# CHAPTER IV.
# EVALUATION IN HOLISTIC IMPACT ON THE ENVIRONMENT

## 4.1. Findings In Holistic Against Entire Significant Impacts hypothetical

Holistically on all important impact hypothetical component/environmental parameters for each type of activity as the source of the impact resulting from the forecast of significant impacts, carried out using a flow chart impact. Flowchart of impact is used to determine the relationship (causal) between the source of the impact to significant impact on the component/environmental parameters, and between components/parameters of the affected environment is important itself, so it can be any kind of activity as the source of the impact and the type of impact be key variables to be managed and monitored through a technological approach, social and institutional. Results of research paper interrelationships and interactions important impact hypothetical (IIH) activity increase electricity generating capacity power plant PLTG/MG Duri information can be obtained as follows:

### 4.1.1. Relationships form of linkage and interaction important impact hypothetical and Their Characteristics:

**a. Frequency impact occurs,**

1. **Attitude and Community Perception, Employment and Income Trying Trying and Society**

   People who live around the area of the location of the power plant PLTG/MG Duri sangatta expect all the benefits of the action plan, so that the chances of the emergence of negative perceptions of public employment and business opportunity as well as the improvement of people's income is derived from the recruitment and implementation of CSR, including a group of **High ,**

2. **Generated Traffic, Damage Roads and Traffic Accidents**

   Mobilization of equipment and materials will give rise to the rise in traffic, road damage and traffic accidents due to the exit-entry of heavy vehicles and equipment that will use the road traversed by the surrounding community, so the chances of impact events group **being.**

3. **Surface Water Flow and Water Quality**

   Changes in surface flow rate of activity from preparation of the land and construction of the foundation, while the decline in the quality of surface water comes from maturation lahah activities, construction of foundations, maintenance of plant machinery, and waste management (including waste Hazardous And Toxic Materials), so the chances of occurrence of impacts, including class **High.**

4. **Air Quality, Vibration, Noise and Quality of Work Physical environment and regional economic and Locally-Generated Revenue.**

   The impact of air quality deterioration, vibration, noise and changes in the quality of the physical work environment, as well as increased regional economic and revenue resulting from the testing and trials as well as the operation of the plant (electricity production), so the chances of incidence of -impact class **high.**

5. **Vegetation Army**

   Impact of changes in terrestrial vegetation will occur due to reforestation activities in the vicinity of the power plant PLTG/MG Duri, thus, the odds of impact were moderate.

**b. Length, ,**

1. **Attitude and Community Perception, Opportunity and Work and Income Trying Society**

   Impact of changes in attitudes and perceptions, job and business opportunities as well as increased income of the people around the area of PLTG/MG Duri will take place during the construction phase through to operation. The duration of the impact will continue if treatment effects can not be managed properly.

2. **Generated Traffic, Damage Roads and Traffic Accidents**

   The impact of increased traffic generation, road damage and traffic accidents will take place at the stage of mobilization of heavy equipment and materials and generators (± 1 month).

3. **Surface Water Flow and Water Quality**

   Impact of changes in surface flow rate occurs only in the construction phase (preparation of the land and construction of the foundation), whereas penutunan impact surface water quality will take place starting from the construction phase to the operations phase. The duration of surface water quality impacts would continue if the handling of the impact can not be managed properly

4. **Air Quality, Vibration, Noise and Quality of Work Physical environment and regional economic and Locally-Generated Revenue.**

   The impact of air quality deterioration, vibration, noise and physical work environment quality changes will take place starting from the construction phase (testing and trial) until the stage of the operation. While the impact of increased regional economic and revenue generation takes place during the operational phase.

5. **Vegetation Army**

   Impact of changes in terrestrial vegetation will occur in phases through plant operations greening activities around the location of PLTMG Duri.

**c. The intensity of the impact,**

**1. Attitude and Community Perception, Opportunity and Work and Income Trying Society**

The intensity of the impact on attitudes and perceptions, job and business opportunities as well as the improvement of people's income relies heavily on management to be undertaken of the impact of the recruitment and implementation of CSR funds to be provided by the company and the successful management of environmental impacts of activities to increase the capacity of electricity generation PLTG/MG Duri.

**2. Generated Traffic, Damage Roads and Traffic Accidents**

Impact rise of traffic, road damage and traffic accidents come from the mobilization of heavy equipment and materials as well as machinery plant and lasted during the construction phase alone (± 1-2 months), so as to have the intensity of the impact is being.

**3. Surface Water Flow and Water Quality**

Changes in surface water runoff due to land maturation and development activities of the foundation have moderate impact intensity, due to take place during the construction phase alone (± 1-2 months). While the decline in water quality have considerable impact high intensity, where the source of the impact of activity from preparation of the land and construction of the foundation (construction phase) as well as the maintenance of plant machinery and waste management (including waste Hazardous And Toxic Materials) which will last for ± 25 years.

**4. Air Quality, Vibration, Noise and Quality of Work Physical environment and regional economic and Locally-Generated Revenue.**

The exhaust gases produced from PLTG/MG spines form of $NO_2$ concentration, $NH_3$, $SO_2$ and dust particulates in ambient air will be compared with Government Regulation No. 41 year 1999 on Control and Air Pollution. Operation of the power plant will last for ± 25 years, so has the intensity of the impact is high enough.

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 lasted ± 25 years, so has the intensity of impact high enough.

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 the plant (± 25 years), so as to have considerable impact high intensity.

The activities of the plant operation PTLG/MG Duri will take place during the life of the plant (± 25 years), so as to have the intensity of the impact of changes in the quality of the physical working environment that is high enough.

Activities to increase plant capacity PLTG/MG These spines indirectly be able to overcome the shortage of electricity and ensure electricity supply 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 improve the local economy, regional Locally-Generated Revenue even much better, so the intensity of the impact is high.

### 4.1.2. Components of Planned Activities The Most Potential Environmental Impacts

Components of the plan of activities most impact on the environment is generating operating activities (electricity production), testing and trials, machine maintenance and sewage treatment plants (including Hazardous And Toxic Materials).

### 4.1.3. The areas that require attention Important

The areas that need attention in the activities of electricity generation capacity additions PLTG/MG Duri was the community Balai pungut Village, Pingir District, Bengkalis Regency, Riau Province. While ecosystems that need attention such important aquatic ecosystems Mandau River, Kulim River and Pelintai River and limits of PLTG/MG spines that serve as a buffer zone to the surrounding community's land.

**Table 4. 1.**
**Summary Impact Analysis Capacity PLTG/MG Duri In the Balai Pungut Village, Outskirts of subdistrict, Bengkalis Regency, Riau Province**

| No. | Important Impact of hypothetical | Environment Rona Home | Estimated Impact Results | Impact Evaluation Results |
|---|---|---|---|---|
| **Pre-Construction Phase** | | | | |
| 1. | Changes in Attitudes and Public Perception | A total of 100% of the public supports the study area action plan, asalanya using local labor and implementing public demand for road repair, body repair river and street lighting. | **large Impact**<br>The scale of the environmental quality of the emergence of attitudes and perceptions before their public consultation activities, namely (SKLwktp) = 2 (bad) and environmental quality scale after their public consultation activities are (SKLwkdp) = 5 (excellent), so the magnitude of the impact is **+3 (Large).**<br>**Important properties of Impact**<br>Number of categories of **important criteria** (P) the impact of the environmental component of public perceptions of the public consultation activities is **5 (Important).** | Communities living around the study area would wait for the follow-up of commitments the proponent in addressing the problems of existing and future after capacity building activities, such as penggunggan local labor, repairing roads, repair water bodies and street lighting. Then the chance of the emergence of a negative perception of society, including class **Significant Impacts (DP).** |
| 2. | Employment and Seek | • The population of the Balai Pungut Village aged 20-54 years (labor force) large enough to reach 798 people (44.82%)<br>• The scarcity of job opportunities and businesses in the study area | **Large Impact**<br>The scale of the environmental quality of employment prior to that (SKL ktp) = 2 (bad) and after (SKLwkdp) = 4 (good), so the magnitude of the impact is **+ 2 (Medium)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important(P)** the impact of environmental components of employment to the hiring activity is **4 (Important)**. | IIH attitudes and perceptions and IIH employment and try to meet in space the same time, because of the activity that caused IIH1 and IIH 2 performed simultaneously, so that there is the possibility that changes in attitudes and perceptions interact with local manpower recruitment, then from this analysis , IIH and IIH 1 2 into effect **Important**. |
| 3. | Community revenues | The average income of the people in the study area is Rp. 750.000, -. s / d Rp. 1.250.000, - per month for casual laborers or unskilled laborers. | **Large Impact**<br>The scale of the environmental quality of people's income before that (SKLektip) = 2 (bad) and after (SKLwkdp) = 4 (good), so the magnitude of the impact is **+ 2 (Medium)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important(P)** the impact of the | IIH 1 attitudes and perceptions, IIH 2 job and business opportunities as well as IIH3 income of the people met on the space the same time, because of the activity that caused IIH1, IIH2 and IIH 3 done simultaneously, so that there is the possibility that changes in attitudes and perceptions interact with reception local workforce, |

| No. | Important Impact of hypothetical | Environment Rona Home | Estimated Impact Results | Impact Evaluation Results |
|---|---|---|---|---|
| | | | environmental component of public revenue against hiring activity is **4 (Important)**. | then from this analysis, IIH 1, IIH2 and IIH 3 into effect **Important**. |
| **Construction phase** | | | | |
| 1. | Generated Traffic | Road to be traversed by the mobilization of equipment and materials is the way everyday people who mostly just on a motorbike. Frequency kenderaaan both motorcycles and four-wheeled vehicles are very rare | **Large Impact**<br>Scale environmental quality improvement of traffic generation before 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 (negatif big)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of the mobilization of heavy equipment, materials and generators to increased traffic generation is **4 (Important)**. | 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. Impact mobilization of equipment and materials, including class **impact Important (DP)**. |
| 2. | Kerusakan Jalan | • • Condition of roads that will be passed mobilization of equipment and material quite well and have not encountered any traffic accidents over the years.<br>• • Roads are aligning with the location of the power plant Kulim River/MG Duri is the way people around to do their daily activities | **Large Impact**<br>The scale of the environmental quality of road conditions before 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 (negatif besar)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** the impact of the mobilization of heavy equipment, materials and generators to increased traffic generation is **6 (Important)**. | IIH 1 seizure traffic and IIH 2 damage to roads will meet in space the same time, because of the activity that caused IIH1 and IIH 2 performed simultaneously, so it is possible that the rise of traffic interacts with the damaged road, then from this analysis, IIH 1 and IIH 2 into effect **Important**. |
| 3. | Traffic accident | - | **Large Impact**<br>The scale of the environmental quality of a traffic accident before | IIH 1 seizure traffic, IIH 2 damage to roads and IIH3 traffic accidents met in space the same time, |

| No. | Important Impact of hypothetical | Environment Rona Home | Estimated Impact Results | Impact Evaluation Results |
|---|---|---|---|---|
| | | | 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 (negatif besar)**.<br>**Important Properties of Impact**<br>Jumlah kriteria kategori **Important (P)** dampak kegiatan mobilisasi alat berat, material dan mesin pembangkit terhadap kecelakaan lalu lintas adalah **6 (Important)**. | because of the activity that caused IIH1, IIH2 and IIH 3 done simultaneously, so it is possible that traffic accidents interact with mobilization of equipment and material, then from this analysis, IIH 1, IIH IIH 2 and 3 into effect **Important**. |
| 4. | urface Water Flow (Run Off) | Land conditions for the addition of PLTG generating machine/MG Duri form of shrub land | **Large Impact**<br>The scale of the environmental quality of surface water flow rates prior to their activities, ie (SKLwktp) = 3 (Medium) and after the activity is (SKLwkdp) = 1 (very bad), so the magnitude of the impact is - **2 (negatif Medium)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of surface water flow during the construction phase is **3** (**Important**). | IIH 1 run off the surface of the preparation of the land and IIH 2 run-off from the construction of the foundation met at the space the same time, because of the activity that caused IIH 1 and IIH 2 performed simultaneously, so it is possible that the increase in runoff will accumulate, then from this analysis , IIH and IIH 1 2 into effect **Important**. |
| 5. | Surface Water Quality | Surface water quality is still below the environmental quality standards established under Government Regulation No. 82 year 2001. | **Large Impact**<br>The scale of the environmental quality of surface water quality before the activity is (SKLwktp) = 3 (Medium) and environmental quality scale after their activities are (SKLwkdp) = 1 (very bad), so the magnitude of the impact is - **2 (negatif Medium).**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of surface water quality deterioration during the construction phase is **3 (Important)**. | IIH 1 surface water quality of the preparation of the land and IIH 2 surface water quality of the construction of the foundation met at the space the same time, because of the activity that caused IIH 1 and IIH 2 performed simultaneously, so it is possible that the decline in the quality of surface water will accumulate, then from this analysis, IIH and IIH 1 2 into effect **Important**. |
| **Operation phase** | | | | |
| 1. | Employment and Seek | • The population of the Balai Pungut Village aged 20-54 years (labor force) large | **Large Impact**<br>The scale of the environmental quality of employment prior to that (SKL ktp) = 2 (bad) and after (SKLwkdp) = 4 (good), so the magnitude of the impact is **+ 2 (Medium)**. | IIH attitudes and perceptions and IIH employment and try to meet in space the same time, because of the activity that caused IIH1 and IIH 2 performed simultaneously, so that there is the possibility that |

| No. | Important Impact of hypothetical | Environment Rona Home | Estimated Impact Results | Impact Evaluation Results |
|---|---|---|---|---|
| | | enough to reach 798 people (44.82%)<br>• The scarcity of job opportunities and businesses in the study area | **Important Properties of Impact**<br>Number of criteria categories **Important(P)** impact of environmental components of employment to the hiring activity is **4 (Important)**. | changes in attitudes and perceptions interact with local manpower recruitment, then from this analysis , IIH and IIH 1 2 into effect **Important**. |
| 2. | Community revenues | The average income of the people in the study area is Rp. 750.000, -. s/d Rp. 1.250.000, - per month for casual laborers or unskilled laborers. | **Large Impact**<br>The scale of the environmental quality of people's income before that (SKLektip) = 2 (bad) and after (SKLwkdp) = 4 (good), so the magnitude of the impact is **+ 2 (Medium)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important(P)** the impact of the environmental component of public revenue against hiring activity is **4 (Important)**. | IIH 1 attitudes and perceptions, IIH 2 job and business opportunities as well as IIH3 income of the people met on the space the same time, because of the activity that caused IIH1, IIH2 and IIH 3 done simultaneously, so that there is the possibility that changes in attitudes and perceptions interact with reception local workforce, then from this analysis, IIH 1, IIH2 and IIH 3 into effect **Important**. |
| 3. | Changes in Attitudes and Public Perception | A total of 100% of the public supports the plan of activities, initially using local labor and implementing public demand for road repair, body repair river and street lighting. | **Large Impact**<br>The scale of the environmental quality of the emergence of attitudes and perceptions before their public consultation activities, namely (SKLwktp) = 2 (bad) and environmental quality scale after their public consultation activities are (SKLwkdp) = 5 (excellent), so the magnitude of the impact is **+3 (Besar)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important(P)** impact of the environmental component of public perceptions of the public consultation activities is **5 (Important)**. | IIH 1 attitudes and perceptions, IIH 2 job and business opportunities as well IIH3 public revenue and IIH 4 of corporate social responsibility will be met at the space the same time, because of the activity that caused IIH1, IIH2, IIH3 and IIH4 can occur simultaneously, so that there the possibility that changes in attitudes and perceptions interact with local manpower recruitment and implementation of CSR, then from this analysis, IIH1, IIH2, IIH3 and IIH4 into effect **Important**. |
| 4. | Air Quality | Air quality conditions are still below the environmental quality standards established under Government Regulation No. 41 year 1999. | **Large Impact**<br>The scale of the environmental quality of air quality prior to any activity (SKLektip) = 3 (Medium) and after the activity is (SKLwkdp) = 2 (bad), so the magnitude of the impact is - **1 (negatif Small)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of | IIH 1 air quality of the testing and trials (± 600 hours without termination) and IIH 2 air quality of plant operation activities will accumulate, then from this analysis, IIH and IIH 1 2 into effect **Important**. |

| No. | Important Impact of hypothetical | Environment Rona Home | Estimated Impact Results | Impact Evaluation Results |
|---|---|---|---|---|
| | | | environmental components of air quality deterioration is **5 (Important)**. | |
| 5. | Vibration | The results of baseline measurements of vibration are still under environmental quality standards for building damage and human health | **Large Impact**<br>Scale environmental quality prior to their activities, ie (SKLektip) = 4 (good) and after the activity is (SKLwkdp) = 3 (Medium), so the magnitude of the impact is - **1 (Small negative)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of environmental components increase in vibration is **5 (Important)**. | Vibration will occur at a rate of 0.2 mm / sec at a distance of 50 meters from the plant, Mediumkan at a distance of 100-200 meters from the plant will occur vibration with a speed of 0.1 mm / sec. Impact of vibrations will accumulate ranging from testing and testing until plant operation activities, thus becoming the impact **Important**. |
| 6. | Noise | The noise level in the neighborhood PLTG/MG Duri 66.7 db (A) and the nearby settlement of 54.7 db (A), still below the quality standard based KepMenLH No. Kep-48/MENLH/ 11/1996. | **Large Impact**<br>The scale of the environmental quality of the noise prior to their activities, ie (SKLektip) = 3 (Medium) and after the activity is (SKLwkdp) = 2 (bad), so the magnitude of the impact is **-1 (negatif Small)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of increased noise is the environmental component **4 (Important)**. | The noise in the engine plant of ± 85 db (A). The time range that is allowed is at the location of the noise 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 and during the operational phase lasts approximately ± 25 years, thus becoming the impact **Important**. |
| 7. | Availability of Electrical Energy | Electric energy capacity of 160 MW before the increase | **Large Impact**<br>Scale environmental quality prior to their activities, ie (SKL ktp) = 2 (bad) and after the activity is (SKLwkdp) = 3 (Medium), so the magnitude of the impact is **+1 (small positive)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of the environmental component of the increased availability of electrical energy in the operation phase is **6 (Important)**. | The addition of generating capacity of 200 MW will increase the power available today to meet the needs of electrical energy and peak load Bengkalis Riau province, so the impact **Important**. |
| 8. | Physical Work Environment Quality | Environmental baseline conditions are still below the environmental quality standards established under applicable | **Large Impact**<br>Scale environmental quality prior to their activities, ie (SKLektip) = 3 (Medium) and after the activity is (SKLwkdp) = 2 (bad), so the magnitude of the impact is **-1 (negatif Small)**. | Impact of changes in the physical environment of work in the area of PLTG / MG Duri include changes in air quality, noise and vibration will accumulate ranging from testing and testing until the operation of the plant,sehingga dampak |

| No. | Important Impact of hypothetical | Environment Rona Home | Estimated Impact Results | Impact Evaluation Results |
|---|---|---|---|---|
| | | legislation. | **Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of environmental components is **4 (Important)**. | **Important**. |
| 9. | Economic Improvement and Locally-Generated Revenue | | **Large Impact**<br>Scale environmental quality prior to their activities, ie (SKL ktp) = 2 (bad) and after the activity is (SKLwkdp) = 3 (Medium), so the magnitude of the impact is +**1 (small positive)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of the environmental component of regional economic improvement and Locally-Generated Revenue is **6 (Important)**. | The impact of adding generating capacity of 200 MW will increase of the power available today to meet the peak load electrical energy needs of Bengkalis and Riau Province, the which will increase of the interest of investors to invest in Bengkalis and Riau Province, so the impact **Important**. |
| 10. | Surface Water Quality | Surface water quality is still below the environmental quality standards established under Government Regulation No. 82 year 2001. | **Large Impact**<br>Scale environmental quality prior to their activities, ie (SKLektip) = 3 (Medium) and after the activity is (SKLwkdp) = 1 (very bad), so the magnitude of the impact is -**2 (negatif Medium)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact of surface water quality deterioration at this stage of the operation is **5 (Important)**. | IIH 1 water quality degradation from maintenance activities IIH 2 pembankit and water quality degradation from waste management activities (including Hazardous And Toxic Materials). The impact of the decline of water quality meets the same space of time, because of the activity that caused IIH and IIH 1 2 3 done simultaneously, so there is likely to be an accumulation of impacts, then from this analysis, IIH and IIH 1 2 be the impact **Important**. |
| 11. | vegetation Army | Plant shrubs and grass and there were no vegetation protected | **Large Impact**<br>Scale environmental quality prior to their activities, ie (SKLektip) = 1 (very bad) and after the activity is (SKLwkdp) = 3 (Medium), so the magnitude of the impact is +**2 (positif Medium)**.<br>**Important Properties of Impact**<br>Number of criteria categories **Important (P)** impact is **5 (Important)**. | The impact of the loss of vegetation will take place during the construction phase and will recover after planting activity in the vicinity of PLTG / MG Duri, so that the impact **Important**. |

## 4.2. Tutorial Environmental Management and Monitoring

Results of research paper impact Important arising from the activities of additional generating capacity of PLTG/MG Duri, we then do telahaan on different management options environmental impact possible, in terms of availability of management options best (best available technology), the ability of the proponent to undertake management options best (best achievable technology) and the relevance of management options available to local conditions, so that the directives formulated management and environmental monitoring are the basis for the preparation of RKL-RPL more details/detailed and operational.

Referral management activities conducted on all components of the impacts, both components to achieve the most impact on derivatives (impact of a strategic nature) and component activities that do little to impact the derivative. Referral management is done in accordance with the impact assessment Important derived from EIA as shown in the table below.

**Table 4. 2.**
**Type Important Impact and Environmental Management Tutorial and Environmental Monitoring**

| Source of Impact | Referral Management | Tutorial Monitoring |
|---|---|---|
| Public Consultation and Acceptance of Labor | 1. Prioritize local workforce in filling vacancies for employment are needed both by PT. PLN (Persero) Parent Unit Development I and contractors construction of power plants.<br>2. Provide training and courses for the local workforce so the ability and skill to compete with migrant employment which in turn can fill skilled labor positions.<br>3. Take advantage of agricultural resources, fisheries and local farm to meet the food needs of the company's workforce and contractors a power plant PLTG / MG Duri, like it the fruit, vegetables, fish and meat.<br>4. Provide an opportunity for local entrepreneurs in the procurement of heavy equipment (rental system) as well as a vehicle for power plant operations.<br>5. Provide capital assistance to people who are interested to open a new effort to support the activities of PLTG/MG Duri it.<br>6. Provide capital assistance to people who are interested to open a new effort to support the activities of PLTG/MG Duri it.<br>7. Noting the provisions in force and ensuring that the environment in each of the activities undertaken.<br>8. To socialize regularly and intensively to the public at every stage of the activities carried out, particularly on the role, functions and benefits of | 1. Data collection :<br>Primary data was collected through interviews using interview guide.<br>2. Data analysis:<br>Quantitative data were analyzed by using frequency tabulation and cross tabulation and qualitative data will be analyzed by Content Analysis |

| Source of Impact | Referral Management | Tutorial Monitoring |
|---|---|---|
| | PLTG/MG spines on the community and regional development. Besides, it also disseminates safety and security activities of PLTG/MG Duri.<br>9. Maintain a good relationship and communication with the leaders maun formal and non-formal community leaders around the location of activities.<br>10. Involve Chairman of RT, RW, village, sub-district and community leaders in making decisions concerning the community.<br>11. Conducting activities of interest in the community (CSR) in the vicinity of PLTG/MG Duri. | |
| Mobilization of Heavy Equipment and Materials and Machinery Plant | 1. Limiting and adjust the volume of vehicles transporting equipment and materials for the construction of power plant PLTG capacity increase/MG Duri. Freight does not exceed the capacity of the road.<br>2. 2. Restrictions on the maximum speed of freight vehicles, which is 40 km/hour<br>3. Set the frequency and time of transportation activities in a manner that the transport schedule setting does not coincide with rush hour morning and afternoon.<br>4. Creating traffic signs and road markings, particularly at a crossroads.<br>5. The driver of a vehicle must be careful when passing public transport lines and gave counseling to the public transport drivers to be careful and keep vigilance while driving at highway transportation, especially when crossing the residential areas.<br>6. socialization to the residents who live around these shuttles will their project vehicle traffic by using large-sized truck/trailer.<br>7. Installation of signs warning/caution signs installed before entering the project activities at each distance of 150 m and 50 meters in both directions.<br>8. In the event of an accident or damage to the road, it must be compensated or roadworks.<br>9. In cooperation with the Department of Transportation and local sector police in regulating traffic flow. | 1. Method of collecting data :<br>Field surveys and collecting reports from Bengkalis District Department of Transportation related to the rise of traffic in the vicinity of PLTG/MG Duri for the mobilization of heavy equipment, materials and machinery plants.<br>2. Data analysis method :<br>The data were analyzed tabulation and descriptive as well as see the trend change in seizure traffic in the vicinity of PLTG/MG Duri. |
| Maturation of Land and Development Foundation Plant | 1. In the area of plant functioned for supporting facilities (parking lots and green open land) must be made water catchment wells. On the green open land and buffer area, the soil should be a | 1. Method of collecting data :<br>The rate of surface flow using the formula:<br>**Q = C I A** |

| Source of Impact | Referral Management | Tutorial Monitoring |
|---|---|---|
| | maximum of rainwater by not compressing the soil in question.<br>2. Make Green Barrier which limits the plant site with the surrounding residential community.<br>3. To improve the condition of the land that had matured as much as possible to do replanting (greening) in the unused area (vacant land). This activity will have a positive impact on the condition of the population covered vegetation which also affects the decrease rate of erosion and sedimentation. | Where :<br>Q = The rate of flow of surface water ($m^3$/ rainy day)<br>C = The coefficient of flowing water<br>I = Rainfall intensity (mm / rainy day)<br>Estimated increase in water run-off caused by the erection of a building on a particular area can be calculated by the formula:<br>**Q = (Cr – Cp) x I x A**<br>Where :<br>Q = The rate of flow of surface water ($m^3$/ rainy day)<br>Cr = The coefficient of water runoff after built<br>Cp = The coefficient of runoff water before it is built<br>I = Rainfall intensity (mm / rainy day)<br>A= The total area of land to be built<br>2. Data analysis :<br>The data were analyzed tabulation and descriptive and compared with the criteria flowing water discharge that occurred during the preparation of the land activities. |
| Testing and Testing and Production of Electrical Energy | 1. Make high chimney flue gas ± 40 meters and install a vacuum cleaner that can work in centrifuges.<br>2. Testing periodically emissions and improve combustion with Dry Low NOx Combustion System.<br>3. Using a mask when you're on the location of dust exposure. | 1. Method of collecting data<br>Measurement of exhaust emissions and ambient air is done by using high volume sampling meter for ± 24 hours (mg/$m^3$).<br>2. Data analysis<br>Air quality data have been obtained will be compared with environmental quality standards based on Government Regulation No. 41 of 1999, regarding Air Pollution Control. |
| Maintenance Engineering Plant and Waste Management<br>Hazardous And Toxic Materials | 1. Managing wastewater in ponds WWTP and collecting Hazardous And Toxic Materials waste properly and safely in accordance with established procedures.<br>2. Planting aquatic plants in the pond that is able to reduce the WWTP effluent. | 1. Method of collecting data<br>Insitu measurements and water sampling for laboratory analyzes. Water sampling, sample preservation and laboratory analysis is based on the guideline "Indonesian National Standard (SNI)".<br>2. Data analysis<br>Surface water quality data have been obtained will be compared with Government Regulation No. 82 of |

| Source of Impact | Referral Management | Tutorial Monitoring |
|---|---|---|
| | | 2001 on the Management of Water Quality and Water Pollution Control. |
| Greening | 1. revegetation or replanting in the area of PLTG/MG Duri which serves as a biofilter to capture dust flying.<br>2. The researcher also planting fast-growing tree in the left-right-road-site PLTG/MG Duri with planting positioning system zig zag.<br>3. Perform testing/measurement of air emissions and dust.<br>4. Conduct tree planting densities fairly around the site area of PLTG/MG Duri) as windbreaks and buffer zone (buffer zone). | 1, Method of collecting data<br>Measurement of exhaust emissions and ambient air is done by using high volume sampling meter for ± 24 hours (mg/m3).<br>2. Data analysis<br>After the water quality will be the data Obtained Compared with environmental quality standards based on Government Regulation No. 41 year 1999, regarding Air Pollution Control. |
| Corporate Social Responsibility (CSR) | Forms of Community Development Program Activity:<br>1. *Community Empowering:* Program aid to provide wider access to the community to support the independence, by based on the development and utilization of local potential which will provide employment, such as educational assistance, training to the community, help the development/strengthening of community based organizations, indigenous communities, professional organizations, and capacity building of local resource-based community effort.<br>2. *Community Services* : The aid program for the general public in the form of continuous improvement as a means that does not help religious facilities, aid victims of natural disasters and others.<br>3. *Community Relations* : Program development of communication and information activities through the provision of knowledge and outreach to the community related to the installation and the program will be developed by PLN, such as public consultation assistance, counseling about the electric assistance. | 1. Method of collecting data :<br>The data collection is done by obtained from respondents through interviews as directed/focused using interview guide (*interview guidance*). Respondents determined by purposive sampling method. Defined number of samples of 50 people.<br>2. Data analysis method :<br>The data were analyzed tabulation and descriptive as well as see the trend change in attitudes and perceptions around the location of PLTG/MG Duri. |

## 4.3. Environmental Feasibility Statement

The results of the study of the impact evaluation, referral management and environmental monitoring as described, it can be concluded that the capacity building activities PLTG/MG thorn in the Balai Pungut Village, Pingir District, Bengkalis Regency, Riau Province in terms of environmental feasibility, declared eligible to be realized with the following considerations:

**TabIE 4. 1.**
**Table Statement of Environmental Feasibility**

| No | Criteria | Environmental Feasibility Statement |
|---|---|---|
| 1. | Spatial plan in accordance with the legislation | In accordance with the Regional Development Planning Agency Bengkalis Number: 050/Bappeda-SP/247/2015 of Conformity PLTG/MG Peaker Duri with the Spatial Bengkalis district, the location of activities that are in **Production Forest (HP).** |
| 2. | Policies for the protection and management of environment and natural resources set out in the legislation | The activities will take place and the potential impact that would be caused had appropriate policies for the protection and management of environment and natural resources set out in the legislation. |
| 3. | Defense and security | The activities will take place and the potential impact that will result will not affect the national security and defense. |
| 4. | Forecast carefully about the amount and Important Properties of Impact of biophysical aspects of chemistry, social, economic, cultural, spatial, and public health at the stage of pre-construction, construction, operation and post-operative Enterprises and/or Event | The results of estimating the size and Important Properties of Impact of aspects of biophysical chemistry, social, economic, cultural, spatial, and public health at the pre-construction, construction, operation and post-operation activities shows that these activities can be managed and monitored properly in accordance with the development science and technology available today. |
| 5. | Results holistic evaluation of all impacts Important as a unity of interrelated and influence each other in order to know the balance Important impacts that are positive by nature negative | Results holistic evaluation of all impacts Important as a unity of interrelated and influence each other so that it is known that the effects are positive Important greater than the negative nature. |
| 6. | The ability of the initiator and/or related parties are responsible Important negative impacts that will result from businesses and/or activities are planned with the approach of technological, social, and institutional. | The proponent has expressed his readiness to cope with the negative Important impacts that will result from the planned activities with the approach of technological, social, and institutional. |
| 7. | The business plan and/or activities do not interfere with the values of social or community views (emic view). | Through good management plan, the plan will not interfere with activities of social values or views of the community (emic view) are nearby. |
| 8. | The business plan and/or activities will not affect and/or disrupt the ecological entity that is.<br>1) entity and/or *key species*; 2) *ecological importance*);3) *economic importance;* dan/atau 4) *scientific importance*. | Plan activities to increase generation capacity will not affect and/or disrupt the ecological entities which are:<br>▪ Entitas and/ or *Key Species*;<br>▪ *Ecological Importance*;<br>▪ *Economic Importance;* and/or<br>▪ *Scientific Importance*; |
| 9. | The business plan and/or activities do not cause disruption to the business and/or activities that have to be around the planned location of the business and/or activities. | Plan activities do not cause disruption to activities already exist around the site plan their activities with the implementation of the Environmental Management Plan (RKL) and Environmental Monitoring Plan (RPL). |