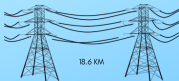


EXECUTIVE SUMMARY

DEVELOPMENT OF TRANSMISSION LINE 132KV FROM PENCAWANG MASUK UTAMA (PMU) BINTANG TO PMU BLUE VALLEY IN MUKIM TANAH RATA & MUKIM ULU TELOM, DISTRICT OF CAMERON HIGHLANDS, PAHANG DARUL MAKMUR AND IN MUKIM KAMPAR, DISTRICT OF KAMPAR, PERAK DARUL RIDZUAN

INTRODUCTION



- Approximately 18.6 km in length and will traverse along 4.53 km Hutan Rizab Hulu Bertam (Pahang) and 2.21 km Hutan Simpan Bukit Kinta (Perak)
- 6 hectares of PMU Blue Valley will be constructed
- Right of Way (ROW): 60 m (forest) or 40 m (non forest).

STATEMENT OF NEED

- To ensure stability, reliable and secure power supply to the National Grid
- Aims to fulfill the needs of future electric demand and to enhance the security of supply in Pahang specifically at Cameron Highlands.
- To resolve surge in power demand as a result of rapid development.



LEGAL REQUIREMENTS

FIRST SCHEDULE

11. POWER GENERATION AND TRANSMISSION

c) Construction of transmission line in environmentally sensitive area

13. DEVELOPMENT IN SLOPE AREA

Development or land clearing less than 50 percent of an area with slope greater than or equal to 25° but less than 35°

SECOND SCHEDULE

5. FORESTRY

b) Logging or conversion of forest to other land use within- (i) a catchment area of reservoirs used for municipal water supply, irrigation or hydro-power.



PROJECT PROPONENT



TENAGA NASIONAL BERHAD

EIA CONSULTANT



TNB RESEARCH

TNB RESEARCH SDN BHD

EIA CONSULTANT

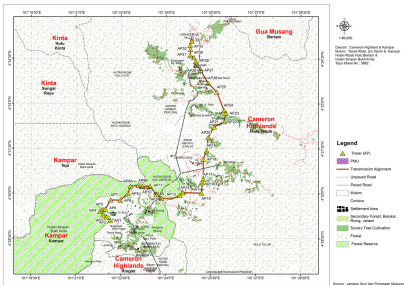


WIRANDA (M) SDN BHD

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PROJECT LOCATION



NUMBER OF ANGLE POINT (AP) TOWERS

- 32 towers in Pahang state
- 5 towers in Perak state

PROJECT SCHEDULE

- 3 phases within 2 year construction period



PROJECT PHASING

- PHASE 1
 - Start point (SP) to AP12A
- PHASE 2
 - AP13 to AP33
- PHASE 3
 - End point (EP) to PMU Blue Valley



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PROJECT ACTIVITIES



PRE-CONSTRUCTION STAGE

- Site survey
- Mark site boundary & buffer zones
- EIA & EMP Study

CONSTRUCTION STAGE

- Logging & Rencise Clearing
- Road & Drainage Works
- Tower Foundation
- Erection & Stringing Works
- Construction of PMU Blue Valley

OPERATION & MAINTENANCE STAGE

- Tower Maintenance & Inspection

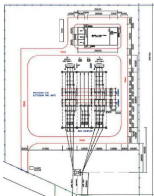
TOWER FOUNDATION CONSTRUCTION METHOD

- Caisson Construction and Normal Foundation method will be implemented.



LOGGING ACTIVITIES METHOD

- The policy of *Tebang Tinggal* will be adopted.
- Felled trees in the forest reserves to be further cut and chopped and left on site for decomposition.



BASIC COMPONENTS OF PMU

- Pencawang Masuk Utama (PMU) 132kV station
 - 2 units transformers
- Supporting facilities:
 - Guard House
 - Internal Road
 - On Site Detention Pond

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EXISTING ENVIRONMENT



TOPOGRAPHY

- Slope: 0° - 25° with about 43.24%
- Elevation: 1,150 m to 1,800 m above MSL



GEOLOGY

- Mostly found: Granite.
- Most are medium to coarse-grained with abundance of quartz and feldspar



AIR QUALITY

- 5 monitoring stations with all parameter are within the limit of MAAQS.



NOISE LEVEL

- The recorded LAeq readings in compliance with the standard except AN1 (daytime & nighttime) and AN3 & AN4 (nighttime).



WATER QUALITY

- WQI of all sampling stations in Sg Kampar falls under Class II meanwhile in Cameron Highlands mostly under Class II and III.



TRAFFIC STUDY

Level of Service (LOS):

- Jalan Simpang Pulai - Lojing : 0.25 (A)
- Jalan Ringlet - Blue Valley : 0.39 (A)
- Jalan Ringlet - Sg Koyan : 0.40 (A)



ECOLOGY

- Flora: A mix of trees, shrub, herbs, climber and ferns.
- Fauna: Several species "Totally Protected" or "Protected".
- Aquatic Fauna: Species *Poropuntius smedleyi* found.



SOCIO-ECONOMY

- 60% of the respondents agreed, 37% disagreed and 3% are not sure.

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POTENTIAL IMPACTS

MITIGATION MEASURES

SOIL EROSION



- Possible erosion and sedimentation happened during site clearing and earthwork activities

- Proper LD-P2M2 to be installed in order to control erosion and sedimentation

WATER QUALITY



- Erosion of soils causing sediment to be deposited into the water body especially during heavy rainfall.

- Establish proper drainage to cater for the increase of storm flow during rainy weather.

AIR QUALITY



- Emission from machinery during construction stage
- Generation of dust from vehicles

- Proper maintenance and service of machineries and vehicles.

NOISE LEVEL



- Noise generation from machinery during construction stage

- Ensure proper application of suitable noise control measures

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WASTE MANAGEMENT



POTENTIAL IMPACTS

- Biomass expected to be generated from site clearing.
- Potential soil contamination.

MITIGATION MEASURES

- Ensure proper management of waste according to relevant regulation

LAND USE



- Land use compatibility is assessed against the existing land use pattern and future land use zoning plan.

- Appropriate consideration should be adopted to minimize potential impact to the surrounding land uses.

SOCIO- ECONOMY



- Impact on land acquisition
- Concern on environmental pollution

- Compensation to those who affected.
- Ensure the BMPs are installed and maintained.

ECOLOGY




- Vegetation lost
- Human-wildlife conflict

- Ecology management measures need to be established

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PERFORMANCE MONITORING (PM)



P2M2 TOOLS	PM PARAMETERS	FREQUENCIES
Sediment Basin	Silt marker	Weekly or after rainfall event (In-situ)
Silt fence & sandbag	Sediment level	Weekly or after rainfall event
Eath drain with check dam	Sediment level	Weekly or after rainfall event
Culvert/Bridge	Structure and Performance	Weekly or after rainfall event
Stabilized Access Road	Structure and Performance	Weekly or after rainfall event

COMPLIANCE MONITORING (CM)



COMPONENT	REGULATED PARAMETERS	FREQUENCIES
AIR QUALITY (MAAQOS, 2020)	PM ₁₀ PM _{2.5}	Quarterly
NOISE LEVEL (Planning Guidelines for Environmental Noise Limits and Control, 2019)	LAeq	Quarterly
WATER QUALITY (WWQS)	TSS BOD ₅ COD pH Turbidity Ammoniacal Nitrogen Faecal Coliform Oil & Grease Temperature Dissolved Oxygen	Monthly
WATER QUALITY (DISCHARGE FROM SEDIMENT BASIN)	TSS Turbidity	After 12.5 mm rainfall (refer to rain gauge)