

## ENVIRONMENTAL AND SOCIAL REVIEW SUMMARY

### Disclaimer

This Environmental and Social Review Summary is prepared and distributed in advance of the IFC Board of Directors' consideration of the proposed transaction. Its purpose is to enhance the transparency of IFC's activities, and this document should not be construed as presuming the outcome of the Board of Director's decision. Board dates are estimates only. Any documentation which is attached to this Environmental and Social Review Summary has been prepared by the project sponsor and authorization has been given for public release. IFC has reviewed this documentation and considers that it is of adequate quality to be released to the public but does not endorse the content.

### Project Identification:

<i>Country:</i> India	<i>Project Name:</i> MSETCL	<i>Project No.:</i> 27519
<i>Region:</i> ASIA		<i>Environment Category:</i> B - Limited
<i>Dept./Div.:</i> CSFDR - Sub-National Finance/Office of the Director-CSF	<i>Company Name:</i> Maharashtra State Electricity Transmission Company Limited	
<i>Project Business Sector:</i> C-AF - Transmission		<i>Project Status:</i> Active

### Parent Project Identification:

<i>Parent ID:</i>	
<i>Parent Short Name:</i>	
<i>Parent Relationship:</i>	No Relationship

### IFC's Disclosure Requirements:

<i>Date ESRS sent to InfoShop &amp; posted on IFC Web site:</i>	
<i>Date of revision (if appropriate):</i>	
<i>Date of clearance by client for factual accuracy</i>	
<i>Local Disclosure Date</i>	
<i>Local Disclosure Date of revised ESRS</i>	

### Overview of IFC's scope of review:

Maharashtra State Electricity Transmission Company Limited ("MSETCL" or the "Company") has developed and prioritized a comprehensive list of projects to be implemented as part of a 5 year investment plan. The projects include new sub stations, new transmission lines and augmentation of existing sub stations and transmission lines in the state of Maharashtra, in India. MSETCL has approached IFC for a corporate debt to support its electricity transmission infrastructure improvement program.

Review of this proposed IFC investment consisted of appraising technical, environmental and social information submitted by the Company including MSETCL's: investment plan; standard procedures pertaining to projects, operation and maintenance; crop and tree compensation; project contract document; personnel and human resources (HR) related company circulars, orders and MSEB Employees Service rules. The appraisal team also interviewed MSETCL's corporate and operations professionals. The appraisal included a site visit to the Company's existing operations and projects in and around Nagpur in Maharashtra, India.

The following potential environment, health and safety and social aspects of the project were analyzed: environment and social assessment and corporate environmental, social, and health and safety management systems; community consultation, disclosure and engagement; labor and working conditions including management of employee occupational health and safety; pollution prevention and abatement (including management of resources - energy, water, hazardous and other materials; management of emissions, discharges, hazardous and other wastes); management of community environment, health and safety impacts during construction and operation; and management of Right of Way (ROW) acquisition on account of the Project.

### **Project Description:**

MSETCL is a power transmission utility 100% owned by the Government of Maharashtra (GoM). The former vertically integrated Maharashtra State Electricity Board (MSEB) was unbundled in 2005 to create three separate companies focusing on transmission, distribution, and generation. MSETCL operates the largest state-level transmission network in India comprising over 36,286 ckt-kms of transmission lines and 498 substations. Its network spans voltage levels from 500 kV to 66 kV. MSETCL's system availability is 98.9% and transmission loss is 4.67%. Substantial capital investments are required to improve performance of existing infrastructure while increasing capacity to handle the power expected from new generation projects. MSETCL has prepared a 5 year capital expenditure program ("Project"), which focuses on: (a) rehabilitation of its existing network to reach and maintain high network efficiency; and (b) evacuation lines for new generation capacities in the state. IFC is considering a corporate debt to MSETCL to part finance its 5 year capital expenditure program.

### **Identified Applicable Performance Standards:**

IFC's environmental and social due diligence indicates that the investment will have impacts which must be managed in a manner consistent with the following Performance Standards:

- *PS1 -- Social and Environmental Assessment and Management System; and*
- *PS2 -- Labor and Working Conditions;*

The Company's SEHS Policy is consistent with IFC Performance Standards and its SEHSMS (together referred to as "Social and Environmental Policy and Procedures" or "SEPP") will incorporate IFC Performance Standard provisions including PS3 through 8.

### **E & S Categorization Rationale:**

The key social and environmental aspects that are/may be associated with the Project relate to MSETCL's environment and social assessment, corporate environmental, social, and health and safety management system and their implementation. In the context of the Project, the key social and environmental issues, which will have to be managed under environment and social management system include: impacts on households due to restrictions/constraints in the proposed ROW, crop damage and loss of trees during construction/maintenance; employee and community health and safety impact during construction and operation; community consultation and engagement; labor working conditions including employee and contract labor health and safety; impacts due to emissions to soil, air and water during construction and operation; and potential impacts on biodiversity and cultural heritage. However, the Project's impacts are mostly short term, limited to the Project sites, reversible and limited impact, if unavoidable, on environmentally sensitive areas. Further, it is possible to readily design and implement engineering and management measures to mitigate adverse impacts. In view of the above, the project has been classified as a Category B project.



### **Description of key Environmental and Social Issues and Mitigation:**

The Company has presented plans to address these impacts to ensure that the proposed Project will upon implementation of the specific agreed measures, comply with the environmental and social requirements - the host country laws and regulations, IFC Performance Standards and WBG/IFC environmental, health and safety guidelines. The information about how these potential impacts will be addressed by the Company/Project is summarized in the paragraphs that follow.

*PSI: Social and Environmental Assessment and Management Systems:* MSETCL's management is committed to address social, environmental, occupational health and safety (SEHS) aspects associated with its projects and operations ("Operations"). The Company has in place quality management systems certified to ISO 9001:2000 standards. While MSETCL addresses relevant SEHS aspects associated with its Operations, it is not managed under a structured and documented SEHS management system (SEHSMS). However, MSETCL has articulated an SEHS Policy and is committed to putting in place a SEHSMS in a time bound manner by December 2009. The Company's SEHS Policy is consistent with IFC Performance Standards and its SEHSMS (together referred to as "Social and Environmental Policy and Procedures" or "SEPP") will incorporate IFC Performance Standard provisions. SEHSMS will include procedures for: (a) Screening and Identification of Risks (from environmental receptors, social receptors and other stakeholders); (b) avoidance of risks (including criteria for alternative routing); (c) mitigation of risk through impact management, implementation of Good International Industry Practices (GIIP) as detailed in The World Bank Group/IFC EHS Guidelines, adequate compensation to affected stakeholders, public consultation and disclosure and grievance redress; (d) monitoring, reporting, evaluation, feedback, management review and corrective action; and (e) responsibility and resource allocation including an organization structure for management of social and environmental ("S&E") risks.

Presently all regulatory compliances on SEHS aspects are the responsibility of the zonal in-charges respectively both for projects and O&M in each zone. Project work is often executed by contractors. The contracts awarded by MSETCL have provisions that require the contractor to comply with labor laws, adhere to safety norms, and clear the way leave. These provisions will be further strengthened under the SEHSMS, which will include procedures to ensure that EPC or work contractors implement projects/execute the contract in accordance with MSETCL's SEHS Policy.

MSETCL will put in place an appropriate organizational structure at the corporate and operational (zone/circle/division) levels including deployment of appropriately qualified professionals, to ensure that its SEHS Policy and SEHSMS is appropriately implemented throughout MSETCL's Operations. Further, the Company will implement a periodic audit program to obtain assurance on the implementation of the SEHS Policy and also to identify opportunities for enhancing its effectiveness including: (a) quarterly third party audits for the first two years after commitment and biannual third party audits thereafter; and (b) quarterly internal audits.

MSETCL presently does not undertake a structured social and environmental impact assessment (S&EA) of its projects and operations. However, as part of route alignment planning, key social and environmental aspects are considered and addressed. The criteria used by MSETCL in transmission line route planning include: (a) easy approach and accessibility for construction and maintenance with access available during both dry and rainy season; (b) economy of route and minimization of angle points; (c) avoidance of wildlife sanctuaries, national parks, reserved forests, high tree areas, archaeological monuments, places of worship and cremation; (d) avoidance of mining, defense establishments and other sensitive areas like air ports and aircraft landing approach; (e) avoidance of densely populated areas, large habitations, expanding villages and towns, planned development zones and non agricultural land with development potential; (f) minimization of steep sloping terrain, areas prone to soil instability, flooding and landslides, marshy land, river bed and low lying areas; (g) minimization of rail, river, stream, road, power line and communication line crossings; (h) avoidance of areas with gardens, nurseries, plantation, crops like tea, tobacco, saffron etc. MSETCL relies upon modern techniques to optimize its route selection including maps, walk over survey and GPS markings, satellite imagery processing, field checking and detailed survey. As part of the SEHSMS development process, MSETCL will undertake a detailed assessment of the impacts and risks associated with its Operations. Further, the S&EA process and requirements will be appropriately strengthened under the SEHSMS to ensure that outcomes consistent with its SEHS Policy are achieved.

MSETCL presently implements procedures to meet Indian environment management, pollution prevention and control requirements. However, MSETCL's SEHSMS will include procedures to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from its Operations including measures to abate emissions that contribute to climate change. While the primary source of energy at MSETCL's installations is grid electricity, diesel generator (DG) sets are provided for backup power. The principal point source of air emissions are the stacks attached to the DG sets. MSETCL will ensure that DG set emissions (though these are for standby operation only) meets WBG/IFC norms. On account of the Project, no material long term increment in ground level concentration of SPM, RPM, SO<sub>2</sub> and NO<sub>x</sub> as also noise levels is



expected. The Company will provide acoustic enclosure for DG sets as per host country regulations. The Company will ensure that the cleaning chemicals and refrigerant used in air conditioning system as also the fire extinguishers gases, comply with the Ozone Depleting Substances Rules set by the GOI under Montreal Protocol requirements. The Company will ensure that all power transformers containing Poly-chlorinated biphenyls (PCBs) have been phased out. The Company will as part of the SEHSMS detail adequate measures to minimize fugitive emissions to air and to mitigate air quality as also ambient noise level impacts during construction. The Company will ensure that the mitigation measures are duly implemented during construction and operation.

There is no process water requirement during operation and there is a limited short term demand expected at each tower construction section. The Company will ensure that drinking water complies with GoI standards. There is no process waste water generation. Domestic waste water is generated at sub stations, which is discharged through septic tank and soak pit route. However, at construction sites, higher volumes of sanitary effluent is generated from labor camps. The Company will ensure that contractor makes available appropriate sanitation facilities such that sanitary wastewater is not discharged untreated into surface water bodies or on land. MSETCL will also implement a companywide rainwater harvesting program.

Hazardous wastes generated on the Company's sub station premises include spent transformer oil, lubricants, dielectric containing equipment, batteries, gaskets/other maintenance wastes and oil filter. The Company needs to improve storage and handling of hazardous materials, hazardous wastes and scrap. While the Company disposes of used oils and batteries to authorized entities, MSETCL will implement procedures to store all hazardous materials and wastes in designated areas with adequate secondary containment and dispose hazardous wastes through authorized entities in accordance with host country requirements. During construction, the Company will require contractors to develop appropriate procedures and facilities for storage and handling of oils, lubricants and for management of spills including provision of temporary secondary containment facilities. The Company will segregate and store scrap as also other waste material, in designated areas both during construction and operation. Further, the Company will ensure that contractor implements mitigation measures to minimize adverse impact during construction.

To prevent loss of top soil during construction as also to prevent sedimentation of surface water bodies, MSETCL will, where required, implement erosion control measures including among other measures: slope stabilization (rip/rap); avoidance of excavation during monsoon/rainy season; pit water discharge in a manner to avoid sedimentation of water bodies and wetlands; segregation and separate stockpiling of top soil; and spreading back of the topsoil after completion of work. Rocks and other construction waste will be disposed off at pre-selected sites or reused in slope stabilization or stream banks.

MSETCL uses breakers that contain SF6, a greenhouse gas with a very high global warming potential. The Company will further strengthen its SF6 program to: minimize SF6 loss/leakage to atmosphere; recycle and reuse SF6; and destruction of SF6, if it cannot be reused. Further, on account of system efficiency improvements, the Project will result in GHG emission avoidance. The Company will, under its SEHSMS, implement procedures to: identify and harness opportunities for improving energy efficiency of its Operations and thereby reduce GHG emissions; and (b) quantify the avoided GHG emissions.

The Company as a corporate policy adheres to internationally recognized standards (Indian Standards, British Standards, IEEE and IEC standards) in design and construction of facilities, laying of transmission lines, support infrastructure and in selection of equipment. Further, the Company endeavors to avoid habitations and densely populated areas while selecting route alignment. Moreover, the Company also adheres to clearance norms prescribed in Indian Electricity Rules for: (a) clearance above ground for lowest conductor; (b) vertical clearance from buildings; (c) horizontal clearance from buildings; (d) minimum clearance between lines crossing each other; and (e) minimum clearances prescribed for live equipment in outdoor sub stations. In view of the fact that often communities/habitations develop well after the transmission infrastructure has been constructed, MSETCL will for all communities resident within 200 m of any of its over-ground sections/facilities: (a) develop and implement a community awareness program; (b) develop a community emergency response plan; (c) communicate the community emergency response plan to the said communities; (c) link the community emergency response plan to district and state emergency response plan; (d) undertake periodic onsite and offsite training, mock drills including with participation of the said resident communities. MSETCL will ensure that EPC/Project contractor adopt good SEHS practices during construction. The Company will in particular ensure that its employees and EPC/Project contractors: train equipment operators and drivers in safe driving techniques; develop a materials movement plan to ensure that vehicle movement during construction has minimal impact on normal life patterns of nearby communities; undertake appropriate measures to reduce fugitive emissions from storage and transport of excavated earth and other construction material; restrict night time activities to low noise generating activities; use construction equipment with appropriate noise mufflers/provision for attenuation of noise; and periodically monitor noise levels in potentially affected communities/villages, and implement mitigation measures where required.



Where an influx of laborers is expected during the Project construction period, the Company will ensure that appropriate amenities/facilities for labor are provided by the EPC/Project contractors during construction. In this regard the Company will provide, or require its contractors to ensure that: to the extent possible, members of local community are employed as construction laborers; labor camps, have appropriate facilities and amenities including housing, toilets, washing and cleaning water, potable drinking water and cooking fuel; treated sanitary waste water meets IFC/WBG requirements prior to discharge; and potential host community impacts on account of influx of labor are assessed and managed. MSETCL's projects are not expected to exacerbate community exposure to disease due to changes in land/hydrologic or other terrestrial/air quality/hydrologic regimes. The Company will, in design and development of large sub stations, implement measures to ensure minimal disruption of natural drainage pattern and where unavoidable, will implement appropriate mitigation measures including culverts/diversion of storm water flows etc. However, MSETCL will require the EPC/Project contractor, where relevant and applicable, to implement measures to minimize risk of community exposure to disease due to influx of large pool of laborers.

MSETCL engages armed security personnel on its rolls and also sourced from reputed security service providers. MSETCL will, review IFC's Performance Standard 4 (PS 4) provisions on security personnel related aspects, and update the security procedure to ensure that: past records of security personnel employed is screened; security personnel have clear objectives and permissible actions laid out; security personnel are trained in avoidance of human rights violations, use of fire arms and handling various situations with clear procedures; security incidents are recorded, investigated and corrective action implemented; bonafide complaints against security personnel are investigated/disciplinary actions implemented; and there is a grievance mechanism for aggrieved members of community or employees, in the event of a violation of the code for security personnel.

MSETCL prefers to acquire government land for substations. However, Right of Way (ROW) is acquired for laying, operation and maintenance of transmission lines. ROW acquisition is undertaken along the route alignment on: 18m, 27 m, 35 m and 52 m wide strip of land for 66kV, 132 kV, 220 kV and 400 kV transmission lines respectively.

In ROW acquisition, while ownership of land vests with the land owner, the land owners forgo the right to: (a) build permanent structures anywhere within the ROW; (b) plant tall trees or undertake plantation activities within the ROW; and (c) land under tower footing may be diverted from past use. Where the land within ROW is used for agriculture, the land owners may continue to cultivate the land after the T-Line has been laid. However, where the land is used for tree plantations (fruiting or of timber variety), the land owners forgo the right to continue plantation activities within the ROW. In acquisition of ROW, MSETCL adheres to host country requirements of Indian Telegraph Act and Indian Electricity Act. The act provides for payment of tree loss and crop loss compensation. The compensation amount for damage to crops or loss of trees during construction (and during maintenance) is determined by horticulture department and Forest Department of Government of Maharashtra (GoM) for fruiting and timber/non fruiting trees respectively. The crop compensation value is arrived at based on the: (a) crop yield; and (b) recent market price of the produce in organized whole sale markets like Agricultural Produce Market Committee (APMC).

In case of loss sustained on account of felling of fruiting trees in the ROW, the Company will, in consultation with the horticultural department develop, for each of the species encountered in the region, a compensation framework based on: (a) balance productive life of the tree; (b) the expected fruit yield during the balance life; (c) price obtainable for the fruits based on recent prevailing prices in organized wholesale markets; (d) total obtainable timber from the tree over its productive life; (e) price obtainable for the timber; and (f) cost incurred by the tree owner, which is deducted from the compensation paid. In case of trees with only timber yield the farmer is allowed to take away the timber and compensation, as determined by the Forest Department based on girth and height of the tree, is also paid.

To assess the extent of crop and tree loss, MSETCL team together with the owner, 2 panch (representatives elected to Panchayat – the village level self government institution), and the local land record/revenue official prepare a detailed document (Panchnama), which describes the nature (crop and/or tree) and extent of loss (type of crop, details of the fruit bearing tree, prevailing price of the fruits and crop etc). The Panchnama is signed and witnessed by all. In case, several members of a HH are joint owners of a parcel of land, a NOC from all such joint owners not present is obtained. Compensation payment is made by a cheque drawn in favor of all the joint owners.

 While the Company endeavors to minimize involuntary resettlement, MSETCL will as part of the SEHSMS develop an entitlement matrix to, as applicable, mitigate adverse social and economic impacts from land acquisition or restrictions on affected persons' including informal settlers' use of land by: (i) providing compensation for loss of assets at replacement cost; (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the

informed participation of affected communities; (iii) improve or at least restore the livelihoods and standards of living of displaced persons; and (iv) improve living conditions among displaced persons through provision of adequate housing with security of tenure at resettlement sites.

MSETCL endeavors to minimize adverse impacts on biodiversity and plans the Transmission line alignment to avoid: (a) protected areas including wildlife sanctuary, national parks, reserved forests, gardens, nurseries, high tree areas and plantations; and (b) to minimize river, stream and canal crossings. The Company will as part of the SEHSMS develop procedures to protect and conserve biodiversity by avoiding habitat destruction or degradation particularly of natural and critical habitat as also protected areas; and to ensure access of communities to natural resources on which their livelihoods depend. Further, the Company will implement mitigation plans to minimize impacts due to: T-Line laying across rivers, streams, wetlands with aquatic or other fauna and in coastal zones with marine and mangrove areas; in coastal zone and laying of pipe in breeding areas; blasting activities in the vicinity of sensitive areas; and through forest/protected areas. The Company will plant 2 trees for every tree felled on account of the Project through a social forestry program, in consultation with and participation of local population, civil society organizations and forest department. Further, the Company will, in accordance with applicable legal and regulatory requirements, undertake compensatory forestation, in consultation with the local forest department.

While MSETCL's projects and operations are not expected to materially transform, degrade or impact lands and resources on which indigenous peoples are dependant, the Company will as part of the SEHSMS implement procedures to avoid adverse impacts of its Operations on communities of Indigenous Peoples, or when avoidance is not feasible, to minimize, mitigate, or compensate for such impacts, and to provide opportunities for development benefits, in a culturally appropriate manner particularly: (i) ensure that the development process fosters full respect for the dignity, human rights, aspirations, cultures and natural resource-based livelihoods of Indigenous Peoples; (ii) establish and maintain an ongoing relationship with the Indigenous Peoples affected by a the Company's project; (iii) foster good faith negotiation with and informed participation of Indigenous Peoples when projects are to be located on traditional or customary lands under use by the Indigenous Peoples; and (iv) respect and preserve the culture, knowledge and practices of Indigenous Peoples.

The Company has procedures in place to avoid, during route planning, monuments and structures of archeological importance, places of worship and cremation. The Company will as part of the SEHSMS implement measures to mitigate any adverse impact on cultural resources particularly put in place a chance find procedure including for finds of archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values, as well as unique natural environmental features that embody cultural values, such as sacred groves.

*PS2: Labor and Working Conditions:* MSETCL has 10,038 employees (as on May 31<sup>st</sup>, 2008) and in addition, a large number of contract labor is also engaged in its projects. While MSETCL currently manages and will continue to manage labor and working conditions as per MSEB Employees Service Rules ("Service Rules"), the Company is also in the process of preparing its Human Resource (HR) Policy and Manual. The HR Policy and Manual will essentially be based on the Service Rules. However, the Company will, in addition, also review IFC's Performance Standard 2 and incorporate its provisions into its HR Policy and Manual. The Service Rules include procedures for: employee grade structure; recruitment; performance management; increment and promotions; employee welfare; terms of employment including hours of work, shifts, emolument and benefits; eligible leaves and holidays; grievance redress; and standard of conduct, misconduct and disciplinary procedures. MSEB Employees Service Rules is generally consistent with PS 2 provisions and is publicly available (on the internet as well) in the local language. Any changes and updates are notified through circulars on notice boards and internet/intranet. All the employees of the Company are covered by employee unions. Contractors are required by the Company to ensure adherence to applicable labor laws. However, procedures to obtain assurance on contractor compliance with labor laws needs to be significantly improved. The Company will, as part of the HR manual, implement procedures to improve its processes to ensure contractor compliance with labor laws.

MSETCL has embedded occupational health and safety (OHS) in project design, and in operational and maintenance procedures, which includes a work permit system. However, adherence to appropriate safety norms (both for employees and contract labor engaged in projects, operations and maintenance) needs to be further improved including provision of detailed guidance on Good International Industry Practices (GIIP) in the procedures. Further, a program on employee and contract labor training on OHS aspects needs to be implemented. The Company also needs to improve incident reporting, investigation and corrective action procedures including for contract labor engaged on project sites. The Company will, as part of the SEHSMS, put in place an OHS management system based on GIIP, to manage occupational health and safety on an ongoing basis.



### **Client's Community Engagement:**

*Community consultation, disclosure and grievance redress:* MSETCL, as part of the ROW acquisition process notifies the route alignment through newspaper advertisements and notices to individual households whose land will be used for tower location. The Company, together with the Competent Authority receive, resolve or reject concerns/grievances/objections raised by affected households. The Company officials, prior to commencement of construction work also meet with representatives and affected persons from villages in the vicinity of the route alignment. Each affected household is contacted in the panchnama preparation process. However, there is a need to further strengthen the community engagement process particularly the procedures to obtain community concerns and expectations early in the project cycle, and address these in project design. Accordingly, MSETCL will, as part of the SEHSMS, implement procedures to ensure that affected communities are appropriately engaged on issues that affect them through: (a) prior disclosure of relevant information in a timely and culturally appropriate manner; (b) effective and ongoing consultation with affected communities; and (c) implementation of a grievance redress mechanism.

### **Local access of project documentation**

MSETCL's Social and Environmental Policy including measures MSETCL proposes to implement to meet IFC Performance Standards, have been disclosed through MSETCL's website (<http://www.mahatransco.in/>) and are available at each of MSETCL's divisional offices. Further, MSETCL will disclose through its website full documentation of its SEHSMS as and when it is finalized.

### **Inquiries and comments about the Project may be directed to:**

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### **Approval Status:**

