working stage construction recruitment activities categorized **Important (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the increase in revenue Uptown Village community will be a positive impact that will be caused by the activities of recruitment criteria **not important (TP).**

Number of categories of criteria **important (P)** the impact of environmental components improve household incomes in the construction phase Recruitment activities affecting domestic economic society is **4.**

3.2.1.2.3. Attitudes and Public Perception

a. The number of people affected

Recruitment activity in the construction phase will have a positive impact on the perception of the Pingir village, occasion, given the scarcity of labor in the region are. Perception is not only felt by the people who will work Directly, but Also of residents who receive benefits through the multiplier effect thereof. Predicted more than ≥ 10% of the population affected impact. So the impact attitudes and perceptions can be Categorized as **Important Criteria (P).**

b. The area of distribution of impacts

The area of distribution of impacts is the source or origin of the population that has positive and negative perceptions spread ≥ 0.25 from the study area. So the impact of attitudes and perceptions of the recruitment of society to Village community can Outskirts **Important Criteria (P).**

c. The intensity and duration of the impact

The impact took place with high intentitas for job recruitment activities carried out intensively during construction and operation as well as long lasting (± 1-2 year construction phase). So the public perception of the impact of the recruitment Uptown Village community have **important Criteria (P).**

d. Many other environmental components affected

Other environmental component affected is the increase of people's income and their welfare. So the public perception of the impact of the recruitment Uptown Village community have **Important Criteria (P).**

e. The cumulative nature of the impact

Impacts that occur can be accumulated from one person to another, therefore the impact of the public perception of the recruitment Uptown Village community have **important Criteria (P).**

f. Reversibility or irreversibility of the impact

Impact of attitudes and perceptions can turn around for a consistent proponent of the use of local labor. So the public perception of the impact of local manpower recruitment has **important Criteria (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the use of labor can be further optimized by conducting training or training needed in mining activities generating capacity has **important Criteria (P).**

Number of **important categories of Criteria (P)** the impact of the environmental component of the public perception of local manpower recruitment activity is **7.**

3.2.2. Construction phase

Activity in the construction phase of the power plant PLTG capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province consists of the mobilization of equipment and materials; Land clearing, stockpiling and manufacture of drainage channels; and the construction and installation of power plant PLTG/PLTMG.

3.2.2.1. Mobilization of Heavy Equipment and Material And Machines Plant

Mobilization of equipment and materials to increase the capacity of electricity generation power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province will be an important impact on the hypothetical to the components of the environment in the form of road damage and traffic accidents and road changes in attitudes and perceptions.

3.2.2.1.1. Generated Traffic

a. The number of people affected

The mobilization of heavy equipment and material and power generation will rise due to increased traffic along the lines of the mobilization. This will give impact to the user community mobilization lane road that passed. The number of people affected approximately ≥ 10% of the population affected, thus categorized as **Important Criteria (P).**

b. The area of distribution of impacts

The area of distribution of the impact caused the mobilization of heavy equipment, material and power generation around the study area ≤ 0.25, so the impact is considered to have criteria **Not important (TP).**

c. The intensity and duration of the impact

The impact took place with high intentitas but the timing of the mobilization of heavy equipment, materials and machines generating short enough is ± 1-2 weeks, then the impact is considered to have criteria **Not important (TP).**

d. Many other environmental components affected

Impact of mobilization of heavy equipment, material and machine this plant will lead to second round effects in the form of damage to the road and traffic accidents, thus categorized **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of increased traffic generation as a result of the mobilization of heavy equipment, materials and generators will be accumulated with other transport activities that passes through the mobilization, thus categorized as **Important Criteria (P).**

f. Reversibility or irreversibility of the impact

The impact of increased road traffic rise as a result of the mobilization of heavy equipment, materials and generators to turn around when the mobilization already done so categorized criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology that is available today is the mobilization of heavy equipment, materials and generators can be done more quickly and does not cause a greater impact, so it has **Important Criteria (P).**

Number of important categories of **Criteria (P)** the impact of the mobilization of heavy equipment, materials and generators to increased traffic generation is **4.**

3.2.2.1.2. Road damage

a. The number of people affected

The mobilization of heavy equipment and material and power generation will leave due to damage to roads along the lines of the mobilization. This will give impact to the user community mobilization lane road that passed. The number of people affected approximately ≥ 10% of the population affected, thus categorized as **Important Criteria (P).**

b. The area of distribution of impacts

The area of distribution of the impact caused the mobilization of heavy equipment, material and power generation around the study area ≤ 0.25, so the impact is considered to have criteria **Not important (TP).**

c. The intensity and duration of the impact

The impact took place with high intentitas although the timing of the mobilization of heavy equipment, materials and machines generating short enough is ± 1-2 weeks, then the impact is considered to have **important Criteria (P).**

d. Many other environmental components affected Impact of mobilization of heavy equipment, material and machine this plant will cause impact damage to the road and the impact of advanced form of traffic accidents, thus categorized **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of road damage due to the mobilization of heavy equipment, materials and generators will be accumulated with other transport activities that passes through the mobilization, thus categorized as **Important Criteria (P).**

f. Reversibility or irreversibility of the impact

The impact of road damage due to the mobilization of heavy equipment, materials and machinery plant can not turn around despite the mobilization already done so categorized **Important criteria (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the mobilization of heavy equipment, materials and machinery plant can not overcome damage to the road, so it has **important Criteria (P).**

Number of categories of **Important criteria (P**) the impact of the mobilization of heavy equipment, materials and generators to increased traffic generation is **6**.

3.2.2.1.3. Traffic accident

a. The number of people affected

The mobilization of heavy equipment and material and power generation will leave due to traffic accidents along the lines of the mobilization. This will give impact to the user community mobilization lane road that passed. The number of people affected approximately ≥ 10% of the population affected, thus categorized as **Important Criteria (P).**

b. The area of distribution of impacts

The area of distribution of the impact caused the mobilization of heavy equipment, material and power generation around the study area ≤ 0.25, so the impact is considered to have criteria **Not important (TP).**

c. The intensity and duration of the impact

The impact took place with high intentitas although the timing of the mobilization of heavy equipment, materials and machines generating short enough is ± 1-2 weeks, then the impact is considered to have **Important Criteria (P).**

d. Many other environmental components affected

Impact of mobilization of heavy equipment, material and machine this plant will cause traffic accidents and the impact of second round effects in the form of public health, thus categorized as **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of traffic accidents due to the mobilization of heavy equipment, materials and generators will be accumulated with other transport activities that passes through the mobilization, thus categorized as **Important Criteria (P).**

f. Reversibility or irreversibility of the impact

The impact of traffic accidents due to the mobilization of heavy equipment, materials and machinery plant can not turn around despite the mobilization already done so categorized **Important Criteria (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the mobilization of heavy equipment, materials and machinery plants can not cope with traffic accidents, so it has **Important Criteria (P).**

Number of categories of **Important Criteria (P)** the impact of the mobilization of heavy equipment, materials and generators to traffic accidents was **6.**

3.2.2.2.Maturation Land

Land clearing activities Extra Village power plant PLTG/MG Pungut Duri Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province will have an important impact on the environment component in the form of hypothetical changes in surface runoff (run off) and a decrease in surface water quality.

3.2.2.2.1. Surface Water Flow (Run Off)

a. The number of people affected

The flow of surface water (run off) comes from activities maturation land during the construction phase. The total number of affected people in case of surface water flow is ≤ 10% of the number of people residing in the region, so the impact is considered to have Criteria **Not important (TP).**

b. The area of distribution of impacts

The area of distribution of the impact of increased turbidity and TSS as a result of runoff, in which the distribution range of the impact ≥ 0.25 times the area of study, so it tends to have **Important Criteria (P).**

c. The intensity and duration of the impact

Increased turbidity and TSS surface water on Land clearing activities during the construction phase is predicted to have a low intentitas and takes place in a relatively short time, namely ± 1 month, so the impact is considered to have criteria **Not important (TP).**

d. Many other environmental components affected

Environmental components affected other form of interference, namely water biota plankton, benthos and especially nekton (fish), so it will disrupt the aquatic ecosystem and are categorized **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of increased turbidity and TSS surface water during the construction phase will accumulate so that it can pass environmental quality standards in accordance with Government Regulation No. 82 year 2001, as well as categorized **Important criteria (P).**

f. Reversibility or irreversibility of the impact

The impact of increased turbidity and TSS surface water can be turned back after Land clearing activities completed, the impact tends to have Criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology available today it can overcome the problems increase in turbidity and TSS air surface, so that the criteria **Not important (TP).**

Number of categories of **Important Criteria (P)** the impact of water flow on the surface of the land maturation development activities during the construction phase is 3.

3.2.2.2.2. Surface Water Quality

a. The number of people affected

The decline in the quality of surface water comes from activities maturationland during the construction phase. The total number of people affected in the event of an increase

in turbidity of the water surface is ≤ 10% of the number of people residing in the region, so the impact is considered to have Criteria **Not important (TP).**

b. The area of distribution of impacts

The area of distribution of the impact of increased turbidity of the water surface at the construction stage, where the broad distribution of the impact of ≥ 0.25 times the area of study, so it tends to have **Important Criteria (P).**

c. The intensity and duration of the impact

Increased turbidity of surface water on Land clearing activities during the construction phase is predicted to have a low intentitas and takes place in a relatively short time, namely ± 1 month, so the impact is considered to have Criteria **Not important (TP).**

d. Many other environmental components affected

Environmental components affected other form of interference, namely water biota plankton, benthos and especially nekton (fish), so it will disrupt the aquatic ecosystem and are categorized **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of increased turbidity of surface water during the construction phase will accumulate so that it can pass environmental quality standards in accordance with Government Regulation No. 82 year 2001, as well as categorized **Important criteria (P**).

f. Reversibility or irreversibility of the impact

The impact of increased turbidity of surface water can be turned back after Land clearing activities completed, the impact tends to have Criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology available today it can overcome the problems of surface water turbidity increase sourced from Land clearing activities that have criteria **Not important (TP).**

Number of categories of **Important Criteria (P)** impact on the surface water quality degradation Land clearing activities during the construction phase is **3.**

3.2.2.3. Development Foundation Plant

Foundation construction activities PLTG/MG Duri Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province would affect a hypothetical important impact on environmental components such as changes in surface runoff (run off) and a decrease in surface water quality.

3.2.2.3.1. Surface Water Flow (*Run Off*)

a. The number of people affected

The flow of surface water (run off) comes from construction activity foundation construction phase. The total number of affected people in case of surface water flow is ≤ 10% of the number of people residing in the region, so the impact is considered to have criteria **Not important (TP).**

b. The area of distribution of impacts

The area of distribution of the impact of increased turbidity and TSS as a result of runoff, in which the distribution range of the impact ≥ 0.25 times the area of study, so it tends to have **Important Criteria (P).**

c. The intensity and duration of the impact

Increased turbidity and TSS of surface water on the foundation of development activities during the construction phase is predicted to have a low intentitas and takes place in a relatively short time, namely ± 1 month, so the impact is considered to have criteria **Unimportant (TP).**

d. Many other environmental components affected

Environmental components affected other form of interference, namely water biota plankton, benthos and especially nekton (fish), so it will disrupt the aquatic ecosystem and are categorized **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of increased turbidity and TSS surface water during the construction phase will accumulated so can pass environmental quality standards in accordance with Government Regulation No. 82 year 2001, as well as categorized **Important criteria (P).**

f. Reversibility or irreversibility of the impact

The impact of increased turbidity and TSS surface water can be turned back after Land clearing activities completed, the impact tends to have criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology available today it can overcome the problems of turbidity and TSS improvement of surface water, so that the criteria **Not important (TP).**

Number of categories of **Important Criteria (P)** the impact of water flow on the surface of the foundation construction activities during the construction phase is **3.**

3.2.2.3.2. Surface Water Quality

a. The number of people affected

The decline in the quality of surface water derived from plants development activities foundation. The total number of people affected in the event of an increase in turbidity of the water surface is ≤ 10% of the number of people residing in the region, so the impact is considered to have criteria **Not important (TP).**

b. The area of distribution of impacts

The area of distribution of the impact of ≥ 0:25 times the area of study, so it tends to have **important criteria (P**).

c. The intensity and duration of the impact

Increased surface water turbidity is predicted to have a low intentitas and takes place in a relatively short time is ± 1-2 months, so the impact is considered to have criteria **Not important (TP).**

d. Many other environmental components affected

Environmental components affected other form of interference, namely water biota plankton, benthos and especially nekton (fish), so it will disrupt the aquatic ecosystem and are categorized **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of increased turbidity of surface water during the construction phase will accumulate so that it can pass environmental quality standards in accordance with Government Regulation No. 82 year 2001, as well as categorized **Important criteria (P**).

f. Reversibility or irreversibility of the impact

The impact of increased turbidity of the water surface can be turned around but it takes a relatively long time after the activities of the foundation construction is completed. Therefore, the impact tends to have **Important Criteria (P).**

g. Developments in science and technology

With the development of science and technology available today it can overcome the problems of surface water turbidity increase sourced from plant foundation construction activities that have criteria **Not important (TP).**

Number of categories of **Important Criteria** (P) impact on the surface water quality degradation foundation construction activities on the plant construction phase is **4.**

3.2.2.4. Testing and Trials

Testing and trials PLTG/MG thorn in the Balai Pungut Village, Pingir District , Bengkalis Regency, Riau Province would affect important impact hypothetical on environmental components such as air quality deterioration, increased vibration, increased noise intensity and changes in the quality of physical work environment.

3.2.2.4.1. Air Quality

a. The number of people affected

The impact of a decrease in air quality testing and pilot plant capacity additions PLTG/MG Duri operation phase is expected to be felt by the people who live around the action plan. The impact of air quality deterioration are estimated to be around people ≥ 10% of the population affected, thus categorized as **Important Criteria (P).**

b. The area of distribution of impacts

The impact happens to be dispersed following the wind direction in the study area which has a dominant wind direction to the Northwest and Southeast. Spread widely predicted impacts of ≥ 0.25 times the area of study. So the impact of a decrease in air quality testing and trial phase categorized **Not important (TP).**

c. The intensity and duration of the impact.

The impact took place with high intensity and lasted during the testing phase and trial, thus categorized as **Important Criteria (P).**

d. Many other environmental components affected

Environmental components affected other form of public health problems and social unrest. So the impact of a decrease in air quality in the testing and trials are categorized **Important Criteria (P)**

e. The cumulative nature of the impact

The impact of air quality deterioration is accumulated testing and trials will take place continuously for 600 hours without the disconnection ±, so the decline in water quality is considered to have **Important Criteria (P).**

f. Reversibility or irreversibility of the impact

The impact can be reversed if the testing and trials done where the air quality will be purified naturally and categorizing criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology that is available today is the use of technology to reduce flue gas power plant PLTG/MG can be further optimized and thus more environmentally friendly criteria **Not important (TP).**

Number of categories of **Important Criteria (P)** the impact of the environmental component of the decrease in air quality testing and trials is **5**

.3.2.2.4.2. Vibration

a. The number of people affected

The impact of the vibrations coming from the testing and trial, which is expected to be felt by residents living adjacent to the location of activities, approximately ≥ 10% of the population affected, thus categorized **Important Criteria (P).**

b. The area of distribution of impacts

The impact happens to be dispersed following the distance, the closer the settlement the greater the impact of vibration. Spread widely predicted impacts of ≥ 0.25 times the area of study. So the impact of increased vibration at the stage of testing and trials are categorized **Important Criteria (P).**

c. Intentitas and duration of the impact.

The impact took place with high intentitas and lasts for testing and trial phase (± 600 hours without disconnection), thus categorized as **Important Criteria (P).**

d. Many other environmental components affected

Other environmental components affected form of damage buildings are nearby, so categorized have **Important Criteria (P).**

e. The nature of cumulative impacts

The impact will be accumulated during the testing and trial continues over time (± 600 hours without disconnection), categorizing them have **Important Criteria (P)**

.f. Reversibility or irreversibility of the impact

The impact of increased vibration can be turned around if the testing and trials completed, categorizing criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology that is available today is the impact of Increased vibration can be reduced or minimized Tus have important criterion is **not important (TP).**

Number of important categories of criteria (P) the impact of the environmental component of the increase in vibration on the testing and trials is 5.

3.2.2.4.3. Noise

a. The number of people affected

The impact of increased noise coming from the testing and trial is expected to be felt by residents living adjacent to the location of activities, approximately ≥ 10% of the population affected, thus categorized **Important Criteria (P).**

b. The area of distribution of impacts

The impact will be spread following the distance, the closer the greater the impact of settlements. Spread widely predicted impacts of ≥ 0.25 times the area of study, so it tends to have **Important Criteria (P).**

c. The intensity and duration of the impact.

The impact took place with high intensity and lasted for testing and trial phase (± 600 hours without disconnection), thus categorized as **Important Criteria (P).**

d. Many other environmental components affected

Other environmental components affected will continue to public health that is around, so it tends to have **important criteria (P).**

e. The cumulative nature of the impact

The impact of increased noise is not ulatively during the testing and trial continues over time (± 600 hours without termination) and categorizing criteria **Not important (TP).**

f. Reversibility or irreversibility of the impact

The impact of increased noise can be reversed if the testing and trials completed, categorizing criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology that is available today is the impact of increased noise can be reduced or minimized so that the criteria are **Not important (TP).**

Number of important categories of criteria (P) the impact of increased noise on the environmental component of the testing and trials is 4.

3.2.2.4.4. Physical Work Environment Quality

a. The Number Of People Affected

Impact of changes in the quality of the physical work environment derived from the testing and trials, is expected to be felt by the people who live nearby. Impact those against community estimated at about ≤ 10% of the population affected, thus categorized have criteria **Not important (TP).**

b. The area of distribution of impacts

The impact happens to be dispersed following the distance, the closer the greater the impact of settlements. Spread widely predicted impacts of ≥ 0.25 times the area of study. So the impact of changes in the quality of the physical working environment at the stage of testing and trials categorized criteria **Not important (TP).**

c. The intensity and duration of the impact.

The impact took place with high intensity and lasted for testing and trial phase (± 600 hours without disconnection), thus categorized as **Important Criteria (P**).

d. Many other environmental components affected

Other environmental components affected will continue to public health that is around, so categorized have **Important Criteria (P).**

e. The cumulative nature of the impact

Impact of changes in the physical environment ulatively work during the testing and trial continues over time (± 600 hours without disconnection), so categorized have I**mportant Criteria (P).**

f. Reversibility or irreversibility of the impact

Impact of changes in the physical work environment do not turn at the stage of testing and trials completed, thus categorized as **Important criteria (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the impact of changes in the physical work environment can be reduced or minimized so that the criteria are **Not Important (Tp).**

Number of categories of criteria **important (P**) the impact of changes in the environment component of the physical work environment to the testing and trials is **4.**

3.2.3. Post-Construction Phase

Activity at the stage of post-construction power plant PLTG capacity power plant PLTG/MG Duri from 160 MW to 360 MW in the Balai Pungut Village, Pingir District , Bengkalis Regency, Riau Province consists of the demobilization of equipment and termination of employment. Both of these activities are not an important impact on the hypothetical to the components of the surrounding environment.

3.2.4. Operation phase

The activities at this stage of operations increase electricity generating capacity power plant PLTG/MG Duri from 160 MW to 360 MW consists of the recruitment, the production of electrical energy, maintenance of generators, waste management (including Hazardous and Toxic Materials), greening and corporate social responsibility (CSR).

3.2.4.1. Acceptance of Labor

Recruitment activity at this stage of the operation will affect the hypothetical important impact on environmental components in the form of their job and business opportunities, rising incomes and a change in attitudes and perceptions.

3.2.4.1.1. Employment and Seek

a. The number of people affected

Employment opportunities and trying to come from the recruitment activities at this stage of the operation. The number of people less than 10% of the population affected and the impact categorized criteria **Not important (TP).**

b. The area of distribution of impacts

The area of distribution of impact is Pingir and surrounding village communities were widely expected impact of ≤ 0.25 times the area of study, so it tends to have **Important Criteria (P).**

c. The intensity and duration of the impact

Employment opportunities and trying at this stage to have intentitas forecasted operations was where the impact took place during the operating phase items, namely (± 25 years), so the impact is Considered to have **Important Criteria (P).**

d. Many other environmental components affected

Other environmental components affected are affecting people's income increase household economic community, thus categorized as **Important Criteria (P).**

e. The cumulative nature of the impact

Impact does not accumulate and categorized criteria **Unimportant (TP).**

f. Reversibility or irreversibility of the impact

The impact will be turned around after the surgery is completed and considered to have **Important Criteria (P).**

g. Developments in science and technology

With the development of science and technology available today it can not resolve the employment opportunities and seeks to have the criteria is **Not important (TP).**

Number of categories of criteria **Important (P)** the impact of the environmental component of job opportunities and businesses is 4.

3.2.4.1.2. Community revenues

a. The number of people affected

so categorized Increasing people's income derived from the activities of recruitment at this stage of the operation. The number of people affected items, namely income increase of 27 so that the number of people affected is less than 10% of the population affected. The Impact of Increased revenue from Recruitment activity Categorized **Not important (TP).**

b. The area of distribution of impacts

The area of distribution of the impact of increased revenue which baseboards and surrounding village communities were widely expected impact of ≤ 0.25 times the area of study. The impact of increased revenue from Recruitment activity affecting household economic communities categorized **Important Criteria (P).**

c. The intensity and duration of the impact

The increase in revenues during the construction phase is predicted to have moderate intentitas where the impact took place during the operating phase, namely (± 25 years). The impact of increased revenue from hiring that affect the household economy society categorized **Important Criteria (P).**

d. Many other environmental components affected

Other environmental component affected is the improvement of public welfare. Therefore, the impact of increased people's income from activities that affect hiring household economic communities categorized **Important Criteria (P).**

e. The cumulative nature of the impact

The Impact of Increased revenue does not accumulate on the community. Therefore, the impact of public Increased revenue affecting domestic economic community tends to have criteria **Not important (TP).**

f. Reversibility or irreversibility of the impact

The impact of increased operating income of the people on stage would turn around after the surgery is completed. Therefore, the impact of increased public revenue kerjatahap recruitment activities are categorized operation **Important Criteria (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the increase in revenue Uptown Village community will have a positive impact that will be caused by the activities of recruitment criteria **Not important (TP).**

Number of categories of **Important Criteria (P) The** impact of environmental components improve household incomes in the recruitment stage Affect the operating activities household economy community is **4.**

3.2.4.1.3. Attitudes and Public Perception

a The number of people affected

Recruitment activities will have a positive impact on the perception of comunity pinggir Village , given the scarcity of employment opportunities in the region tersebut. Perception is not only felt by the people who will work directly, but also other residents who receive benefits through the multiplier effect thereof, forecasted more than ≥ 10% of the population affected, so it can be considered to have **Important Criteria (P).**

b. The area of distribution of impacts

The area of distribution of impacts is the source or origin of the population that has positive and negative perceptions spread ≥ 0,25dari study area. So the impact of attitudes and perceptions of the recruitment of society to Village community can Outskirts **Criteria Important (P).**

c. Intentitas and duration of the impact

The impact took place with high intentitas for recruitment work activities performed intensively during the operational phase as well as long lasting (± 25 years). So the public perception of the impact of the recruitment Uptown Village community have **Important Criteria (P).**

d. **Many other environmental components affected**

Other environmental component affected is the increase of people's income and their welfare. So the public perception of the impact of the recruitment Uptown Village community has **Important Criteria (P).**

e. The nature of cumulative impacts

Impacts that occur can be accumulated from one person to another, therefore the impact of the public perception of the recruitment Uptown Village community have **Important Criteria (P).**

f. Reversibility or irreversibility of the impact

The impact can be turned around for a consistent proponent of the use of local labor, so it has **Important Criteria (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the use of labor can be further optimized by conducting training or training needed in mining activities generating capacity has criteria **Important (P).**

Number of categories of Important Criteria (P) the impact of the environmental component of the public perception of the recruitment of local activities is 7**.**

3.2.4.2. Electrical Energy Production

Electric energy production activities at this stage of the operation will affect the hypothetical important impact on environmental components such as air quality deterioration, the onset of vibration, increased noise intensity, the availability of electrical energy, the quality of the physical work environment, as well as increased regional economic and locally-generated revenue.

3.2.4.2.1. Air Quality

a. The number of people affected

The impact of air quality deterioration during operation phase is expected to be felt by residents living around an action plan, estimated at about ≥ 10% of the population affected, thus categorized have **Important Criteria (P).**

b. The area of distribution of impacts

The impact happens to be dispersed following the wind direction in the study area which has a dominant wind direction to the Northwest and Southeast. Spread widely predicted impacts of ≥ 0.25 times the area of study. So the impact of air quality deterioration stage of production of electrical energy during operation phase categorized **Criteria Important (P).**

c. The intensity and duration of the impact.

The impact took place with high intensity and lasted during the operational phase (± 25 years). Therefore, the impact of air quality deterioration categorized **Criteria Important (P).**

d. Many other environmental components affected

Other environmental components affected will continue to issue public health and social unrest. So the impact of air quality deterioration in the operating phase categorized **Criteria Important (P).**

e. The cumulative nature of the impact

The impact of air quality deterioration is accumulated and takes place continuously during the operating phase (± 25 years), so that a decrease in air quality tends to have **Criteria Important (P).**

f. Reversibility or irreversibility of the impact

The impact of air quality deterioration can be turned around if the plant operating activities was stopped and the air quality naturally purified. The impact of air quality deterioration can be turned through natural purification processes, categorizing criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology that is available today is the use of technology to reduce flue gas power plant PLTG/MG can be further optimized and more environmentally friendly so it has **Not important (TP).**

Number of categories of **Important Criteria (P)** the impact of environmental components of air quality deterioration of the electrical energy production activity is **5.**

3.2.4.2.2. Vibration

a. The number of people affected

The impact of the vibrations coming from plants operating activities is expected to be felt by residents living adjacent to the location of activities. The impact of vibration are estimated to be around people ≥ 10% of the population affected, thus categorized have **Important Criteria (P).**

b. The area of distribution of impacts

The impact happens to be dispersed following the distance, the closer the settlement the greater the impact of vibration. Spread widely predicted impacts of ≥ 0.25 times the area of study. So the impact of increased vibration in the plant operation phase categorized **Important Criteria (P).**

c. The intensity and duration of the impact.

The impact took place with high intensity and lasted during the operational phase (± 25 years), so it tends to have **Important Criteria (P).**

d. Many other environmental components affected

Other environmental components affected will continue to damage the buildings are nearby, so categorized have **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of increased vibration is accumulated during the operating phase continues over time, so it tends to have **important criteria (P).**

f. Reversibility or irreversibility of the impact

The impact of increased vibration can be reversed if the operations of plants no longer in operation, categorizing criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology that is available today is the impact of increased vibration can be reduced or minimized so that the Criteria **Not important (TP).**

Number of categories of **Important Criteria** (P) the impact of the environmental component of the increase in vibration on the testing and trials is **5.**

3.2.4.2.3. Noise

a. The number of people affected

The impact of increased noise coming from operating activities PLTG/MG Duri is expected to be felt by residents living adjacent to the location of activities. Impact those against community estimated at about ≥ 10% of the population affected, thus categorized **Important criteria (P).**

b. The area of distribution of impacts

The impact happens to be dispersed following the distance, the closer the greater the impact of settlements. Spread widely predicted impacts of ≥ 0.25 times the area of study. So the impact of increased noise on the operation phase generator categorized **Important Criteria (P).**

c. The intensity and duration of the impact.

The impact took place with high intensity and lasted during the operational phase (± 25 years), so it tends to have **important criteria (P).**

d. Many other environmental components affected

Environmental components affected other form of public health that is around, so it tends to have **important criteria (P).**

e. The cumulative nature of the impact

The impact of increased noise is not cumulative during plant operation activities (± 25 years), so it tends to have Criteria **Not important (TP).**

f. Reversibility or irreversibility of the impact

The impact of increased noise can be reversed if the plant stopped operating activities and categorizing criteria **Not important (TP).**

g. Developments in science and technology

With the development of science and technology that is available today is the impact of increased noise can be reduced or minimized so that the criteria **Not important (TP).**

Number of categories of **Important Criteria (P)** the impact of increased noise on the environmental component of operating activities generating is **4**.

3.2.4.2.4. Availability of Electrical Energy

a. The number of people affected

Availability of electrical energy will be better after the power plant PLTG/MG Duri operates. The Impact will be enjoyed by people around ≥ 10% of the population affected, even the Riau province has so Categorized **Important Criteria (P).**

b. The area of distribution of impacts

The positive impact that occurs quite extensive, including public Bengkalis Riau Province in particular and society in general, where the broad distribution of the impact of ≥ 0.25 times the area of study, so it has **Important Criteria (P).**

c. The intensity and duration of the impact.

The impact took place with high intensity and lasted during the operational phase (± 25 years), so it tends to have **Important Criteria (P).**

d. Many other environmental components affected

Other environmental components affected will continue to increase in investment in Bengkalis and Riau Province, thus categorized as **Important Criteria (P).**

e. The cumulative nature of the impact

The impact of increased energy availability are cumulative during the operating phase (± 25 years), so it tends to have **Important Criteria (P).**

f. Reversibility or irreversibility of the impact

The impact of increased availability of electrical energy can be reversed after the operating phase is completed, categorizing criteria **Not Important (TP).**

g. Developments in science and technology

With the development of science and technology that is available today is the impact of the availability of electrical energy can be maintained so that it has **Important Criteria (P).**

Number of categories of **Important Criteria (P)** the impact of the environmental component of the increased availability of electrical energy in the operation phase is **6.**

3.2.4.2.5. Physical Work Environment Quality

a. The number of people affected

Impact of changes in the physical quality of the work environment will be felt by the people who live nearby, estimated at about ≤ 10% of the population affected, so that categorized me **Not Important criteria (TP)**

b. The area of distribution of impacts

The impact will be spread following the distance, the closer the greater the impact of settlements. Spread widely predicted impacts of ≥ 0.25 times the area of study and categorizing criteria **Not Important (TP).**

c. The intensity and duration of the impact.

The impact took place with high intensity and lasted during the operational phase (± 25 years), thus categorized as **Important criteria (P).**

d. Many other environmental components affected

Another environmental components impacted by the health of employees and the surrounding community, thus categorized as **Important Criteria (P).**

e. The cumulative nature of the impact

Impact of changes in the physical environment is cumulative work during the operating phase (± 25 years), so it tends to have **Important Criteria (P).**

f. Reversibility or irreversibility of the impact

Impact of changes in the physical work environment can not turn around during the operating phase, thus categorized as **Important Criteria (P).**

g. Developments in science and technology

With the development of science and technology available today has been able to overcome the impact, so it has criteria **Unimportant (TP).**

Number of categories of **Important Criteria (P**) the impact of changes in the environment component of the physical working environment at this stage of the operation is **4.**

3.2.4.2.6. Regional Economic and Locally-Generated Revenue

a. The number of people affected

The positive impact of the increase in the regional economy and the revenue derived from the activities of the availability of electrical energy for people and industry. This impact will be felt by the people of Bengkalis and Riau Province, it is estimated that approximately ≥ 10% of the population affected, then categorized **Important criteria (P).**

b. The area of distribution of impacts

Impacts that occur will be spread from Bengkalis to the Riau province, so that the distribution range of the impact ≥ 0.25 times the area of study. So the impact of increased regional economic and locally-generated revenue operation phase categorized **Important criteria (P).**

c. Intentitas and duration of the impact.

The impact took place with high intentitas and lasted during the operational phase (± 25 years), so it tends to have **Important criteria (P).**

d. Many other environmental components affected

Other environmental components affected will continue to increase the level of welfare and the Bengkalis Regency of Riau province, so categorized have **important criteria (P).**

e. The nature of cumulative impacts

The impact of increased regional economic and locally-generated revenue are cumulative and will occur during the operational phase (± 25 years), so categorized have **important criteria (P).**

f. Reversibility or irreversibility of the impact

he impact of regional Increased economic and locally-generated revenue can be turned when the operation is stopped and automatically generating electrical energy availability will be reduced, thus categorized as **Important criteria (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the impact of increased regional economic and locally-generated revenue can be improved, so has the criteria **Not Important (TP).**

Number of important categories of criteria (P) the impact of the environmental component of regional economic improvement and locally-generated revenue in operation phase is 6.

3.2.4.3. Maintenance Machinery Plant

The maintenance of the generating machine power plant PLTG/MG Duri Balai Pungut Village, Pingir District , Bengkalis Regency, Province Riau in operation phase will provide an important impact hypothetical impact on environmental components such as surface water quality degradation.

3.2.4.3.1. Surface Water Quality

a. The number of people affected

The decline in the quality of surface water comes from maintenance activities power plant PLTG operation phase. The total number of people affected in the event of contamination of surface water is ≤ 10% of the number of people residing in the region, so the impact is considered to have criteria **Not Important (TP).**

b. The area of distribution of impacts

The area of distribution of the impact surface water quality deterioration in the operating phase, in which the distribution range of the impact ≥ 0.25 times the area of study, so it tends to have **important criteria (P).**

c. Intentitas and duration of the impact

The decline in the quality of the surface water in power plant PLTG maintenance activities during operation phase is predicted to have moderate every intentitas ± 3-6 months but lasted for plant operation is ± 25 years, so the impact is considered to have **important criteria (P).**

d. Many other environmental components affected

Environmental components affected other form of interference, namely water biota plankton, benthos and especially nekton (fish), so it will disrupt the aquatic ecosystem and are categorized **Important criteria (P).**

e. The nature of cumulative impacts

The impact surface water quality deterioration in the operating phase will accumulate so that it can pass environmental quality standards in accordance with Government Regulation No. 82 year 2001, as well as categorized **Important criteria (P).**

f. Reversibility or irreversibility of the impact

The impact surface water quality degradation can be turned around but it takes quite a long time after the operation generating activities no longer in operation. Therefore, the impact tends to have **important criteria (P).**

g. Developments in science and technology

With the development of science and technology available today it can Overcome the problems of surface water quality degradation that comes from plant maintenance activities that have criteria are **Not Importnt (Tp).**

Number of important categories of criteria (P) impact on the surface water quality degradation power plant PLTG maintenance activities during operation phase is **5**.

3.2.4.4. Waste Management (Including Hazardous and Toxic Materials)

Waste management activities (including Hazardous and Toxic Materials) PLTG/MG Pungut Duri Balai Pungut Village, Pingir District, Bengkalis Regency , Riau Province on the stage of the operation will affect the hypothetical important impact on environmental components such as surface water quality degradation.

3.2.4.4.1. Surface Water Quality

a. The number of people affected

The impact comes from waste management activities (including Hazardous and Toxic Materials). The total number of affected people ≤ 10% of the number of people residing in the region, so the impact is considered to have criteria **Not Important (TP)**

b. The area of distribution of impacts

The area of distribution of impacts ≥ 0.25 times the area of study, so it tends to have **important criteria (P).**

c. Intentitas and duration of the impact

Impact has a high intentitas and lasted during the operational phase (± 25 years), so the impact is considered to have **important criteria (P).**

d. Many other environmental components affected

Environmental components affected other form of interference, namely water biota plankton, benthos and especially nekton (fish), so it will disrupt the aquatic ecosystem and are categorized **Important criteria (P).**

e. The nature of cumulative impacts

The impact surface water quality deterioration in the operating phase will accumulate so that it can pass environmental quality standards in accordance with Government Regulation No. 82 year 2001, as well as categorized **Important criteria (P).**

f. Reversibility or irreversibility of the impact

The impact surface water quality degradation can be turned around but it takes quite a long time after the operation generating activities no longer operational, so categorized **Important criteria (P).**

g. Developments in science and technology

With the development of science and technology available today it can overcome the problems of surface water quality degradation that comes from waste management activities (including Hazardous and Toxic Materials), so it has **criteria Not Important (TP).**

Number of important categories of criteria (P) impact on the surface water quality deterioration waste management activities (including Hazardous and Toxic Materials) at this stage of the operation is **5.**

3.2.4.5. Greening

Greening activities within the plant site power plant PLTG/MG Duri Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province operation phase will have an important impact on the hypothetical improvement of air quality, noise reduction and restoration of terrestrial vegetation.

3.2.4.5.1. Air Quality

a. The number of people affected

The impact of improved air quality comes from reforestation activities in the vicinity of the power plant PLTG/MG Duri especially on empty land that is not utilized. Air quality improvement will be felt by the people who live around the action plan. The impact of improved air quality are estimated to be around people≥10% of the population affected, thus categorized have **Important criteria** (P).

b. The area of distribution of impacts

The impact happens to be dispersed following the wind direction in the study area which has a dominant wind direction to the Northwest and Southeast. Spread widely predicted impacts of ≥ 0.25 times the area of study. So the impact of improved air quality as a result of reforestation activities during operation phase categorized **Important criteria (P).**

c. Intentitas and duration of the impact.

The impact took place with high intentitas and lasted during the operational phase (± 25 years), so it tends to have **important criteria (P).**

d. Many other environmental components affected

Other environmental components affected will continue to address the public health problems and social unrest. So the impact of improved air quality at the stage operating categorized have **important criteria (P).**

e. The nature of cumulative impacts

The impact of improved air quality are accumulated and takes place continuously during the operating phase (± 25 years), so that the air quality improvement categorized **Important criteria (P).**

f. Reversibility or irreversibility of the impact

The impact of improved air quality can be turned around if the tree planting activity is not successful or is stopped and the air quality will deteriorate back. The impact of improved air quality can be turned around, so it tends to have **important criteria (P).**

g. Developments in science and technology

With the development of science and technology available today, the greening activities can be further optimized by doing a good fertilizing and maintenance that have criteria **not Important (TP).**

Number of important categories of criteria (P) the impact of environmental components of air quality deterioration towards greening activities is 6.

3.2.4.5.2. Noise

a. The number of people affected

The impact of a decrease in the noise level coming from reforestation activities in the vicinity of the power plant PLTG/MG Duri especially on empty land that is not utilized. A decrease in the noise level will be felt by people living in the vicinity of

the location of activities. A decrease in the noise level will be felt by people around ≥ 10% of the population affected, thus categorized have **Important criteria (P).**

b. The area of distribution of impacts

The impact of a decrease in the noise level has a wide spread impact ≥ 0.25 times the area of study, so it tends to have **important criteria (P).**

c. Intentitas and duration of the impact.

The impact took place with high intentitas and lasted during the operational phase (± 25 years), so it tends to have **important criteria (P).**

d. Many other environmental components affected

Other environmental components affected will continue to address the issue of public health and public unrest, thus categorized as **Important criteria (P).**

e. The nature of cumulative impacts

The impact is not cumulative and takes place continuously during the operating phase (± 25 years), so it tends to have criteria **Unimportant (TP).**

f. Reversibility or irreversibility of the impact

The impact can be turned around if not successful reforestation activities or terminated categorized **Important criteria (P).**

g. Developments in science and technology

With the development of science and technology available today, the greening activities can be further optimized by doing a good fertilizing and maintenance that have criteria **not Important (TP).**

Number of important categories of criteria (P) the impact of environmental components decrease in the noise level is **5.**

3.2.4.5.3. vegetation Army

a. The number of people affected

The positive impact on vegetation daratberasal of greening activities around the location of the power plant PLTG/MG Duri especially on empty land that is not utilized. The number of people affected approximately ≤ 10% of the number of people residing in the region, thus considered to have criteria **not important (TP**).

b. The area of distribution of impacts

The area of distribution of impacts ≥ 0.25 times the area of study, it is categorized as having an **important (P).**

c. Intentitas and duration of the impact

Reforestation activities will improve the condition of the land which has intentitas vegeratasi high and lasts forever generating operating activities, thus categorized as **Important criteria (P).**

d. Many other environmental components affected

Other environmental components affected habitat improvement of these animals, especially birds that are nearby, so it tends to have **important criteria (P).**

e. The nature of cumulative impacts

Ulatively impact with another activity that is around so categorized **Important criteria (P).**

f. Reversibility or irreversibility of the impact

The impact can be turned around if not successful reforestation activities, thus categorized **Important criteria (P).**

g. Developments in science and technology

With the development of science and technology available today, the greening activities can be further optimized by doing a good fertilizing and maintenance that have not I**mportant criteria (TP).**

Number of important categories of criteria (P) due to the impact of improved terrestrial vegetation greening activities at operation is **5** stage.

3.2.4.6. Corporate Social Responsibility (CSR)

Activity implementation of corporate social responsibility (CSR) Village power plant PLTG/MG Duri Balai Pungut Village, Pingir District , Bengkalis Regency, Province Riau in the operation phase will have an important impact on the hypothetical changes in attitudes and perceptions.

3.2.4.6.1. Attitudes and Public Perception

a. The number of people affected

CSR activities to be undertaken by the proponent will have positive impacts on public perception Pinggir village, given the company's concern for the environment in the vicinity. Perception will Appear not only by the people of the Pinggir village, but Also people in other villages in the surroundings. Predicted more than ≥ 10% of the population affected. So the impact of attitudes and perceptions can be Categorized as **Important criteria (P).**

b. The area of distribution of impacts

The area of distribution of impacts is the source or origin of the population that has positive and negative perceptions spread ≥ 0,25 from study area. So the impact of attitudes and perceptions towards the implementation of CSR has **important criteria (P).**

c. Intentitas and duration of the impact

The impact took place with low intentitas for the implementation of CSR activity only in the form of a donation from the company to the local community and takes place in a long time (± 25 years). So the public perception of the impact of CSR implementation by the proponent has **important criteria (P).**

d. Many other environmental components affected

Other environmental component affected is the harmonious relationship between the proponent with the surrounding community. So the public perception of the impact of the implementation of CSR has **important criteria (P).**

e. The nature of cumulative impacts

The impact can be accumulated from one person to another, therefore the impact on the public perception of CSR has **important criteria (P).**

f. Reversibility or irreversibility of the impact

Impact of attitudes and perceptions can turn around for a consistent proponent of the implementation of CSR. So the public perception of the impact of the implementation of CSR has **important criteria (P).**

g. Developments in science and technology

With the development of science and technology that is available today is the implementation of CSR can be related to increase the intelligence community and study areas, have no **important criteria (TP).**

Number of category criteria Unimportant (TP) the impact of the environmental component of the public perception of the implementation of CSR activities is **6.**

Table 3. 3.
Important Personality Matrix Impact Event Forecast Capacity Power Station PLTG / MG Duri In Balai Pungut Village, Pinggir District, Bengkalis Regency, Riau Province

No.	PART ENVIRONMENT	IMPACT SOURCE ACTIVITY PLAN	IMPACT CRITERIA							NUMBER OF IMPORTANT CRITERIA
			1	2	3	4	5	6	7	
Pre-Construction Phase										
1.	Attitudes and Public Perception	Public Consultation	P	P	P	P	P	TP	TP	5
		Acceptance of Labor	P	P	P	P	P	P	P	7
2.	Employment & Seek	Acceptance of Labor	TP	P	P	P	TP	P	TP	4
3.	Community revenues	Acceptance of Labor	TP	P	P	P	TP	P	TP	4
Construction phase										
1.	Generated Traffic	Mobilization Equipment, Materials & Machinery	P	TP	TP	P	P	TP	P	4
2.	Road damage	Mobilization Equipment, Materials & Machinery	P	TP	P	P	P	P	P	6
3.	Traffic accident	Mobilization Equipment, Materials & Machinery	P	TP	P	P	P	P	P	6
4.	Surface Water Flow	maturation Land	TP	P	TP	P	P	TP	TP	3
		Development Foundation Plant	TP	P	TP	P	P	TP	TP	3
5.	Surface Water Quality	maturation Land	TP	P	TP	P	P	TP	TP	3
		Development Foundation Plant	TP	P	TP	P	P	P	TP	4
6.	Air Quality	Testing and Trials	P	P	P	P	P	TP	TP	5
7.	Vibration	Testing and Trials	P	P	P	P	P	TP	TP	5
8.	Noise	Testing and Trials	P	P	P	P	TP	TP	TP	4
9.	Physical Work Environment	Testing and Trials	TP	TP	P	P	P	P	TP	4

No.	PART ENVIRONMENT	IMPACT SOURCE ACTIVITY PLAN	IMPACT CRITERIA							NUMBER OF IMPORTANT CRITERIA
			1	2	3	4	5	6	7	
	Quality									
Operation phase										
1.	Employment & Seek	Acceptance of Labor	TP	P	P	P	TP	P	TP	4
2.	Community revenues	Acceptance of Labor	TP	P	P	P	TP	P	TP	4
3.	Attitudes and Public Perception	Acceptance of Labor	P	P	P	P	P	P	P	7
		Corporate Social Responsibility (CSR)	P	P	P	P	P	P	TP	6
4.	Air Quality	Electrical Energy Production	P	P	P	P	P	TP	TP	5
		Greening	P	P	P	P	P	P	TP	6
5.	Vibration	Electrical Energy Production	P	P	P	P	P	TP	TP	5
6.	Noise	Electrical Energy Production	P	P	P	P	TP	TP	TP	4
		Greening	P	P	P	P	TP	P	TP	5
7.	Availability of Electrical Energy	Electrical Energy Production	P	P	P	P	P	TP	P	6
8.	Physical Work Environment Quality	Electrical Energy Production	TP	TP	P	P	P	P	TP	4
9.	Regional economic and PAD	Electrical Energy Production	P	P	P	P	P	P	TP	6
10.	Surface Water Quality	Maintenance Engineering Plant	TP	P	P	P	P	P	TP	5
		Waste Management (Including Hazardous and Toxic Materials)	TP	P	P	P	P	P	TP	5
12.	vegetation Army	Greening	TP	P	P	P	P	P	TP	5