# TERMS OF REFERENCE

# ELECTRICAL TRANSMISSION LINES & SUBSTATIONS

## *Notes for NEPA for Generic Terms of Reference*

This generic Terms of Reference (TOR) is applicable to development projects involving **the construction and operation of Electrical Transmission Lines & Substations.** The TOR outlines the aspects of an Environmental Impact Assessment (EIA) which when thoroughly addressed will provide a comprehensive evaluation of the site, in terms of predicted environmental impacts, needed mitigation strategies, potentially viable alternatives to the development proposed and all related legislation.

In reality, significant environmental issues may be site specific and it is expected that these be incorporated accordingly. Sites of special consideration are:

**Coastal Areas:** Issues such as Coastline stability, coral reef, mangrove and wetland, seagrass impacts, unique coastal environments, surface run off, and impact on coastal commercial (fishing) and recreational beaches should be examined.

**Upland Areas:** Issues such as slope stability, impact on drainage patterns, property etc. should be examined. The path of the corridor cleared of vegetation for transmission lines and substations should be the major focus of this exercise.

**Rivers/ Riverine Areas:** Issues such as erosion and siltation, macro-invertebrate habitat destruction, disrupting of regular flow of the river and the

possible impact of upstream activities on the mangrove and wetland, sea grass and coral reef system.

**Distinct Terrestrial Forest Types:** Issues relating to the specific growth form of the vegetation, the carrying capacity, the successional stage of the forest and the projected level of disturbance which the forest can withstand.

**Sites located within and adjacent to areas listed as protected or having protected species:** The main issue(s) of concern will in part be determined by the local legislation as well as GOJ responsibilities under applicable international conventions. The impact of the development on the specific sensitivities of the protected area should be highlighted. Mitigation of impacts should assess if the post mitigation status would be acceptable in the protected area context. Alternative sites should be rigorously evaluated.

Socio–Economic issues such as land acquisition and impact of these conveyances on commerce in the community should be closely examined.

## Terms of Reference

The Environmental Impact Assessment should:

1) Provide a complete description of the corridor proposed for development. This should include a description of the main elements of the development, highlighting areas to be reserved for construction, the creation of verges and other green areas.
2) Identify the major environmental issues of concern through the presentation of baseline data which should include social and cultural considerations. Assess public perception of the proposed development.
3) Outline the Legislations and Regulations relevant to the project.
4) Predict the likely impacts of the development on the described environment, including direct, indirect and cumulative impacts, and indicate their relative importance to the design of the development's facilities.
5) Identify mitigation action to be taken to minimise adverse impacts and quantify associated costs.
6) Design a Monitoring Plan which should ensure that the mitigation plan is adhered to.
7) Describe the alternatives to the project that could be considered at that site

To ensure that a thorough Environmental Impact Assessment is carried out, it is expected that the following tasks be undertaken:

### Task #1. Description of the Project

Provide a comprehensive description of the project, noting areas to be reserved for construction, verges and proposed green areas. This will also include an account of activities and features which will introduce risks or generate impact (negative and positive) on the environment. This should involve the use of maps, site plans aerial photographs and other graphic aids and images, as appropriate,

and include information on location, general layout and size, as well as pre-construction, construction, and post construction plans. For projects to be done on a phased basis it is expected that all phases be clearly defined, the relevant time schedules provided and phased maps, diagrams and appropriate visual aids be included.

## Task #2. Description of the Environment

This task involves the generation of baseline data which is used to describe the study area as follows:

i) physical environment
ii) biological environment
iii) socio-economic and cultural constraints.

It is expected that methodologies employed to obtain baseline and other data be clearly detailed.

Baseline data should include:

### *(A) Physical*

i) a detailed description of the existing **geology** and **hydrology.** Special emphasis should be placed on storm water run-off, and drainage patterns. Any slope stability issues that could arise should be thoroughly explored.

ii) **Water quality** of any existing rivers, ponds, streams or coastal waters in the vicinity of the corridor or substation. Quality Indicators should include but not necessarily be limited to suspended solids, turbidity, oil and grease.

iii) Climatic conditions and air quality in the area of influence including particulate matter, $NO_x$, $SO_x$, wind speed and direction, precipitation, relative humidity and ambient temperatures,

iv) Noise levels of the undeveloped site and the ambient noise in the area of influence.

v) Obvious sources of pollution existing and extent of contamination.

***(B) Biological***

Present a detailed description of the flora and fauna (aquatic and terrestrial) in the proposed corridor of influence, with special emphasis on rare, endemic, protected or endangered species. Migratory species should also be considered. There may be the need to incorporate micro-organisms to obtain an accurate baseline assessment. Generally, species dependence, niche specificity, community structure and diversity ought to be considered.

***(C) Socio-economic & cultural***

Present and projected population; present and proposed land use; planned development activities, issues relating to squatting and relocation, community structure, employment, distribution of income, goods and services; recreation; public health and safety; cultural peculiarities, aspirations and attitudes should be explored. The historical importance of the area should also be examined. While this analysis is being conducted, it is expected that an assessment of public perception of the proposed development be conducted. This assessment may vary with community structure and may take multiple forms such as public meetings or questionnaires.

***Task #3 - Legislative and Regulatory Considerations***

Outline the pertinent regulations and standards governing environmental quality, safety and health, protection of sensitive areas, protection of endangered species, siting and land use control at the national and local levels. The examination of the legislation should include at minimum, legislation such as the NRCA Act, the Public Health Act, the Town and Country Planning Act, Building Codes and Standards, Development Orders and Plans and the appropriate

international convention/protocol/treaty where applicable. Emphasis on requirements under NRCA air quality regulations is necessary.

***Task #4 - Identification of Potential Impacts***

Identify the major environmental and public health issues of concern and indicate their relative importance to the design and operation of the development. Identify potential impacts as they relate to, (but are not restricted by) the following:

- public health and safety
-change in drainage pattern
- flooding potential
- aesthetics
- landscape impacts of excavation and construction
- loss of natural features, habitats and species by construction and operation
- pollution of potable, coastal, surface and ground water
- air pollution
- socio-economic and cultural impacts.
- risk assessment
- noise

Distinguish between significant positive and negative impacts, direct and indirect, long term and immediate impacts. Identify trigger, avoidable reversible and irreversible impacts. Characterize the extent and quality of the available data, explaining significant information deficiencies and any uncertainties associated with the predictions of impacts. A major environmental issue is determined after examining the impact (positive and negative) on the environment and having the negative impact significantly outweigh the positive. It is also determined by the number and magnitude of mitigation strategies which need to be employed to reduce the risk(s) introduced to the environment. Project activities and impacts should be represented in matrix form with separate matrices for pre and post

mitigation scenarios. An exhaustive list of impacts including a numerical weighting based on a stated methodology should be included.

***Task #5 Mitigation***

Prepare guidelines for avoiding, as far as possible, any adverse impacts due to proposed usage of the corridor and utilising of existing environmental attributes for optimum development. Quantify and assign financial and economic values to mitigating methods.

***Task #6 Monitoring***

Design a plan to monitor implementation of mitigatory or compensatory measures and project impacts during and post construction and decommissioning of the power plant. An Environmental Management Plan for the long term operations of the development should also be prepared.

An outline monitoring programme should be included in the EIA, and a detailed version submitted to NEPA for approval after the granting of the permit and prior to the commencement of the development. At the minimum the monitoring programme and report should include:

- Introduction outlining the need for a monitoring programme and the relevant specific provisions of the permit license(s) granted.
- The activity being monitored and the parameters chosen to effectively carry out the exercise.
- The methodology to be employed and the frequency of monitoring.
- The sites being monitored. These may in instances, be pre-determined by the local authority and should incorporate a control site where no impact from the development is expected.
- Frequency of reporting to NEPA

The Monitoring report should also include, at minimum:

- Raw data collected. Tables and graphs are to be used where appropriate
- Discussion of results with respect to the development in progress,

highlighting any parameter(s) which exceeds the expected standard(s).

- Recommendations
- Appendices of data and photographs if necessary.

***Task #7 - Project Alternatives***

Examine alternatives to the project including the no-action alternative. This examination of project alternatives should incorporate the use history of the overall area in which the corridor is located and previous uses of the site itself. Refer to NEPA guidelines for EIA preparation.

All Findings must be presented in the **EIA report** and must reflect the headings in the body of the TORs, as well as references. Eight hard copies and an electronic copy of the report should be submitted. The report should include an appendix with items such as maps, site plans, the study team, photographs, and other relevant information.