ENVIRONMENTAL, OCCUPATIONAL HEALTH & SAFETY, AND SOCIAL (EHSS) MANUAL

Energy Efficiency Services Limited (EESL)

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History of amendments

The latest versions of the EHSS Manual, SOPs and Documentation Formats must be used at all times. In order to ensure that the EHSS manual maintains a record of the amendments made, this page needs to be updated whenever there is a change in the version number of the documents.

S. No	Date of amendment	Version	Details of amendment
1.	18.04.2017	01	Initial launch of the EHSS Manual, SOPs and Documentation Formats
2.	04.12.2018	02	Amendment in line with ESSA & EMF
3.	21.02.2021	03	Revision of EHSS manual - incorporation of EHSS aspects for the Smart Meter and Decentralized Solar Program

Prepared by **Approved by**

Abbreviations and references

BEE	Bureau of Energy Efficiency	CDM	Clean Development Mechanism
CFL	Compact fluorescent lamp	DISCOM	Distribution Company
CPCB	Central Pollution Control Board	DSM	Demand Side Management
EMP	Environment Management Plan	EPA	Environment Protection Agency (US)
FTL	Fluorescent tube light	IFC	International Finance Corporation
ICL	Incandescent lamp	E&S	Environment and Social
EHSS	Environmental, occupational health and safety and social	HPSV	High pressure sodium vapour
ESCO	Energy service company	kWh	Kilo watt hour
KPI	Key Performance Indicator	MH	Metal halide
LED	Light emitting diode	SPCB	State Pollution Control Board
MoEF	Ministry of Environment, Forests and Climate Change	SOP	Standard Operating Procedure
SDU	Sustainable Development Unit	ESSA	Environmental & Social Systems Assessment
EMF	Environment management Framework	SDA	State Designated Agency
ADB	Asian Development Bank		

1. INTRODUCTION

EESL, established in 2009, is a Joint Venture of NTPC Limited, PFC, REC and POWERGRID under Ministry of Power (MoP), Government of India (GoI) to facilitate the implementation of energy efficiency projects in India. Our company takes on multiple responsibilities including that of an ESCO, a consultancy organization for facilitating Clean Development Mechanism projects and as a resource centre for capacity building of SDAs, utilities & financial institutions. We work with multiple vendors and sub-contractors for project implementation, improvement of management practices and project monitoring. We believe that it is essential for us to identify, mitigate and manage the environmental, health and safety and social impacts of our direct and indirect operations. We emphasize that an effective Environmental, Occupational Health & Safety, and Social (EHSS) management system enables us to focus on the potential risks our company is exposed to, and to implement preventive and corrective mitigation and management measures.

This EHSS manual or guideline outlines our company's vision, objectives, management system and governance controls on these subjects. Through this guideline and associated standard operating procedures, we intend to integrate the environmental, social, occupational health and safety principles of Indian national and state regulations, IFC Performance Standards and other international guidelines with the working strategy of our company. We are cognizant of a number of sector and regional best practices and have designed our standards to be in line with them. We also recognize that there may be certain EHSS requirements that may come up from time to time and we shall be committed to assess the feasibility of their integration into our standards from time to time. Sustainable Development Unit (SDU) (EHSS Department) will update the manual for existing and new programs. The revision of the EHSS manual will be carried out as per the requirement preferably on bi-annual basis for new programs (Program under implementation undergoing at least second round of procurement) as well as existing programs under implementation. Document can also be updated on need basis for certain projects or programs. Updation shall be carried out during the RFP stage of the program to aid EHSS manual's operationalization during project implementation.

1.1 *OBJECTIVE OF THE EHSS MANUAL*

The main objective of this manual is to identify and mitigate EHSS risks both in office and on-site operations of our company. This pertains to our own operations and operations of our vendors and their sub-contractors thereof. The identification and mitigation of EHSS risks is also interlinked with their integration into our company's decision-making processes for new and existing projects. One of the objectives of this manual is also to prescribe the monitoring mechanism for its operationalization and also to provide methodology and framework for its review/updation.

The EHSS requirements in this manual shall be adhered to by our company, our vendors and their sub-contractors thereof, as a minimum. Over and above this, our company, our vendors and their sub-contractors should meet all the national and local regulatory requirements, as applicable from time to

time.

Apart from that, other objectives of the manual are given below:

a. Addressing comprehensive program planning and implementation management
b. Addressing issues emerging from climate vulnerability and disasters
c. Addressing issues emerging on social management

1.2 APPLICABILITY OF THE EHSS MANUAL

Since the date of first approval, the manual applies to our company for all our operational and managed sites. This also includes ongoing and current projects, new projects, corporate offices, and all employees, contractors, consultants and service suppliers. Compliance to the requirements in this manual is applicable to the entire lifecycle (including planning, assessment, exploration, evaluation, design, development, operation and closure) of the project/vendor/sub-contractor's tenure of work with us.

The EHSS manual is applicable to all our vendors, sub-contractors and their lower tiers. Vendors appointed by us will be liable to cascade the requirements down to the sub-tiers of their supply chain.

In case a vendor or its sub-contractor wishes to follow a different EHSS manual, prior written permission must be sought from the Sustainable Development Unit/EHSS head of the company.

1.3 STRUCTURE AND USE OF THE MANUAL

This manual is supported by the following two document sets as depicted in Fig 1.

- Standard Operating Procedures (SOP) applicable for different tasks, business processes or risk areas.
- Documentation Formats (DF) for preparation and maintenance of important records.

The manual should be read in conjunction with the most updated versions of the SOPs and documentation formats for different sub-tasks at all times, as applicable.

Figure 1: EHSS Manual Documentation Structure

This manual is intended to provide guidance on the basic framework for sound and sustainable EHSS management and its continual improvement across all our operations. These standards are to be followed along with SOPs as good practice and mitigate EHSS risks in operations. The list of SOPs and documentation formats is given below:

Table 1: List of SOPs

List of Standard Operating Procedures (SOPs)		
SOP 1	EHSS Risk Management	Ver. 01
SOP 2	Waste Management	Ver. 01
SOP 3	Fire and Emergency preparedness procedures	Ver. 01
SOP 4	Electrical Safety	Ver. 01
SOP 5	Work at Height and Fall Prevention	Ver. 01
SOP 6	Portable tools and equipment	Ver. 01
SOP 7	Traffic Safety	Ver. 01
SOP 8	Personal Protective Equipment	Ver. 01
SOP 9	Work Permit system	Ver. 01
SOP 10	Safe Lifting Operations	Ver. 01
SOP 11	Health and Safety audit procedure	Ver. 01
SOP 12	Criteria for selection of warehouse	Ver. 01
SOP 13	Special Conditions of use of new generation heavy equipment and vehicles	Ver. 01
SOP 14	Emergency responses against disaster, accidents, breakages and collapse on site/transport/storage	Ver. 01
SOP 15	Work Closeout Procedure	Ver. 01
SOP 16	Project Screening and Categorization	Ver. 01
SOP 17	Air Pollution Control	Ver. 01

Table 2: List of Document Formats

List of Document Formats		
DF 1	Legal checklist	Ver. 01
DF 2	Accident/ Incidence Reporting	Ver. 01
DF 3	EHSS Risk Mitigation plan	Ver. 01
DF 4	Sample Project Report	Ver. 01

DF 5	**Checklists (prepared in line with requirements under safeguard documents by various MDBs):** A. Project Screening Checklist B. Resettlement Framework Checklist C. Environmental Sensitivity Checklist D. Rapid Environmental Assessment (REA) Checklist E. Waste Monitoring Checklist F. Solar Safeguard Screening Checklist	Ver. 01

1.4 *EHSS GOVERNANCE STRUCTURE*

Environment, Health and Safety & Social (EHSS) management system provides the structure for implementing proactive sustainable business practices associated with EESL's products and operations. The EHSS Management System helps to:

a) Ensure compliance with both internal and external EHSS requirements
b) Identify and manage EHSS risks
c) Drive continuous improvement
d) Support implementation and review of our Corporate Environment, Health & Safety and Social Policy.

The Sustainable Development Unit (SDU) shall perform the implementation of EHSS management system in EESL and will be primarily responsible for coordinating, streamlining and mainstreaming environment and social aspects in EESL's various operations and regularly reporting to EESL management on key issues. SDU will look at EHSS aspects from project inception till its impact assessment studies. It shall include project screening & categorization, implementation of necessary guidelines during project execution, safe operation & maintenance practices and Monitoring, Reporting & verification (MRV) of the project. SDU will directly report to the Managing Director and will closely monitor the progress on risk identification, evaluation, mitigation and impact evaluation of EHSS issues. It shall be the responsibility of the head of EHSS/SDU department to oversee the EHSS risk mitigation process from time to time.

The EHSS governance structure is embedded in the current structure of the organization in the form of Sustainable Development Unit (SDU) as depicted in Fig 2 and 3.

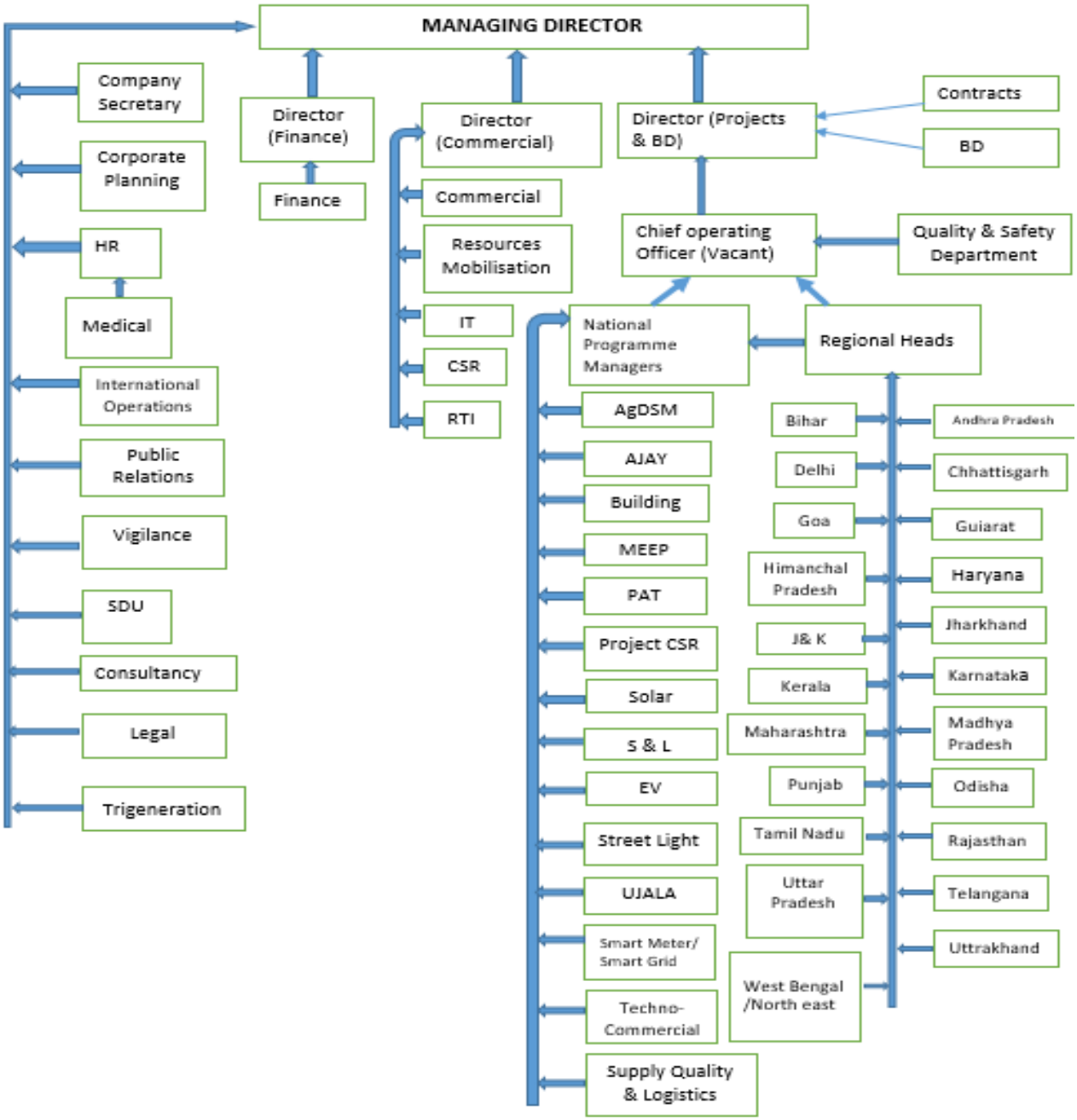

Figure 2: Organization Chart of EESL having hierarchical position of SDU

Further, the SDU is sub-divided by functional areas amongst following specialist officers. Roles & Responsibilities of these SDU specialists are mentioned in ***Appendix 6***. These specialists shall play the key role in EHSS implementation and monitoring program's *viz.* planning, dissemination of information to the field staff, collecting information, identifying gaps and mitigation measures and reporting progress to EESL management. The key specialist/expert positions under the SDU are as follows:

a) Environment Specialist
b) Social (& Gender) Specialist
c) Training and Capacity Development expert

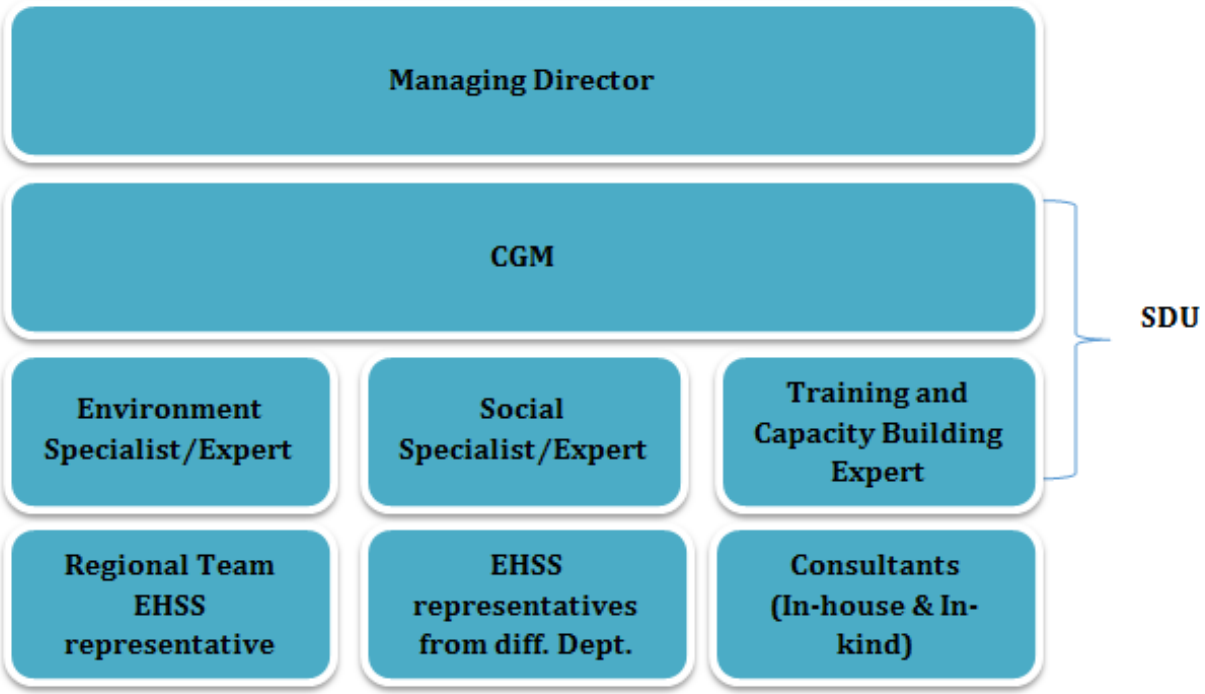

Figure 3: Departmental structure of SDU

Along with the specialist officers, regional staff identified for carrying out daily operations and checks & monitoring on EHSS fronts at operational areas. Program implementations as well as O&M practices are to be monitored & supervised by the regional staff. Regional Staff shall lead the EHSS implementation at the project sites and will be responsible for reporting to SDU corporate office team members. Also, there will be EHSS representatives from various departments who will support SDU to inculcate EHSS guidelines in the project planning. SDU would also take support from consultants, hired from time to time as well as in-kind support from various stakeholders (e.g. ADB, World Bank, KfW consultants). Overall roles & responsibilities of the department shall include but not be limited to activities mentioned in Table 3.

Table 3: Detailed Roles and Responsibilities of SDU

▪ Oversee the EHSS risk mitigation and management system at EESL**;** ▪ Responsible for compliance of EESL, vendor and subcontractor (multiple tiers) operations with national and state regulations, IFC Performance Standards and EESL's EHSS manual**;** ▪ Review and report on the progress of EHSS risk management to the MD, investors, government and public stakeholders, and other parties, as applicable; ▪ Continuously review EHSS risks and impacts, approve the mitigation measures**;** ▪ Conduct spot checks to identify gaps and oversee remedial measures**;** ▪ Identify administrative and project departments within EESL whose representatives must be part of the SDU/EHSS department;

- Review proposals on proactive and remedial EHSS measures and forward the approved ones to relevant departments for further approvals and implementation;
- Review the need for on boarding specialist advisors and take necessary action;
- Continuous identification of EHSS risks in EESL's own and contracted operations;
- Evaluation of the identified risks and corresponding impacts;
- Integration of the identified risks, mitigation and monitoring methods into the EHSS manual and linked documents, if not already incorporated;
- Undertake regular monitoring of E&S management plans through review of progress reports submitted by various departments and vendors or through self/third-party EHSS audits, as appropriate;
- Identify the E&S training needs of employees, vendors and their subcontractors thereof;
- Coordinate the approved E&S trainings and maintain the training information;
- Collect the EHSS data from office locations, regional offices and facilities owned/rented by EESL for business activities;
- Implementation of the EHSS mitigation and management plan within their operations (EESL, vendor and levels of sub-contractors);
- Providing regular monitoring and update reports, as required;
- Proactive evaluation of the EHSS risks and corresponding impacts in their operations (EESL, vendor and levels of sub-contractors);
- Participate in update, review meetings and audits pertaining to EHSS;
- Carry out EHSS induction trainings in new projects or programs: Training to be provided at each location to regional staff and other stakeholder like contractors, labours, general public etc. The same shall be carried out by capacity building expert, consultants or the regional EHSS staff;
- Dissemination of project best practices, lesson learnt & EHSS know-how;

The recruitment and employment terms of the EHSS/SDU department staff will be governed by standard EESL HR policies applicable to all other employees. The HR department is responsible for preparation of job descriptions for the recruitment of employees in the EHSS/SDU department.

2 COMPANY OVERVIEW AND DESCRIPTION OF PROJECT ACTIVITIES

2.1 *ABOUT EESL*

The purpose of EESL is to create and propagate energy efficiency in the country, beginning with energy efficient appliances. One of our core objectives is to support the National Mission for Enhanced Energy Efficiency, under the National Action Plan on Climate Change. The company has evolved a strategic approach to stimulate the implementation of energy efficiency programs by assessing market conditions and barriers. This is undertaken through:

- Creating market access in public and private facilities through handholding, information dissemination and capacity building of facility owners
- Developing projects for various sectors addressing specific barriers and challenges
- Designing risk mitigation measures to address technical, financial and regulatory risks
- Enabling financing at reasonable rates for project implementation to attract private investment
- Aggregating projects to attract the most economical value for facility owners
- Developing model templates of agreements, payment security, etc. that are necessary for project implementation
- Disseminating best practices to stakeholders so that replication can occur
- Providing transaction support to facility owners to implement projects
- Installation of EE equipment;
- Enhance economic value of improved quality of life for consumers.

2.2 *STREET LIGHTING NATIONAL PROGRAM (SLNP)*

Under the street lighting program, the Bureau of Energy Efficiency (BEE) pursued energy efficiency opportunities in 269 Urban Local Bodies (ULBs) across 15 states. It has been estimated that retrofitting the entire conventional streetlights with LEDs could result in potential annual savings of 4300 million KWh, which is about 50% of the total energy consumed. Under SLNP, replacement of 15 million conventional street lights will result in considerable energy and cost savings for municipalities annually. Keeping future generations in mind, the revolutionary step is taken to conserve as much energy as possible. The initiative is part of the Government's efforts to spread the message of energy efficiency in the country.

Furthermore, the operational optimization could lead to an additional 15-20% energy savings. In order to implement this program, we are adopting two models:

2.2.1 Annuity model

In this model, we receive an annuity payment for the project duration (5 to 7 years) to recover the project capital cost, interest cost, equity returns, project management and annual maintenance fee. This annuity payment is lower than the savings achieved by the urban utility / government in energy

and maintenance cost incurred in the baseline scenario.

2.2.2 Project financing model

In this model, we take an equity position in a street lighting project implemented by a private or public entity. The private or public entity signs the ESCO agreement with the urban utility or the government.

The program is implemented in partnership with Municipal Bodies and local Electricity Boards. We appoint a lighting vendor for end-to-end replacement of existing streetlights with LED lights. The dismantled lights are either deposited with the Municipal body or are purchased back by the lighting vendors through buy-back agreements. Refer Fig 4 for an overview of the street lighting project structure.

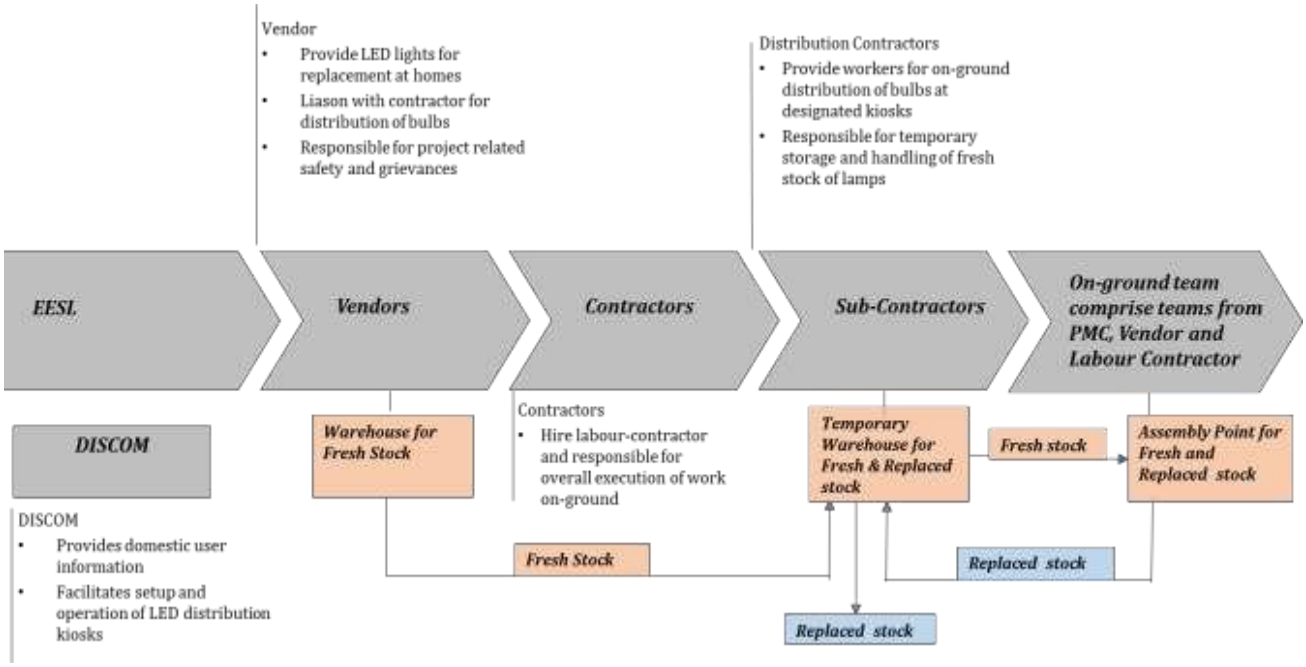

Figure 4: Project Framework of Street Lighting National Program (SLNP)

2.3 UNNAT JYOTI BY AFFORDABLE LEDs FOR ALL (UJALA)

The Government of India, on 5th January, 2015 launched the UJALA to provide LED bulbs to domestic consumers with a target to replace 770 million incandescent/CFL3 bulbs with LED bulbs by March, 2019. For domestic lights, EESL service model enables domestic households to procure LED lights at an affordable price of $0.154/- each and the balance can be paid on easy installment from their electricity bill.

UJALA scheme aims to promote efficient use of energy at the residential level; enhance the awareness of consumers about the efficacy of using energy efficient appliances and aggregating demand to reduce the high initial costs thus facilitating higher uptake of LED lights by residential users. Every domestic household having a metered connection from their respective Electricity Distribution Company is eligible to get the LED bulbs under the UJALA Scheme. UJALA LED bulbs are being distributed through special counters (kiosks) set up at designated places in a city instead of making it available at retail stores. If the LED bulb stops working due to technical defects, EESL provides free-of-cost replacements for a period of three years. All replacements are done through designated replacement/ distribution kiosks. During the distribution period these LEDs can be replaced from any of the nearest UJALA kiosks. Post distribution, there are state specific replacement drives that will indicate the retails shops/locations where replacement will be available.

2.3.1 Standard Offer Program

In this program, the government or distribution agency procures demand side resources at a pre-determined price. The program treats demand side resources as energy produced by consumers and the utility pays for this energy and/or demand reductions. This program is comparable to feed-in-tariffs (FITs) used to promote renewable energy. In this mechanism, we recover the project implementation cost and overheads from the utility / government based on energy saved during the period and the Standard Offers Price for the given period.

2.3.2 On-bill financing

Under this mechanism, the cost of implementation is recovered from consumers as a component of their electricity bill over a period of time. The project development cost and other related costs in this model are borne by the distribution utility / government. The utility may charge this additional cost to the consumers as part of their ARR filings.

The DSM based efficient lighting program UJALA is run in partnership with the local electricity distribution companies. We appoint a vendor for distribution of LEDs to households in the participating states. Refer Fig 5 for an overview of the UJALA structure.

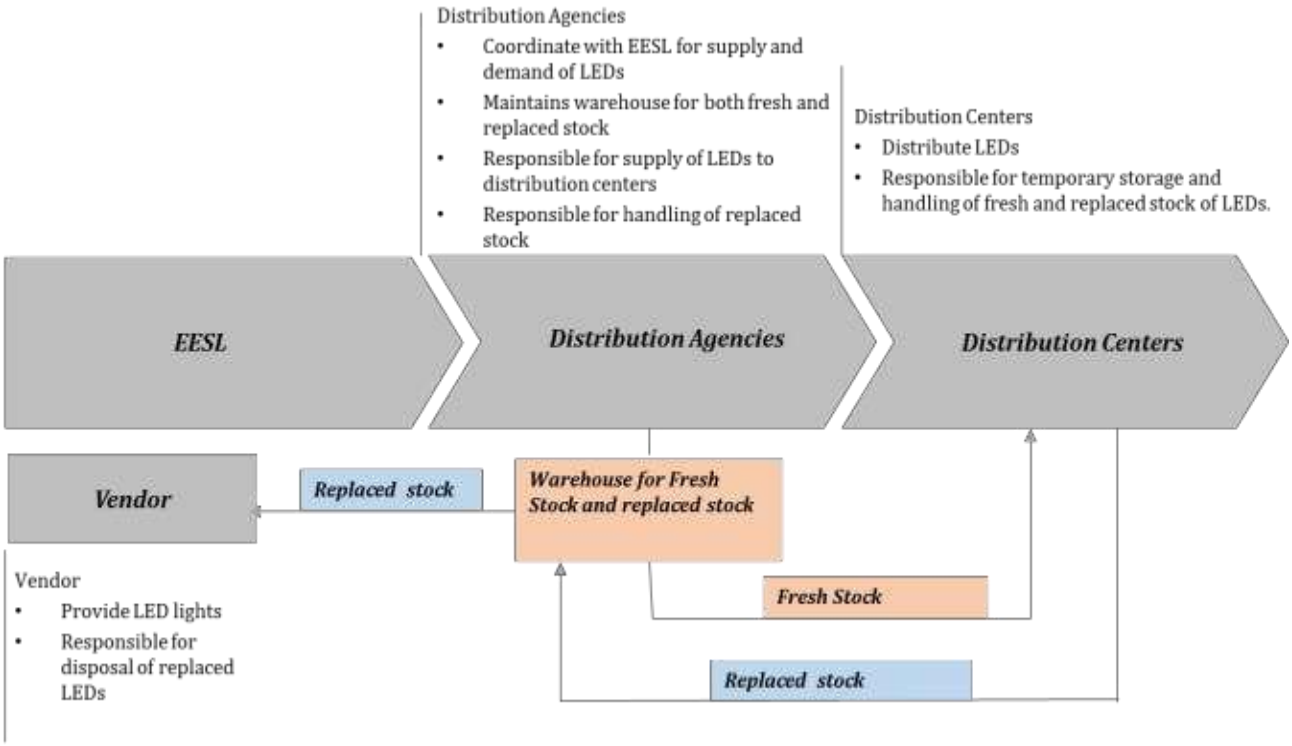

Figure 5: Program framework of UJALA

2.4 SMART METER NATIONAL PROGRAM

Smart Meter National Programme aims to replace 25 crore conventional meters with smart meters in India. Smart meters are connected through a web-based monitoring system which will help to reduce commercial losses of utilities, enhance revenues and serve as an important tool in power sector reforms. EESL business model to roll out smart meters is revamping the current manual system of revenue collection, which leads to low billing and poor collection efficiencies. This program is being implemented under the BOOT model on cost plus approach, which means all Capex / Opex, is done by EESL and the states/ utilities are not required to invest upfront. The program is being implemented by EESL through its subsidiary (M/s Intellismart, a JV of NIIF and EESL).

EESL has signed MoUs/Agreements for smart meters with various states. EESL has plans to augment the implementation of the program on PAN India basis.

2.4.1 Project Operation Model

EESL procures, deploys the meters and provides O&M (Operation & Maintenance) for a pre-determined project period. This program is being implemented by EESL in various states. There are no

upfront capex requirements from DISCOMs or state governments and all investments for installing and operating the smart meters over the years, along with complete digital backend IT systems for remote operations, is being undertaken by EESL. The DISCOMs are required to pay the monthly lease rentals only and that too out of the savings they make due to smart meters, over the operations period.

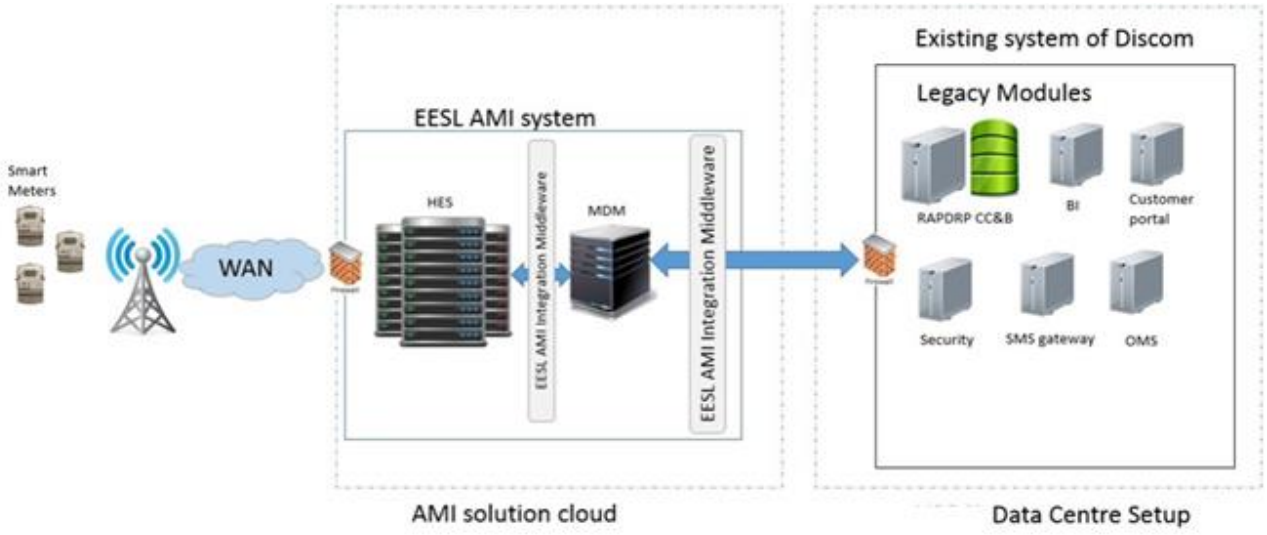

Figure 6: Smart Meter Operation framework

2.5 SOLAR (DECENTRALIZED SOLAR) PROGRAM

India, with its large population and rapidly growing economy, needs access to clean, cheap and reliable sources of energy. India lies in the high solar insolation region, endowed with huge solar energy potential with most of the country having about 300 days of sunshine per year with annual mean daily global solar radiation in the range of 4 – 7 kWh/m^2/day.

EESL will develop small solar PV power plants with a minimum capacity of the solar project being 0.3 MW on open/vacant/unused lands near to/within the premises of existing and/or new electric substations. The program involves identification of potential substations with 2 acre (approx. 8094 sq. m) or more open/ unused land, signing of Power Purchase Agreements (PPA) and other work contracts as applicable, procurement, supply, installation, construction, testing and commissioning of complete system including associated civil, mechanical and electrical works for grid connected small power plants. The Operation & Maintenance of the power plants are to be executed for a period of 25 years.

2.5.1 Revenue Model

Electricity tariff is determined by the Central Electricity Regulatory Commission (CERC) or State Electricity Regulatory Commission (SERC) as applicable on case to case basis and is derived by

accounting the Power Purchase Cost, Capital investment, Technical & Commercial loss, Interest and Finance charges, Return on Investment, Operation and Maintenance expenses, replacement costs and overheads. Subsidy support from the Central and respective State Governments on the total capital investment can influence the affordability and scalability of the projects. Subsidy support can be in the form of upfront capital funding or grant or low interest loans, generation based or operational incentives etc. and are essential for supporting the mini grid development.

EESL will implement the power plants and maintain for a period of 25 years. The energy generated from the projects will be sold to DISCOM at a tariff as identified for the project / as per the tariff in the Power Purchase Agreement (PPA). The long term Power Purchase Agreement shall be signed between the local DISCOM and EESL for purchase of power for the period of 25 years.

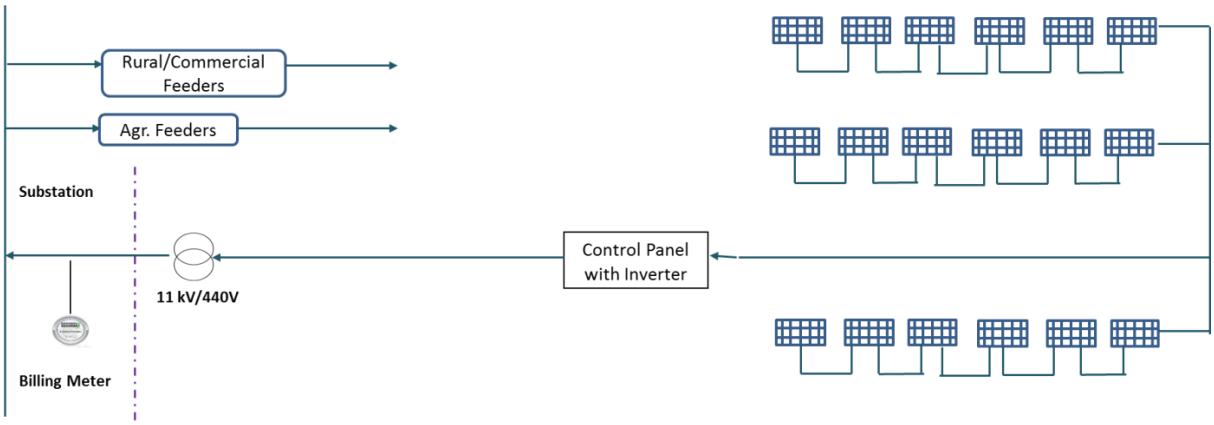

Figure 7: Typical system configuration of proposed small solar power plants

2.6 KEY EHSS RISK AREAS

Hazard identification and risk assessment is the first step towards identification and evaluation of risks. The EHSS department undertakes risk assessment on periodic basis by referring to **SOP 01– EHSS Risk Management and using the format DF 03 – EHSS risk management plan.**

The identified risks are categorized as extremely high, high, medium and low based on the likelihood of occurrence (probability of risk) and quantification of impact, as depicted in Fig 7. Risk assessment depends on:

- Hazard identification
- People and processes involved
- Risks and precautions

- Liability on EESL (regulatory, financial, technical, operational, reputational)
- Risk mitigation measures.

While categorization of risks, the existing mitigation plans must be taken into account and residual risks must be considered for corrective action. The risks identified have been presented in table 3 below:

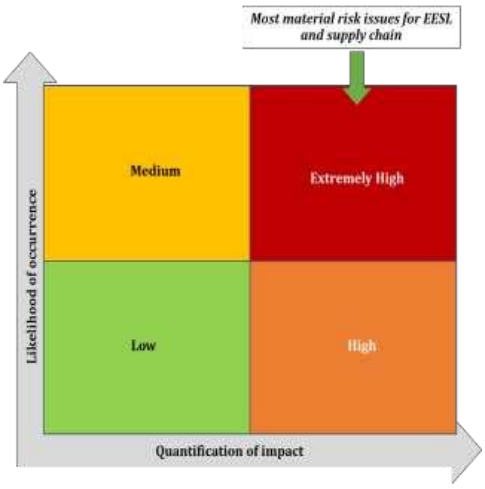

Figure 8: Risk Assessment matrix

Table 4: Impact prediction for EESL programs

S. No	Description of the risk area	Consequence	Likely adverse impact on EESL	Applicability to projects				Rating
				SLNP	UJALA	SMNP	Solar	
1.	Environment issues ▪ Air Emissions ▪ Noise ▪ Water ▪ Soil ▪ Ecology & Biodiversity ▪ Waste management	Impact on environment in terms of air, water & soil pollution due to inadequate project planning and implementation issues. This is caused by: ▪ Gaseous emissions during transport. ▪ Oil spillages ▪ Machine operations ▪ Faulty/broken LEDs (waste) ▪ Wastes generated e.g. Replaced Meters/Panels, Used Oil etc. ▪ Loss of Trees. (To be read in conjunction with section 6.3 of EMF)	Regulatory non-compliance Financial losses	√	√	√	√	High in consideration to Waste Management during operation and end of life phase
2.	Handling of replaced stock/meters/ panels in projects	Proper handling of replaced stock of street lights/LED Bulbs/ meters/panels is important. Improper handling of bulbs may lead to breakage which can result in • mercury poisoning • lead poisoning	• Regulatory non-compliance. • Financial loss – fines & penalties for regulatory non-compliance. • Reputation damage. • Loss &	√	√	√	√	Extremely high

S. No	Description of the risk area	Consequence	Likely adverse impact on EESL	Applicability to projects				Rating
				SLNP	UJALA	SMNP	Solar	
			damage to neighborhood / community.					
3.	Safety practices at site level	Workers should follow proper working practices like usage of PPEs, proper equipment and tools otherwise following incidents may occur: • Accidents or fatalities while working at height • Accidents or fatalities due to electrical hazards • Traffic accidents as a result of working without adequate barricading or signage's	• Loss to life and property • Workers and third parties/ neighborhood. • Financial loss – medical expenses, compensation. • Reputation damage	√	√	√	√	High considering serious injury or fatality of workers
4.	Social issues of sub-contractors like minimum wage violation, working overtime, lack of insurance etc. Heritage & Culture. Other Sensitive areas.	Labour related problems may occur due to violation of labour rights, lack of employee benefits and poor working conditions. Impact of project activities on historical and culturally important places and cultural values Impact of project activities on other	• Regulatory non-compliance • Financial loss – fines & penalties for regulatory non-compliance • Delay in timelines due to worker strikes/agitation • Reputation damage	√	√	√	√	High

S. No	Description of the risk area	Consequence	Likely adverse impact on EESL	Applicability to projects				Rating
				SLNP	UJALA	SMNP	Solar	
		sensitive areas, tribal areas, public places etc. (To be read in conjunction with section 6.3 of EMF)						
5.	Emergency preparedness and inadequate fire control measures at offices and project warehouses.	Improper emergency preparedness and inadequate fire control measures increases the potential for significant damage to assets, inventory and involve losses. In addition, health and safety or workers is a serious concern. This might lead to critical injuries to workers and damage to the equipment stored in the event of fire.	• Loss to life and property– Workers and neighborhood • Regulatory non-compliance • Financial loss – fines & penalties for regulatory non-compliance • Delay in timelines due to asset and property damage • Reputation damage	√	√	√	√	High, considering the importance of emergency preparedness.
6.	Proper accident/incident reporting system	Need for a formal mechanism for reporting accidents/ incidents related to health and safety at the site. Improper incident reporting system leads to inadequate assessment of the EHS gaps in the operating procedures.	• Regulatory non-compliance. • Loss to life and property – Workers and neighborhood. • Financial loss – medical expenses, compensation.	√	√	√	√	High

S. No	Description of the risk area	Consequence	Likely adverse impact on EESL	Applicability to projects				Rating
				SLNP	UJALA	SMNP	Solar	
			• Reputation damage					
7.	Grievance Redressal mechanism	It is important to have a formal grievance redressal mechanism for vendors and sub-contractors to avoid discrimination and corruption issues.	• Delay in timelines due to internal issues • Possible financial loss – compensation, legal fees • Reputation damage	√	√	√	√	Medium

The EHSS department/SDU undertakes risk identification to update the risk prioritisation matrix on a regular basis. The EHSS department also prepares a legal checklist to list the national, state level and regional regulations applicable to the company and specific projects. This checklist will be updated by the EHSS department at the following frequency:

- Launch of a new national, state, local regulation, act, notification, revision or government order
- Launch of new projects by EESL
- Launch of existing projects in new geographies (states)

Refer DF 01 – Legal checklist for a format for preparing and maintaining the list of applicable EHSS Regulations.

2.7 ASSESSMENT OF ENVIRONMENTAL IMPACTS

This section mainly focuses on various phases of the project such as planning, transportation, storage, installation and maintenance. Before assessing the impacts from each of these project phases, it is necessary to understand the various types of impacts from these projects in general.

Following table presents the summary of general impacts anticipated from the proposed projects under EESL. After understanding the project components following impacts are identified for various stages for UJALA, SLNP, Smart meter, solar programs.

Table 5: Environmental Impact Matrix-UJALA

PARAMETER	IMPACT
Project Planning	
Ecology and Biodiversity	Warehouse or office selection at or near to eco-sensitive areas.
Occupational Health and Safety	Warehouse or office selection at a building or complex, where Emergency evacuation, Fire safety facility and Safety Measures are not according to the rules.
Transportation	
Air Emissions	1. Gaseous emissions per liters of fuel combusted against per kilometer of vehicle travelled; 2. Dust emission due to vehicular movement
Noise	Noise generated by the vehicles on various sensitive receptors during transportation
Soil	Impact on soil due to disposal of used oils and spillage of fuel/oil from vehicles during maintenance
Water	Oil contamination due to washing wastewater generated during vehicle washing
Waste	1. Broken LED during transport 2. Vehicular accidents causing LED bulb waste on roads or in water bodies
Ecology and Biodiversity	Disposal of used oil and other waste near to sensitive receptors (Such as rivers, estuaries, mangroves etc.)
Sensitive areas	Impact of project activities on sensitive areas, public places
Occupational Health and Safety	Chances of Incident and Accident due to use of improperly maintained vehicles and driving by untrained drivers
Warehousing	
Air Emissions	1. Use of back up diesel generator for the facility; 2. Air emissions from the burning of PCBs due to the accidental fire event;
Noise	1. The noise generation is expected as a result of vehicular movement, loading-unloading activities 2. Use of DG set for power back up
Soil and Water	1. The soil / water may get contaminated due to oil spill or leakage of fuel from vehicles and Diesel storage areas; 2. Sewage generated by workers
Waste	Waste generation from faulty/broken LED, maintenance of DG set
Occupational Health and Safety	1. Injury due to the accidental fire event; handing of broken lamps Fire risk due to storage of diesel for the back-up DG set;

PARAMETER	IMPACT
	2. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 3. Covid 19 protocols for safety
Temporary Storage at local Kiosks/Distribution Centers	
Air Emissions	In the event of fire, the releases of toxic material from burning of PCBs used in lamps
Water and Waste	1. The faulty/broken LED lamps during logistics or faulty lamps returned by consumers; 2. Sewage generated by workers/ consumers
Ecology and Biodiversity	Impact of kiosk activity on ecology and biodiversity
Occupational Health and Safety	1. Fire safety; Workers health, 2. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers3. Covid 19 protocols for safety

Table 6: Environmental Impact Matrix-SLNP

PARAMETER	IMPACTS
Project Planning	
Ecology and Biodiversity	1. Tree cutting/pruning during installations of LED lamps/ poles; 2. Impact of illumination on the ecologically sensitive areas (Bird migratory paths, wetlands, nesting areas, breeding areas) 3. Light pollution
Socio-Economic	1. Location of warehouse may affect daily life of community members 2. Impact of project activities on daily life of community, public places,
Heritage and Culture	Impact of project activities on historical and culturally important places and cultural values
Resource usage	Use of fuel
Occupational Health and Safety	Safety considerations during transportation, warehouse selection, installation and maintenance.
Transportation	
Air Emissions	1. Gaseous emissions per liters of fuel combusted per kilometer of vehicle travelled; 2. Dust emission due to vehicular movement
Noise	1. Impact of noise from the vehicles on various sensitive receptors during transportation
Soil & Water	1. Disposal of used oils and spillage of fuel/oils from vehicle during maintenance 2. Oil contamination due to washing wastewater generated

PARAMETER	IMPACTS
	during vehicle washing
Waste	1. Broken LED during transport 2. Vehicle accidents causing LED bulb and luminaries/ other bulbs and luminaries waste on roads or in water bodies
Ecology and Biodiversity	Disposal of used oil and other waste near to sensitive receptors (such as rivers, estuaries, mangroves etc.)
Other Sensitive areas	Impact of project activities on other sensitive areas, public Places
Warehousing	
Air Emissions	1. Use of back up diesel generator for the facility; 2. Air emissions from the burning of PCBs due to the accidental fire event;
Noise	1. The noise generation is expected because of vehicle movement, loading-unloading activities 2. Use of DG set for power back up
Soil and Water	1 The soil / water may get contaminated due to oil spill or leakage of fuel from vehicles and Diesel storage areas; 2. Sewage generated by workers/ consumers
Waste	Waste generation from faulty/broken LEDs, maintenance of DG set
Occupational Health and Safety	1. Injury due to the accidental fire event; handing of broken lamps 2. Fire risk due to storage of diesel for the back-up DG set; 3. Fire and hazards involving storage of old LED/Other lamps which has potential for toxic release due to content of heavy metal and other hazardous materials; 4. Lack of access to essential facilities such as toilets, rest area and hand wash can impact the health of workers 5. Covid 19 protocols for safety
Installation and Maintenance	
Air Emissions	1. Any construction activity may result in release of pollutants like NOx, SO2 gases and Particulate Matter including tail pipe emissions from the construction vehicles and machineries; 2. Diesel based power generator (DG Set) used on site would be a potential source of air emissions; 3. Open burning of solid waste onsite by labours;
Noise	1. Noise from the vehicles on various sensitive receptors during transportation 2. Noise from DG set operation during pole erection
Soil	1. Disposal of used oils and leakage of fuel from vehicle during maintenance
Water	1. Oil contamination due to washing wastewater generated during vehicle washing 2. Loose soil may get washed into water bodies during rains

PARAMETER	IMPACTS
Waste	1. Generation of Hazardous wastes (due to mercury/heavy metals/toxic gas content in old lamps); 2. Generation of hazardous waste in the form of paint/ solvent container and rags 3. Generation of e-waste from broken/faulty LED lamps while replacement 4. Potential generation of excavated soil, demolition waste (construction debris), waste wood, waste metals, cables, insulations, plastic, other demolished utilities if any, removal of parts of existing structures etc.
Ecology and Biodiversity	The potential disturbance to tree species. In some cases, the tree cutting or pruning may be required for access to existing street lights and for replacement activities.
Socio-Economic	1. The additional vehicles coming to the site may affect existing traffic patterns and increase potential for accidents. The noise and air emissions may affect nearby communities; 2. The safety of the existing road users may get affected temporarily during installation and maintenance activities
Heritage and Culture	During activities, there might be disturbance to heritage structures and cultural values of the area due to vehicular movement, and creating access roads etc. This varies from site to site depending on the site conditions and the proposed activities;
Occupational Health and Safety	1. Working at heights, electric safety during lamp replacement/installation; 2. Exposure of workers to dust emissions and gaseous emissions from site activities; 3. Workplace exposure to noise; 4. Workplace exposure to toxic gases from broken lamps; 5. Hazard from handling of broken lamps 6. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 7. Covid 19 protocols for safety

Table 7: Environmental Impact Matrix-Smart Meter

Parameter	Impact
Project Planning	
Ecology and Biodiversity	Warehouse or office selection at or near to eco-sensitive areas
Socio-Economic	1. Location of warehouse may affect daily life of community 2. Impact of project activities on daily life of community, public places,

Parameter	Impact
Heritage and Culture	Impact of project activities on historical and culturally important places and cultural values
Resource usage	Use of fuel
Occupational Health and Safety	Safety issues due to Warehouse or office selection at a building or complex, where Emergency evacuation, Fire safety facility are not according to the rules.
Transportation	
Air Emissions	1. Gaseous emissions per liters of fuel combusted per kilometer of vehicle travelled; 2. Dust emission because of vehicle movement.
Noise	Impact of noise from the vehicles on various sensitive receptors during transportation of equipment
Soil & Water	1.Disposal of used oils and leakage of fuel from vehicle during maintenance 2. Oil contamination due to washing wastewater generated during vehicle washing
Ecology and Biodiversity	1. Disposal of used oil and other waste near to sensitive receptors (such as rivers, estuaries, mangroves etc.)
Warehousing	
Air Emissions	1. Use of back up diesel generator for the facility; 2. Air emissions from the burning of PCBs due to the accidental fire event;
Noise	1. The noise generation is expected because of vehicular movement, loading-unloading activities 2. Use of DG set for power back up
Soil and Water	1. The soil / water may get contaminated due to oil spillage or leakage of fuel from vehicles and drums near Diesel storage areas; 2. Sewage generated by workers
Waste	Waste generation from faulty meters, maintenance of DG set
Occupational Health and Safety	1. Injury due to the accidental fire event; handling of broken/ damaged meters, 2. Fire risk due to storage of diesel for the back-up DG set; 3. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 4. Covid 19 protocols for safety
Installation, Operation, Maintenance and end-of-life phase	
Ecology and Biodiversity	Impact on biodiversity at or near eco-sensitive places due to any electro-magnetic wave / Radiations.
Waste	1. Improper disposal of damaged or end-of life meters and equipment.

Parameter	Impact
	2. Generation of e-waste from old meters replacement.
Occupational Health and Safety	1. Electric safety during meter replacement/installation; 2. Exposure of workers to dust emissions and gaseous emissions from site activities; 3. Workplace exposure to noise;4. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 5. Covid 19 protocols for safety

Table 8: Environmental Impact Matrix-Solar Program

PARAMETER	IMPACT
Project Planning	
Ecology and Biodiversity	1. Cutting of trees/ Clearing or grubbing activities during development of site. 2. Warehouse, office, Solar power plant area selection at or near to eco-sensitive areas
Land Acquisition and Resource usage	1.No major Impact during planning phase (DISCOM Land being used).
Occupational Health and Safety	Warehouse or office selection at a building or complex, where Emergency evacuation, Fire safety facility are not according to the rules.
Transportation	
Air Emissions	1. Gaseous emissions because of vehicle movement. 2. Dust emission because of vehicle movement on unpaved roads and site areas.
Noise	Noise generation due to transportation in congested traffic.
Soil & Water	Disposal of used oils and spillage/leakage of fuel during vehicle maintenance and washing. Oil contamination due to washing wastewater generated during vehicle washing
Ecology and Biodiversity	Disposal of used oil and other waste near to sensitive receptors (such as rivers, estuaries, mangroves etc.)
Warehousing/ Storage Area/Offices.	
Air Emissions	1. Use of DG Sets for the facility; 2. Air emissions from the burning of waste materials, and also from the burning of materials during any fire incidents
Noise	Increased noise levels due to use of DG set for power back up

PARAMETER	IMPACT
Soil and Water	1.Contamination of the soil / water due to fuel/oil spillage or leakage from vehicles and Diesel storage areas; 2. Contamination of soil and water from leakage of acids from batteries and disposal of acids from faulty/unused batteries 3. Improper disposal of Sewage generated.
Waste	1. Waste generation from faulty batteries and panels, cables, maintenance of DG set. 2. Improper storage and disposal of waste/damaged e-items
Occupational Health and Safety	1. Injury due to the accidental fire event; handling of battery acids, broken/ damaged panel, cables etc., 2. Fire risk due to storage of diesel for the back-up DG set; 3. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 4. Covid 19 protocols for safety
Installation, Operation, Maintenance, and end-of-life phase	
Air Emissions	Gaseous emissions due to use of DG Sets at sites.
Noise	Increase noise due to use of DG set for power back up/site activities.
Water and Wastewater	Disposal of wastewater from the Cleaning of panels on to surface water bodies or soil .
Waste	Improper disposal of damaged or end-of life panels, batteries and other equipment/materials nearby site.
Occupational Health and Safety	1. Injury due to the accidental fire event, handling of battery acids, broken/ damaged panel, cables, and electrical shocks during installation, operation and maintenance and site activities. 2. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 3. Covid 19 protocols for safety

2.6 PROPOSED MITIGATION MEASURES

This section covers general mitigation measures identified for all activities in the project as per different phases. It also suggests what kind of reporting from the contractor would be useful to monitor the implementation of these mitigation measures. The mitigation measures mentioned in Table given below are applicable for all projects screened as **category Ec** and all other projects.

Table 9: Impact & Proposed mitigation measures-UJALA

Parameter	Impact	Mitigation Measures
1. Project Planning and Transportation		
Ecology and Biodiversity	Warehouse or office selection as well as Transportation - at or near to eco-sensitive areas. 1. Oil spillage, waste created after accidents in ecologically sensitive areas in route. 2. Disposal of used oil and other waste near to sensitive receptors (Such as rivers, estuaries, mangroves etc.).	1. Prepare Logistics Plan: identify ecologically sensitive areas in route using checklist given, keeping emergency standby vehicle for Support and recovery of waste material from the site. 2. Provide Training for drivers: to identify such locations and drive carefully, to have proper waste disposal facility, to have sound communication and emergency protocols during accident
Occupational Health and Safety	1. Safety considerations during transportation, warehousing and local kiosks. 2. Chances of Incident and Accident due to use of old and improperly maintained vehicles and driving by untrained drivers. 3. Lack of access to essential facilities such as toilets, rest area and handwash 4. COVID 19 safety protocol.	1. Worker Training: OHS Training to be part of the training provided to all workers before starting the operations especially in handling broken LED bulbs; 2. Design of kiosk: The kiosk should be designed as per local climatic conditions especially in extreme weather locations with fire safety precautions. The kiosk should have separate waste bins for storing returned LED bulbs, broken bulbs, paper and packaging waste. 3. The useful life of vehicles should be fixed as per applicable rules and the old vehicles beyond the specified life should not be used. Vehicles should be well maintained. 4. The vehicles should be operated only by trained/licensed drivers. 5. Works shall have access to essential facilities such as toilets, rest area and handwash 6. COVID 19 safety precautions shall be planned and implemented.

Parameter	Impact	Mitigation Measures
Air Emissions	1. Gaseous emissions per liters of fuel combusted against per kilometer of vehicle travelled; 2. Dust emission due to vehicular movement.	1. Regular Maintenance of the Vehicles and Pollution controls checks to be ensured. 2. Pollution Under Control Certificates to be maintained.
Noise	Noise generated from the vehicles on various sensitive receptors during transportation	Travel route and timings to be planned to avoid impacts on sensitive receptors. Vehicles to be provided with proper Acoustic enclosures/Silencers.
Soil	Disposal of used oils and spillage/leakage of fuel from vehicles during maintenance	The sued oil should be removed and collected in an identified container as per the standard practices at authorized service centre or through trained Service providers only.
Water	Oil contamination due to washing wastewater generated during vehicle washing	The Vehicle washing to be undertaken at identified location / Service Centres having proper drains to avoid any mixing of any wastewater with nearby sources.
Waste	1. Broken LED during transport 2. Vehicular accident-causing LED bulb waste on roads or in water bodies	1. Cushioning to be provided inside the vehicle to prevent damage during transport. 2. Training for drivers: Waste disposal practices, communication and emergency protocol for waste disposal; 3. Prepare Logistic Plan: keeping emergency standby vehicle for support and recovery of waste material from the site.
Socio-economic	1. Impact of project activities on other sensitive areas, public places	1. Prepare Logistics Plan: identify local restrictions at residential areas, no parking areas, schools, hospitals, silent zones, no-honking timings etc.
2. **Warehousing**		
Air Emissions	1. Use of backup diesel generator for the facility; 2. Air emissions from the burning of PCBs from accidental fire event;	1. Prepare warehouse management plan: by location of DG set at a location that provides sufficient height for the stack as per Central Pollution Control Board norms; 2. Prepare warehouse management

Parameter	Impact	Mitigation Measures
		plan: to keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC obtained and emergency response Procedures
Noise	1. The noise generation is expected as a result of vehicular movement, loading unloading activities. 2. Use of DG set for power back up	1. Prepare warehouse management plan: to design optimum vehicular movement and parking space for vehicles to avoid honking and idling; 2. Prepare warehouse management plan: identifying DG set acoustic enclosure or use of silent DG sets;
Soil and Water	1. The soil/ water may get contaminated due to oil spillage or leakage of fuel from vehicles and Diesel storage areas; 2. Sewage generated by workers	1. Avoid vehicle parking on bare earth/soil. Providing dedicated hard surface covered space for vehicle parking. Provide DG set fuel store on impervious surface (preferably Plain Cement Concrete 75mm to 100mm thick) covered with 150 mm of sand which can be washed afterwards to remove oil from it in oil and grease trap. The collected oil will be sold to Authorized Oil Recyclers. 2. Ensure that the facilities have toilet facilities so that sewage generated by the workers is drained into sewerage line provided by ULB, if the site does not have sewerage line then provide septic tank/soak pit for the required capacity.
Waste	1. Waste generation from faulty/broken LED, maintenance of DG set.	1. Prepare warehouse management plan: providing specific instruction for safe handling of LED bulbs (mentioned in the SOP). The warehouse to provide dedicated space for collection of broken/ returned LED bulbs which would be collected in labelled containers/

Parameter	Impact	Mitigation Measures
		boxes.
Occupational Health and Safety	1. Injury due to the accidental fire event; handling of broken Lamps. 2. Fire risk due to storage of diesel for the back-up DG set; 3. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 4. Covid 19 protocols for safety	1. Prepare warehouse management plan: with procedures for use of Personal Protection Equipment to handle broken lamps. 2. Prepare warehouse management plan: to keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC obtained and emergency response procedures. 3. Provide essential facilities such as toilets, rest area and handwash. 4. Follow COVID 19 protocols include Use of Face Mask, Sanitizer/Hand Wash Facility, Social Distancing, Prior Safety Audits for re-opening of any closed sites, Thermal Screening at Entry points etc.
3. **Temporary Storage at local Kiosks/Distribution Centres**		
Air Emissions	1. In the event of fire, the release of toxic materials from burning of PCBs used in lamps	1. In case DISCOM office is working as a distribution kiosk then it should be ensured that the office has required Fire NOC from the authority and fire prevention measures are in place
Waste and Water	1. The faulty/broken LED lamps during logistics or faulty lamps returned by consumers; 2. Sewage generated by workers/ consumers	1. Design of kiosk: The kiosk should be designed so as the supplied LED bulbs do not get damaged due to handling or moisture, separate bins are to be provided for collecting paper waste, recyclable waste and broken/ returned bulbs. 2. Ensure that the sewage generated by the workers/ consumers is drained in to sewerage line provided by ULB, if the site does

Parameter	Impact	Mitigation Measures
		not have sewerage line then identify nearest toilet that workers/ consumers can use and obtain permission for the usage from the owner OR provide septic tank/ soak pit for the required capacity.
Ecology and Biodiversity	1. Impact of kiosk activity on ecology and biodiversity	1. Avoid putting kiosk in ecological sensitive locations
Occupational Health and Safety	1. Fire safety; 2. Workers health 3. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers. 4. Covid 19 protocols for safety	1. Design of kiosk: The kiosk should be designed as per local climatic conditions especially in extreme weather locations with fire safety precautions. 2. In case DISCOM office is working as a distribution kiosk then it should be ensured that the office has required Fire NOC from the authority and fire prevention measures are in place 3. Provide essential facilities such as toilets, rest area and handwash 4. Follow COVID 19 protocols includes Use of Face Mask, Sanitizer/Hand Wash Facility, Social Distancing, Prior Safety Audits for re-opening of any closed sites, Thermal Screening at Entry points etc.

Table 10: Impact & proposed Mitigation measures-SLNP

Parameter	Impact	Mitigation Measures
Project Planning		
Ecology and	1. Tree cutting/pruning during	1. Avoid cutting/ pruning of trees by

Parameter	Impact	Mitigation Measures
Biodiversity	installations of LED lamps/ poles; 2. Impact of illumination on the ecologically sensitive areas (Bird migratory paths, wetlands, nesting areas, breeding areas) 3. Light pollution	proper planning of new poles 2. If unavoidable then required permission needs to be taken beforehand from the authority. 3. Avoid putting new poles in sensitive areas. 4. Use amber colour or Lower LED Color to avoid interference with activities of certain animals. 5. Use Full Cut Off luminary (no light emitted above horizontal) as defined in BIS 1981 so as the light does not disperse and cause light pollution. Also install the Full Cut Off luminary as specified in the code i.e. ensuring that the luminary is placed exactly horizontal to the surface of the street below and not at an angle.
Socio-economic	1. Location of warehouse may affect daily life of community members. 2. Impact of project activities on daily life of community, public places. 3. Impact on functioning other governmental agencies like Airport, Port or Railways	1. Plan Material Storage Areas/ Warehouse in such a way that it's storage will not affect daily life of surrounding community. 2. Proper planning to avoid disturbance due to anticipated vehicle moment on the roads where the luminaries are to be changed or new poles are to be erected. Avoid disturbance to the community during the activity. Installation schedule, timings and Travel routes to be planned in advance. 3. Take required permissions from the relevant bodies.
Heritage and Culture	1. Impact of project activities on historical and culturally important places and cultural values	1. Avoid putting new poles within the premises of an historically and culturally important place. 2. Obtain required permissions from

Parameter	Impact	Mitigation Measures
		the ULB/ the Trust looking after the operations or any relevant authority before putting new poles/ luminaries. 3. After discussions with the relevant authority provide LED bulb/ luminary to maintain the same light colour as previously used. 4. Use Full Cut Off luminary (no light emitted above horizontal) as defined in BIS 1981 so as the light does not disperse and cause light pollution.
Resource usage	1. Use of fuel	1. Prepare Logistics Plan: Optimized selection of route reduces the distance, time, fuel and hence the total gaseous emissions and dust emissions.
Occupational Health and Safety	1. Safety considerations during transportation, warehouse selection.	1. Worker Training : OHS Training to be part of the trainings, provided to all workers before starting the operations especially to ensure use of PPE during handling broken LED bulbs/ removed Halogen/ Metal halide etc. bulbs and luminaries.
Transportation		
Air Emissions	1. Gaseous emissions per liters of fuel combusted per kilometer of vehicle travelled; 2. Dust emission due to vehicular movement	1. Selection of Vehicles: Deploy vehicle which meet with the latest emissions norms; 2. Design vehicle route to avoid unpaved roads OR design traffic movement to avoid movement of vehicles on unpaved roads during non-peak hours of traffic;
Noise	1. Impact of Noise from the vehicles on various sensitive receptors during transportation	1. Deploy vehicle not older than 15 years or as required under the applicable Act & Rules. 2. Prepare Vehicle Maintenance

Parameter	Impact	Mitigation Measures
		Plan for the regular maintenance of the vehicles deployed at Manufacturer Authorized Service Stations. 3. Provide Training for Drivers: trainings to drivers on precautions to be taken while driving near the sensitive areas (school, residential area, eco-sensitive areas, no honking zones etc.), Vehicle to operate avoiding night time operation near residential areas and traffic congestion time on busy routes
Soil & Water	1. Disposal of removed oils and Spillage of fuel from vehicle during maintenance. 2. Oil contamination due to washing wastewater during vehicle washing.	1. Prepare Vehicle Maintenance Plan: for the regular maintenance of the vehicles deployed at identified locations / Manufacturer Authorized Service Stations.
Waste	1. Broken LED during transport. 2. Vehicle accidents causing LED bulb and luminaries/ other bulb and luminaries waste on roads or in water bodies.	1. Cushioning/ measures to be provided inside the vehicle to prevent damage during transport. 2. Training for drivers : Waste disposal, communication and emergency protocols for waste Disposal. 3. Prepare Logistic Plan :keeping emergency standby vehicle for support and recovery of waste material from the site
Ecology and Biodiversity	1. Disposal of used oil and other waste near to sensitive receptors (such as rivers, estuaries, Mangroves etc.)	1. Prepare Logistics Plan: identify ecologically sensitive areas along route using checklist given, keeping emergency standby vehicle for support and recovery of waste material from the site. 2. Provide Training to drivers: to identify such locations and drive carefully, to have proper waste

Parameter	Impact	Mitigation Measures
		disposal mechanism, communication, and emergency protocols during accident.
Other sensitive areas	1. Impact of project activities on other sensitive areas, public places	1. Prepare Plan to identify local restrictions at residential areas, no-parking areas, schools, hospitals, silent zones, no honking timings etc.
Warehousing		
Air Emissions	1. Use of back up diesel generator for the facility; 2. Air emissions from the burning of PCBs due to the accidental fire event;	1. Prepare warehouse management plan by location of DG set at a proper location that provides sufficient height for the Chimney as per Central Pollution Control Board norms. 2. Keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC obtained (as applicable) and emergency response procedures.
Noise	1. The noise generation is expected as a result of vehicular movement, loading-unloading activities 2. Use of DG set for power back up	1. Prepare warehouse management plan: to design optimum vehicular movement and parking space for vehicle to avoid honking and idling ; 2. Prepare warehouse management plan: identifying DG set acoustic enclosure or use of silent DG sets;
Soil and Water	1. The soil / water may get contaminated due to oil spillage or leakage of fuel from vehicles and Diesel storage areas. 2. Sewage generated by workers.	1. Avoid vehicle parking on bare soil. Providing dedicated hard covered space for vehicle parking. Provide DG set fuel store on impervious surface (preferably Plain Cement Concrete 75mm to 100mm thick) covered with 150 mm of sand which can be washed afterwards to remove oil from it in oil and grease trap. The collected oil will be sold to Authorized Oil Recyclers.

Parameter	Impact	Mitigation Measures
		2. Ensure that the sewage generated by the workers is drained in to sewage line provided by ULB, if the site does not have sewage line then provide septic tank/ soak pit for the required capacity.
Waste	1. Waste generation from faulty LED, maintenance of DG set and general waste.	1. Prepare Warehouse management plan: The warehouse to provide dedicated space for collection of broken/ returned LED bulbs/other replaced bulbs and luminaries which would be collected in labelled containers/boxes.
Occupational Health and Safety	1. Injury due to the accidental fire event; handling of broken lamps. 2. Fire risk due to storage of diesel for the back-up DG set; 3. Fire and hazards due to storage of old LED/Other lamps which has potential for toxic release due to heavy metal and other hazardous material content; 4. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 5. Covid 19 protocols for safety	1. Prepare warehouse management plan: with procedure and Personal Protection Equipment to handle broken lamps; and to keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC Obtained (as applicable) and emergency response procedures; 2. Warehouse should have proper ventilation and exhaust provision to avoid exposure of workers to potential toxic gas release from the waste storage areas; 3. First Aid facility to be ensured and maintained. 4. Provide essential facilities such as toilets, rest area and handwash 5. Follow COVID 19 protocols like Use of Face Mask, Sanitizer/Hand Wash Facility, Social Distancing, Prior Safety Audits (for re-opening of any closed sites) and Thermal Screening at Entry points etc.
Installation and Maintenance		
Air Emissions	1. Any Construction activities may	1. Selection of Vehicles: Deploy

Parameter	Impact	Mitigation Measures
	result in release of pollutants like NOx, SO2 gases and Particulate Matters including tail pipe emissions of construction vehicles and machineries; 2. Diesel based power generator (DG Set) used on site would be a potential source of air emissions; 3. Open burning of solid waste onsite by labours;	vehicle and machinery which meet with the latest emissions norms; 2. Prepare Vehicle Maintenance Plan: for the regular maintenance of the vehicles deployed at Manufacturer Authorized Service Stations; check emissions from the vehicles/ machinery through regular Pollution Under Control Certificate. 3. Spraying of water during vehicle movement/ pole erection to reduce the duct emissions. 4. Use of DG set only as emergency power back up purpose. 5. Open burning of solid waste is to be strictly prohibited on site.
Noise	1. Noise from the vehicles on various sensitive receptors during Transportation. 2. Noise from DG set operation during pole erection	1. Deploy vehicle not older than 15 years (Age of vehicles should comply as required under the applicable Motor Vehicle Rules). 2. Prepare Vehicle Maintenance Plan: for the regular maintenance of the vehicles deployed at Manufacturer Authorized Service Stations. 3. Provide Training for Drivers: trainings to drivers on precautions to be taken while driving near the sensitive areas (school, residential area, eco-sensitive areas, no honking zones etc.), Vehicle to operate avoiding night time operation near residential areas and traffic congestion time on busy routes. 4. Use of DG set only as emergency power back up purpose; conforming noise and emission standards.
Soil	1. Disposal of used oils and spillage of fuel from vehicle	1. Prepare Vehicle Maintenance Plan: for the regular maintenance of the

Parameter	Impact	Mitigation Measures
	during maintenance	vehicles deployed at Manufacturer Authorized Service Stations.
Water	1. Oil contamination in washing wastewater during vehicle washing. 2. Loose soil may enter water bodies during rainy days.	1. Prepare Vehicle Maintenance Plan: for the regular maintenance of the vehicles deployed at Manufacturer Authorized Service Stations. 2. If erecting pole/ excavation for cabling work is crossing or touching natural water body avoid construction during rainy days and use silt fencing/ geotextile to prevent lose soil entering water bodies.
Waste	1. Generation of Hazardous wastes (due to mercury/heavy metals/toxic gas content of old lamps). 2. Generation of hazardous waste in the form paint/ solvent Container and rags. 3. Generation of e-waste from broken/faulty LED lamps while Replacement. 4. Potential generation of excavated soil, demolition waste, waste wood, waste metals, cables, insulations, plastic, other demolished utilities if any, removal of parts of existing structures etc.	1. At the construction site waste segregated as Hazardous, E – Waste, Reusable (old bulbs/ luminaries), Recyclable and Inert types must be stored in separate bins/ boxes. Hazardous waste must be stored in HDPI drums as per the applicable rules. 2. The management of hazardous and non-hazardous waste generated from activities should be done through designated/authorized agency. 3. Fate of old bulbs and luminaries must be defined (Collected Back by ULBs/ being taken back by lighting agency) and labeled.
Ecology and Biodiversity	1. The potential disturbance to tree species. In some cases, the tree cutting or pruning may be required for access of existing street lights and the replacement activity.	1. Avoid tree cutting/pruning. 2. Obtain relevant permissions where the tree cutting/pruning can't be avoided;

Parameter	Impact	Mitigation Measures
Socio-economic	1. The additional vehicles coming to the site may affect existing traffic Patterns. The noise and air emissions may affect nearby Communities. 2. The safety of the existing road users may get affected due to Installation activities.	1. Traffic management plan specific to the site conditions to be Prepared. 2. The local restrictions should be assessed before commencing the activities.
Heritage and Culture	1. During activities, there might be disturbance to heritage structures and cultural values of the area due to vehicle movement, and creating access roads etc. This varies from site to site depending on the site conditions and the proposed activities;	1. Local restrictions for traffic movement, festival timing, influx of people, noise, dust and gaseous emissions to be considered. 2. Permissions from the relevant authorities to be obtained before commencing the work near Heritage and cultural sites.
Occupational Health and Safety	1. Working at heights, electric safety during lamp replacement /installation. 2. Exposure of workers to dust emissions and gaseous emissions from site activities. 3. Workplace exposure to noise. 4. Workplace exposure to toxic gases from broken old lamps. 5. Hazard from handling of broken Lamps. 6. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers. 7. Covid 19 protocols for safety.	1. Use of adequate personal protective equipment (PPEs) such as hard hats, ear plugs, safety boots, hand gloves, safety glasses, safety harness for various activities including for working at heights. 2. Safety procedures for working at confined spaces, safety procedures for handling of hazardous materials. 3. Equipment and machineries to be equipped with acoustic enclosures as applicable. Workers to be provided with Ear plugs/Ear Muffs at high noise area. 4. Use of suitable masks for reducing exposure to dust emissions and toxic fumes on site.

Parameter	Impact	Mitigation Measures
		5. Providing training to the workers for handling hazardous material and exposure to toxic gases. 6. Provide essential facilities such as toilets, rest area and handwash. 7. Follow COVID 19 protocols includes Use of Face Mask, Sanitizer/Hand Wash Facility, Social Distancing, Prior Safety Audits for re-opening of any closed sites, Thermal Screening at Entry points etc.

Table 11: Impacts and Mitigations-Smart Meter

Parameter	Impact	Mitigation Measures
Project Planning		
Ecology and Biodiversity	Warehouse or office selection at or near to eco-sensitive areas.	1. Avoid selection of any warehouse, office place near (within 500 meters of eco-sensitive area boundary) to any eco-sensitive places. 2. Avoid installation of smart meters near to any eco-sensitive places or migratory bird corridor (if any).
Socio-Economic	1. Location of warehouse may affect daily life of community. 2. Impact of project activities on daily life of community, public places.	Plan proper execution of the project and consider sensitive, heritage places, populated, congested areas at and around the project activity, prepare activity time schedule accordingly.
Heritage and Culture	Impact of project activities on historical and culturally important places and cultural values	Obtain requisite permissions from the concerned authorities looking after the operations or any relevant authority before planning for installation works.
Resource usage	Use of fuel	Prepare Logistics Plan: Optimized selection of route reduces the distance, time, and fuel and hence the total gaseous emission and dust emissions to air/noise.
Occupational Health and Safety	Safety issues due to Warehouse or office selection at a building or complex, where Emergency evacuation, Fire safety facility are not according to the rules.	Ensure plans are in place for workers safety and health issues; provide and maintain their basic needs as per the regulatory norms (Health facility/Insurances etc.). Proper Fire Safety arrangements to be ensured. Prior OH&S Training and awareness to be provided by the concerned contractor.
Transportation		
Air Emissions	1. Gaseous emissions per liters of fuel combusted per kilometer of vehicle travelled. 2. Dust emission because of	1. Selection of Vehicles: Deploy vehicle which meet with the latest emissions norms. 2. Design vehicle route to avoid

Parameter	Impact	Mitigation Measures
	vehicle movement.	unpaved roads OR design traffic movement to avoid movement of vehicles on unpaved roads during non-peak hours of traffic.
Noise	Impact of Noise from the vehicles on various sensitive receptors during transportation of equipment	1.Avoid honking unnecessarily; maintain vehicles to minimize engine operation noise. 2.Deploy vehicle not older than 15 years or as required under the applicable Act & Rules. 3.Provide Information/Training for Drivers: trainings to drivers on precautions to be taken while driving near the sensitive areas (school, residential area, eco-sensitive areas, no honking zones etc.), Vehicle to operate avoiding night time operation near residential areas and traffic congestion time on busy routes.
Soil & Water	1.Oil contamination due to improper disposal of used oils and spillage of fuel from vehicle during maintenance. 2.Oil spillage, fuel spillage during vehicle washing.	3.Prepare Vehicle Maintenance Plan: for the regular maintenance of the vehicles deployed at identified locations / Manufacturer Authorized Service Stations. 2. Avoid any contamination of waste to water stream or soil; store hazardous items/waste in an area away from surface or monsoon runoff.
Ecology and Biodiversity	1. Disposal of used oil and other waste near to sensitive receptors (such as rivers, estuaries, mangroves etc.).	Provide Training to drivers: to identify such locations and drive carefully, to have proper waste disposal mechanism, communication, and emergency protocols during accident.
Warehousing		
Air Emissions	1. Use of back up diesel generator for the facility. 2. Air emissions from the burning	1. Use of DG sets only as power backup source.

Parameter	Impact	Mitigation Measures
	of PCBs due to the accidental fire event.	2. Ensure proper height of stack for point source emission. 3. Maintain DG sets as per the manufacturer's instruction.
Noise	1. The noise generation is expected because of vehicle movement, loading-unloading activities. 2. Use of DG set for power back up	Use acoustic enclosures for DG sets' noise attenuation and maintain DG set regularly; monitor DG sets noise level regularly and make the operators , workers, stakeholders aware about noise pollution effects
Soil and Water	1. The soil / water may get contaminated due to oil spillage or leakage of fuel from vehicles and Diesel storage areas. 2. Sewage generated by workers.	1. Avoid use of DG sets to the maximum extent to minimize storage of oils. 2. Maintain Spillage kits for immediate arrest of accidental spillage. 3. Inform respective departments about spillages and take action as per the standard guidelines. 4. Avoid any contamination of waste to water stream or soil; store hazardous items/waste in an area away from surface or monsoon runoff. 5. Proper toilet facilities to be provided and the sewage generated to be drained in to sewage line provided by ULB, if the site does not have sewage line then septic tank/ soak pit for the required capacity to be provided.
Waste	Waste generation from faulty meters, maintenance of DG set	1. Maintain stock and inventory of fresh item and store waste/damage materials at designated places only. 2. Collect and Segregate all waste/damaged items at centralized area/store. 3. Identify nearest and authorized recycler/Waste management facility.

Parameter	Impact	Mitigation Measures
		4. Handover waste/damaged waste/e-waste to ULBs/authorized waste management facility periodically. E-waste storage period should not exceed more than 180 days. 5. Maintain record of waste generation and management.
Occupational Health and Safety	1. Injury due to the accidental fire event; handling of broken/ damaged meters, Fire risk due to storage of diesel for the back-up DG set; 2. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers 3. Covid 19 protocols for safety	1. Prepare warehouse management plan: Follow procedure and use Personal Protection Equipment to execute various activities and handle broken equipment & damaged/wastes items; and to keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC Obtained (as applicable) and emergency response procedures. 2. Warehouse should have proper ventilation and exhaust provision to avoid exposure of workers to potential toxic gas release from the waste storage areas. 3. First Aid facility to be ensured and maintained. 4. Provide essential facilities such as toilets, rest area and handwash. 5. Follow COVID 19 protocols include Use of Face Mask, Sanitizer/Hand Wash Facility, Social Distancing, Prior Safety Audits for re-opening of any closed sites, Thermal Screening at Entry points etc.
Installation, Operation, Maintenance and end-of-life phase		
Ecology and Biodiversity	Impact on biodiversity at or near eco-sensitive places due to any electro-magnetic wave / Radiations.	Any activity at or nearby eco-sensitive zone to be avoided.
Waste	Improper disposal of Damaged or end-of life meters and equipment.	1. At the construction site all waste to be collected properly and

Parameter	Impact	Mitigation Measures
	Generation of e-waste from replacement of old meters.	managed in a segregated manner e.g. Hazardous wastes, E-Wastes (faulty new meters and replaced old meters), Reusable, Recyclable and Inert types. Wastes must be stored in separate bins/boxes. Hazardous waste must be stored in HDPI drums as per the applicable rules. 2. The management of waste generated from activities should be done through designated /authorized agency. 3. Fate of faulty new meters and replaced old meters must be defined (Collected Back by ULBs/ being taken back by lighting agency) and labeled.
Occupational Health and Safety	1. Electric safety during meter replacement/installation. 2. Exposure of workers to dust emissions and gaseous emissions from site activities. 3. Workplace exposure to noise. 4. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers. 5. Covid 19 protocols for safety.	1. Use of adequate personal protective equipment (PPEs) such as hard hats, ear plugs, safety boots, hand gloves, safety glasses, safety harness during site activity. 2. Safety procedures for electrical works, Waste management to be followed properly. 3. Equipment and machineries to be equipped with acoustic enclosures as applicable. Workers to be provided with Ear plugs/Ear Muffs at any high noise area. 4. Use of suitable masks for reducing exposure to dust emissions and toxic fumes on site. 5. Providing training to the workers for handling hazardous material and exposure to toxic gases. 6. Provide essential facilities such as toilets, rest area and handwash. 7. Follow COVID 19 protocols includes

Parameter	Impact	Mitigation Measures
		Use of Face Mask, Sanitizer/Hand Wash Facility, Social Distancing, Prior Safety Audits for re-opening of any closed sites, Thermal Screening at Entry points etc.

Table 12: Impacts and Mitigation Measures-Solar Program

PARAMETER	IMPACT	MITIGATION MEASURES
Project Planning		
Ecology and Biodiversity	1. Cutting of trees/ Clearing or grubbing activities during development of site. 2. Warehouse, office, Solar power plant area selection at or near to eco-sensitive areas	1. Avoid selection of any warehouse, office, Solar Plant near (within 500 meters of eco-sensitive area boundary) to any eco-sensitive places. 2. Plantation of native species to be done to replace any tree felling activity in consultation with local authorities responsible.
Land Acquisition and Resource usage	1. No major Impact during planning phase (DISCOM Land being used).	No issue envisaged. *(Note: In case of any Land Acquisition, the relevant provisions under the RFCTLARR 2013 and applicable provisions including public concerns needs to be addressed by the concerned project team. In such a case, the project Screening category may change from Category Ec which needs to be informed and addressed in a timely manner.)*
Occupational Health and Safety.	Warehouse or office selection at a building or complex, where Emergency evacuation, Fire safety facility are not according to the rules.	1. Workplace locations should be identified appropriately to ensure proper safety provisions for Fire Safety, Emergency Preparedness and exit routes. 2. A Site management plan may be prepared with defined safety procedure to ensure safety and provision for Personal Protection Equipment.

PARAMETER	IMPACT	MITIGATION MEASURES
Transportation		
Air Emissions	1. Gaseous emissions due to vehicular movement. 2. Dust emission due to vehicular movement on unpaved roads and site areas.	1. Use of latest emission control norm approved vehicles and avoids using vehicles having more than 15 years of registration. 2. Use of DG sets only as power backup source. 3. Ensure proper stack height for point source emission for DG sets. 4. Maintain DG sets as per the manufacturer's instruction. 5. Vehicles to avoid transportation on unpaved roads and in avoidable cases, dust suppression measures/water sprinkling to be ensured.
Noise	Noise generation due to transportation in congested traffic.	1. Avoid honking unnecessarily. 2. Regular Maintenance of vehicles to be ensured to minimize engine operation noise. 3. Avoid vehicle movement during late hours nearby sensitive/silence zones.
Soil & Water	Disposal of used oils and spillage of fuel during vehicle maintenance and washing.	1. Avoid use of DG sets and optimize/minimize storage of oils. 2. Maintain Spillage kits for immediate arrest of accidental spillage. 3. The maintenance activities to be undertaken at authorized service station or workshops or designated areas with proper drainage systems and waste oil collection and storage facility.

PARAMETER	IMPACT	MITIGATION MEASURES
Ecology and Biodiversity	Disposal of used oil and other waste near to sensitive receptors (such as rivers, estuaries, mangroves etc.)	1. The maintenance activities to be undertaken at authorized service station or workshops or designated areas with proper drainage systems and waste oil collection and storage facility. 2. The vehicles should not operate and should not be parked near such sensitive areas.
Warehousing/ Storage Area/Offices.		
Air Emissions	1. Use of DG Sets for the facility; 2. Air emissions from the burning of waste materials, and also from the burning of materials during any fire incidents	1. Bare minimum use of DG sets, only as power backup source. 2. Ensure proper stack height for point source emission. 3. Maintain DG sets as per the manufacturer's instruction. 4. The waste materials to be managed properly for appropriate disposal and should not be burnt. 5. Fire Control measures to be ensured.
Noise	1. Increased noise levels due to use of DG set for power back up	1. Ensure proper acoustic enclosures for DG sets' noise attenuation and maintain DG set regularly. 2. Monitor DG sets noise level regularly. 3. Build awareness among operators, workers, stakeholders about noise pollution effects.
Soil and Water	1. Contamination of the soil / water due to oil spillage or leakage of fuel from vehicles and Diesel storage areas. 2. Soil/water contamination due	1. The wastes/waste oil to be collected and stored properly in an area avoiding any mixing with the soil and water, even during monsoon season.

PARAMETER	IMPACT	MITIGATION MEASURES
	to leakage of battery acids. 3. Improper disposal of Sewage generated.	2. Ensure batteries are stored in areas with concrete base/flooring and also lined with acid resistant sheets to prevent seepage into soil. Neutralize any leaked acids on the sheets before disposal. Check batteries regularly for any leakage/seepage. 3. Proper toilet facilities to be provided and the sewage generated to be drained in to sewage line provided by ULB, if the site does not have sewage line then septic tank/ soak pit for the required capacity to be provided.
Waste	1. Waste generation from faulty panels, cables, batteries, and maintenance of DG set. 2. Improper storage and disposal of waste/damaged e-items	1. Maintain stock and inventory of fresh item and waste/damaged materials separately. 2. Collect and segregate all waste/damaged items at centralized area/store. 3. Identify nearest and authorized recycler/Waste management facility. 4. Handover waste/damaged waste/e-waste to ULBs/authorized waste management facility within a defined timeline (not above 180 days interval in any case). 5. Maintain record of waste generation and management.
Occupational Health and Safety	1. Injury due to the accidental fire event; handing of broken/ damaged panel, cables. 2. Fire risk due to storage of diesel for the back-up DG set. 3. Lack of access to essential facilities such as toilets, rest area	1. Fire Safety Provisions and Emergency preparedness plan to be ensured. 2. PPEs to be provided in sufficient numbers. Workers to trained on PPE use and ensure PPE use during operations.

PARAMETER	IMPACT	MITIGATION MEASURES
	and hand wash can impact the health of workers. 4. Covid 19 protocols for safety	3. First Aid Kits to be provided and maintained. 4. Health and Safety Awareness to be generated among work-force. 5. Provide essential facilities such as toilets, rest area and handwash. 6. Follow COVID 19 protocols includes Use of Face Mask, Sanitizer/Hand Wash Facility, Social Distancing, and Prior Safety Audits for re-opening of any closed sites, Thermal Screening at Entry points etc.
Installation, Operation, Maintenance, and end-of-life phase		
Air Emissions	Gaseous emissions due to use of DG Sets at sites.	1. Use DG sets, only as power backup source conforming to the latest standards. 2. Ensure proper stack height for point source emission. Maintain DG sets as per the manufacturer's instruction.
Noise	Increased noise due to use of DG set for power back up/site activities.	1. Ensure proper acoustic enclosures for DG sets' noise attenuation and maintain DG sets regularly. 2. Monitor DG sets noise level regularly. 3. Build awareness among operators, workers, stakeholders regarding the effects of noise pollution.
Water and Waste water	Disposal of wastewater, generated from the cleaning of panels, into surface water or soil	1. Proper drainage systems to be provided for draining of the wastewater generated after panel washing. The same may be disposed of after proper treatment and quality checks as required. 2. Water may be recycled for washing.

PARAMETER	IMPACT	MITIGATION MEASURES
Waste	Improper disposal of Damaged or end-of life panels, batteries and other equipment/materials nearby site.	1. Collect and segregate all waste/damaged items at centralized area/store. 2. Handover waste/damaged waste/e-waste to ULBs/authorized waste management facility within a defined timeline (not above 180 days interval in any case) 3. Maintain record of waste generation and management.
Occupational Health and Safety	1. Injury due to the accidental fire event, handing of broken/ damaged panel, cables, Electrical shocks and site activities. 2. Lack of access to essential facilities such as toilets, rest area and handwash can impact the health of workers. 3. Covid 19 protocols for safety.	1. Fire Safety Provisions and Emergency preparedness plan to be ensured. 2. Various safety measures to be ensured. PPEs to be provided in sufficient numbers. Workers to trained on PPE use and ensure PPE use during operations. 3. First Aid Kits to be provided and maintained. 4. Health and Safety Awareness to be generated among work-force. 5. Provide essential facilities such as toilets, rest area and handwash. 6. Follow COVID 19 protocols includes Use of Face Mask, Sanitizer/Hand Wash Facility, Social Distancing, Prior Safety Audits for re-opening of any closed sites, Thermal Screening at Entry points etc.

3 NEW PROJECTS, PLANNING AND CONTRACTS

It is essential to integrate EHSS issues into new projects throughout the project life-cycle. This will include consideration of EHSS issues during project conceptualization, feasibility and evaluation,

design and planning, execution, monitoring and maintenance phases. EESL aims to minimize the EHSS risks and negative consequences on EESL by considering and incorporating EHSS issues into various stages of the project process beginning with project conceptualization.

3.1 KEY CONSIDERATIONS FOR NEW PROJECTS

EESL ensures that all new projects consider and integrate EHSS issues/aspects into the project concept, feasibility, design and operational phases. This implies that the project teams will ensure that the following requirements are complied with:

- All new projects comply with our Environment Policy, requirements as outlined in the most updated EHSS manual, Standard Operating Procedures (as applicable) and international standards (e.g. IFC, etc.);
- All new projects comply with the applicable national, regional and local regulatory requirements, as listed in the updated legal checklist prepared by the EHSS department;
- EHSS matters are given equal priority as other business functions (ex. Financial, technical, etc.) when considering new projects.
- A commitment to continual improvement is adopted as part of the project concept that takes into account positive and negative; direct and indirect impacts of projects.
- Assigned EHSS department representatives and senior management are engaged in considering all EHSS aspects of new projects;
- EHSS matters are incorporated for the full lifecycle of the project including project concept, feasibility, design and operational phases; and
- Consultation and feedback are obtained from stakeholders/ sub-contractors for the earliest opportunity on how EHSS issues associated with the project are being considered and prioritized.

3.2 KEY ASPECTS TO BE CONSIDERED DURING PROJECT CONCEPTUALIZATION AND PLANNING PHASES

A project goes through a number of decisions 'gates' such as project definition, feasibility, concept, design and procurement. EHSS is integrated into each decision gate and taken fully into account for project decision-making. If an identified EHSS risk is regarded as being potentially significant to the success of the project, then a 'go/no-go' decision shall be taken. The EHSS steps to be followed for new projects are depicted by the schematic below:

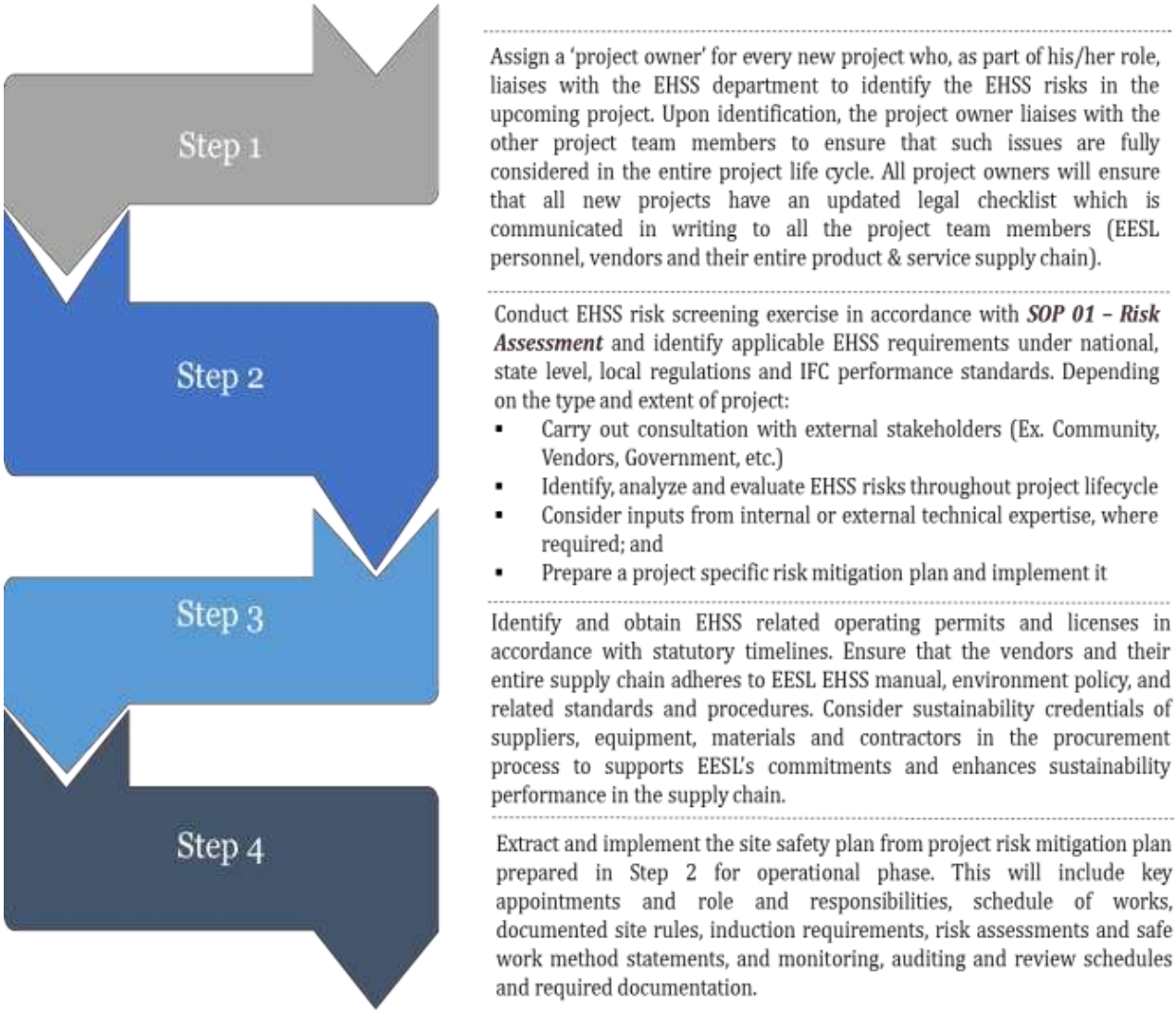

Fig 7 –EHSS steps to be followed for new projects

The EHSS steps to be followed for new projects are further elaborated below:

Step 1

At the time of conceptualizing a new project or an existing project in a new geography, the following steps are to be followed:

- All new projects have an assigned '**project owner**'. The project owner is ideally a team member from the project team and is someone with overall responsibility for the management of the project as a ***program manager***. The project owner, as part of his/her role, liaises with the EHSS department to ensure that EHSS risks are identified, prioritized and fully considered in the project planning and implementation process;
- All project owners will ensure that all new projects have an updated legal checklist.

Step 2

The second step involves undertaking the project screening and risk assessment along with obtaining an approval from the project head on the identified and prioritized risks, risk mitigation plan and legal checklist. For UJALA, SLNP, Smart Meter, Solar projects, screening needs to be carried out in accordance to screening checklists **A to F of DF 05 – Project Screening checklist** shall be applicable (Taken from EMF & ADB's safeguards framework). Further, an EHSS risk assessment exercise shall be conducted in accordance with **SOP 01 – Risk Assessment.** In case of WB guarantee works; Environment Impact Assessment (EIA) studies to be prepared, approved and disclosed as per EMF. The following sub- tasks are required to be followed to accomplish this step.

- The risk screening will be undertaken by the EHSS department in consultation with the project owner. Depending on the nature and scale of the project, this may involve consultation with external stakeholders (recognizing commercial sensitivities may preclude stakeholder engagement early in the project cycle).
- The EHSS risk assessment process shall identify, analyze and evaluate current and future scenarios, as far as practical; and identify critical risks to EESL and the project. These may include, but not be limited to, issues related to public, electrical safety, trip and fall risks etc.
- The risk screening exercise shall include input from internal or external technical expertise, where required.
- All new projects, as part of the above EHSS risk screening exercise, shall consider and identify EHSS related applicable national, regional and local regulations that might apply at any stage to the proposed project. In addition, the screening shall identify which IFC Performance Standards and EESL SOPs will apply. In case the regulation is more stringent than the EESL EHSS manual and SOPs, the regulation supersedes the EHSS manual.
- The risk assessment shall be reviewed at a defined interval to confirm that it remains relevant and any new risks identified can be incorporated. The frequency of the review shall be defined by the project owner, and as a minimum shall be no less than quarterly (depending on the anticipated duration of the project planning phase) or when new information (e.g. design changes) becomes available.
- The risk assessment will be approved by the project head, along with the project legal checklist, risk mitigation plan and frequency of review. Refer DF 03 – Risk mitigation plan for a format of the risk mitigation plan.
- These approved documents will be maintained in EESL project office for a period of 10 years.
- The approved documents are communicated in writing to all the project team members (EESL personnel, vendors and their entire product & service supply chain).

Step 3

Once the risk mitigation plan is identified, regulatory approvals need to be secured. From the EHSS Perspective, the following sub-steps must be followed:

- Regulatory permits, licenses and approvals as identified in Step 2 should be obtained in accordance with statutory timelines (where these exist) or prior to project commencement in case no timelines are specified in the regulations
- Contractor procurement processes shall include consideration of EHSS issues and shall ensure that contractors adhere to our EHSS manual, environment policy, and related Standards and procedures. Specifically, the following requirements must be embedded into the request for proposal document provided to vendors
    - The bidder must specify the method of recycling or disposing all hazardous waste collected from the project. This should specifically include the proposed method of disposing or recycling the dismantled lights/appliances. Details of the Central/ State Pollution Control Board authorized recycling units must be provided along with the proposed methodology for monitoring and reporting on the quantity of hazardous waste generated, collected and disposed/recycled
    - The bidder must describe the environment, health, safety and social policies and management systems implemented in their company, and how these will be communicated to further supply chain entities
    - The bidder must describe the existing or proposed emergency preparedness procedure at each facility to be managed by them
    - The bidder must describe the grievance redressal mechanism that is proposed to be implemented for the project, specifically describing the infrastructure setup, governance mechanism and structure, grievance redressal procedure and timelines
    - Apart from the above aspects, procurement processes for new projects shall take into account the sustainability credentials of suppliers, equipment, materials and contractors such that the procurement process supports our commitments and enhances sustainability performance in the supply chain;
- A site safety plan for the operational phase of the new project shall be developed that includes, but is not limited to, key appointments and role and responsibilities, schedule of works, documented site rules, induction requirements, risk assessments and safe work method statements, and monitoring, auditing and review schedules and required documentation

Step 4

Once the vendor is identified and appointed, the site safety plan shall be extracted from the approved risk mitigation plan and implemented on site. The following aspects will be considered:

- Extract and implement the site safety plan from project risk mitigation plan prepared in Step 2 and 3 for operational phase
- This will include key appointments and role and responsibilities, schedule of works, documented site rules, induction requirements, risk assessments and safe work method statements, and monitoring, auditing and review schedules and required documentation.

Under the site safety plan, a mechanism for monitoring & reporting must be developed. Reporting

procedure shall involve the task assigned e.g. preparation of checklists, frequency of reporting,– Accident Incident reporting in line with DF-02 etc. The site monitoring will be carried out by the field staff/state level EHSS officers of regional offices. The frequency of the reporting shall be project specific and will vary from quarterly to annually. These reports need to be submitted to EHSS department/SDU by the state level regional officers. SDU will inform the management about the EHSS actions carried out in the projects and gaps, if any. In case of non-compliance, SDU would issue a show-cause notice to the contractors and in case of persistent non-compliance, the SDU reserves the right to take suitable action against the non-compliance. Penalty mechanism for EHSS non- compliance shall be developed by SDU-EESL, which may be considered in accordance to the level and importance of non-compliance in respect to risk.

3.3 KEY ASPECTS TO BE CONSIDERED IN THE OPERATIONAL PHASE

Our project teams and project owner will ensure that potential EHSS risks and impacts associated with the new project are effectively managed. The project teams shall ensure the following:

- All project phase and operational phase regulatory permit and license requirements have been obtained, up-to-date and implemented as per the requirements of local, regional and national regulatory requirements and other international standards (e.g. IFC performance standards etc.);
- Warehouse selection should consider the guidelines mentioned in ***SOP 12 - Criteria for selection of warehouse***
- Operational plans (e.g. environmental management plans, site safety plans etc.) and risk management programs are implemented;
- Requirements associated with the new project operations are communicated to:
  - Our project teams
  - Vendors
  - Entire product and service supply chain of the vendors (including sub-contractors, their sub-contractors, agents, labour contractors, equipment providers, etc.)
  - Workers undertaking actual project implementation
- Monitoring of EHSS risks and implementation status of the agreed risk mitigation plan during operational phases (including plant, infrastructure and equipment) is undertaken on a periodic basis. This monitoring should be undertaken by the vendor safety officers, our project team members, EHSS department representatives and third-party auditors (as per requirement). Monitoring activities shall be commensurate with the project's identified risks and impacts. This can be sourced from the approved risk mitigation plan of the project
- Changes identified in relation to the project during the operational phase shall be managed through an effective management of change program. In case the project undergoes major changes in terms of the infrastructure setup, sector of work, geography and project duration, a fresh evaluation of the EHSS risks must be undertaken. In case new risks are identified, the risk management plan must be updated accordingly.

3.4 EVALUATION OF PROJECT PERFORMANCE ON EHSS ASPECTS

Each EESL project owner will ensure the entire project complies with the requirements of this EHSS manual. Performance against meeting the requirements of this manual shall be assessed periodically documented and, where required, reported to the management by the EHSS department. The assessment of performance shall include setting and reporting on key performance indicators (KPIs) where these have been established at the company level or at a project level. The KPIs as approved in the project's risk mitigation plan will be utilized for the assessment. A monitoring report of EHSS risks to be prepared in a common format. The evaluation of performance shall include, as a minimum, confirmation that:

- Senior management have been involved in and participating in new project decision making processes;
- New project designs have considered EHSS risks in the full lifecycle of the project.
- An EHS risk assessment has been undertaken, is documented and has been reviewed at defined intervals; and
- All EHS-related operating permits and licenses have been identified and obtained prior to project commencement and in accordance with statutory timelines (where these exist).

Refer Appendix 3 for indicative project KPIs.

4 ENVIRONMENT

4.1 EESL ENVIRONMENT POLICY

We recognize that effective management of environment impacts is a fundamental part of our business. We strive to integrate sound environmental practices across the management and governance systems to minimize environmental impacts and attain a leadership position in environmental stewardship.

We will endeavor to:

- Maintain positive legal compliance with environmental regulations;
- Progressively develop, implement and maintain an internationally accepted environmental management system;
- Implement pollution prevention and control systems which are defined by the inherent processes of each operation and are in line with internationally disseminated technologies and practices;
- Conserve resources by implementing management programs and initiatives, adopting efficient technologies and manufacturing process improvements, wherever feasible;
- Adopt principles to manage wastes through application of best available techniques before discharging to the environment;
- Raise environmental awareness through participation and consultation with employees at all levels of our operations through training and creative, diverse and effective channels of communication;
- Engage internally and externally with stakeholders and service providers to broaden our understanding of environmental priorities, their links to global issues and initiate actions on key environmental challenges;
- Influence our contractors and suppliers to adopt EESL policies, principles and practices and encourage appropriate environmental management across the supply and value chain; and actively communicate and disclose our approach and achievements to stakeholders and service providers.

This policy will be reviewed periodically for its suitability and updated, as necessary.

4.2 ENVIRONMENTAL IMPACTS AND RISKS DUE TO PROJECTS

The environmental impacts due to projects are likely to occur both during the installation stage and maintenance stage, whereas the impacts of office operations happen continuously.

4.2.1 Project impacts and risks

The project environmental impacts are due to the programs being run by the company. The major environmental impact is waste management.

Hazardous waste

The hazardous wastes are classified into 2 categories. Project warehouses have the potential to generate hazardous wastes. The most common form of hazardous waste includes damaged e-waste and used oil (from DG sets). Improper storage, handling and disposal of waste can cause Lead contamination and mercury pollution.

Lead pollution

Incandescent bulbs and High Pressure Sodium Vapor based luminaire (HPSV) might contain lead[1]. If disposed improperly, the old inventory might lead to lead contamination of ground water and soil. According to US EPA, humans may be exposed to lead by eating and drinking food or water containing lead. Even low levels of lead in children can result in behaviour and learning problems, lower IQ and hyperactivity, slowed growth, hearing problems and anemia. In adults it can lead to cardiovascular effects, increased blood pressure and incidence of hypertension, decreased kidney function, reproductive problems (in both men and women).

Mercury pollution

Fluorescent lights both in form of FTLs (tube lights) and CFLs (bulbs), HPSV and Metal Halide based luminaires contain toxic levels of mercury. However, it should be noted that mercury is released only when the bulb breaks. Thus, fluorescent lights should be disposed in a proper manner. According to US EPA, when liquid mercury is exposed to air, harmful, invisible vapors are emitted. Mercury in the air may settle into water bodies and affect water quality. This airborne mercury can fall to the ground in the form of raindrops, in dust, or simply due to gravity (known as "air deposition"). After the mercury falls, it can end up in streams, lakes, or estuaries, where it can be converted into methylmercury through microbial activity. Methylmercury accumulates in fish at levels that may harm the fish and the other animals that eat them. MH bulbs also contain iodine and other toxic chemicals.

Batteries, e-waste and Waste PV Panels

The project warehouses/sites can generate batteries waste on account of using industrial batteries from UPS systems, and e-waste from electronic equipment, such as replaced electricity meters, computers, telephones and printing machines. The damaged PV panels or end of life panels at Solar projects may also be generated. All such wastes will require management mechanism for channelizing the same to authorized recyclers /disposal.

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1 *Department of Toxic Substance Control, Government of California*

Air pollution

The air pollution can occur in various scenarios – where drilling or dismantling is required during installation; and during disposal of debris at the recycling facility. These impacts are quantified at both the sources and assessed for mitigation measures. Air pollution may also be caused on unpaved roads (if any) due to movement of construction equipment and transportation resulting in dust generation. If such a case is observed, this is to be controlled by deploying water sprinkling tankers twice a day.

Noise pollution

The on-site installation work (specifically street lighting and smart meters) is carried out in the daytime. For Solar Projects, the installation of Solar PV Panels may also be carried out beyond daytime.
The installation activities under various programs may cause noise pollution, which may impact nearby residents and local inhabitants. These may also involve schools, hospitals, old age homes and similar areas where vulnerable sections of the community reside.
Since the installation time is less (e.g. for street lights and Smart Meters) and also the installation of Solar PV panels is localized (generally away from community area) and minor, these impacts can be managed easily by adopting appropriate mitigation measures and giving prior notifications for any anticipated impacts to the concerned personnel/community.

4.2.2 Office operation impacts

The environmental impacts of operating office/site locations (main, regional and sales offices) include the following:

Energy consumption

Energy consumption occupies a major share of offices' environmental impact. In our offices, we understand the source of energy – grid supply, battery banks and DG sets. Based on the assessment by the EHSS department, two types of initiatives may be launched:

- Energy efficiency – Reducing the energy consumption of office areas through capex (replacement of appliances and equipment with energy efficient ones, motion sensor lighting, HVAC, modifications in building design to tap more natural light and heat) and non-capex initiatives (employee awareness, switching off lights, AC, switches and plugs when not needed)
- Renewable energy – Installation of solar panels for generation of electricity, usage of solar energy powered appliances (ex. Lights)

Water consumption

Water consumption is the second major environmental impact of office operations. Water is generally used for washing, cleaning and potable purposes. In order to reduce the water consumption in office locations, it is essential to monitor the total water usage and calculate the potential reduction measures.

The EHSS department takes charge of these assessments and implements water reduction measures. These could include low pressure water dispensers, sensor-based faucets, bio-toilets, recycling water and use for plantation purpose etc.

Solid and effluent generation and disposal

The solid waste can be categorized as office waste, food waste and e-waste. The EHSS officers will review the waste generation statistics on a timely basis and propose mitigation plans to address the identified risks. The key challenge with waste management is segregation at source. This can be achieved by removing desk side bins and implementing recycling hubs instead. Here, waste can be segregated into streams which compel employees to separate out paper, plastics, metals, glass and food waste. Subsequently, the sustainability measures can include the following:

- Recycling of paper and other materials
- Implementing waste to energy solutions, example implementing biogas reactors to generate gas for cooking/heating from food waste
- Handing over e-waste to authorized recyclers or manufacturers

Hazardous waste, batteries and e-waste

If the office locations have DG sets installed for backup power, then the used oil from the DG sets is classified as hazardous waste. The office locations can generate batteries waste on account of using industrial batteries from UPS systems, and e-waste from electronic equipment, such as computers, telephones and printing machines.

4.3 WASTE MANAGEMENT

Waste management is clearly emerging as a major concern for our operations. Since waste management is governed by stringent national and state regulations, it is essential that we and our supply chain follow the most appropriate waste disposal methods.

4.3.1 Procedure for Collection, transportation, storage, and disposal of dismantled lights/meters and End of Life/Damaged PV Panels

- A separate area should be designated for collection of different categories of wastes (Bulbs, Meters, IT equipment, old wires/spares, batteries etc.) in a segregated manner. The surface of the area should be properly covered/insulated.
- At the warehouse/site office, there must be separate designated area for storing hazardous materials.
- During the replacement of lights, designated storage boxes must be provided at the assembly point for collecting the damaged luminaries. The damaged and undamaged lights should never be

collected in the same box.

- While transporting these wastes from the assembly points to the warehouse, it must be stored separately in a covered container and should not be mixed with other waste materials.
- There must be adequate PPEs provided to the workers engaged in the collection, storage, loading and unloading work to prevent the exposure of workers with the toxic materials. It must be ensured that workers use the PPEs during operations.
- Warehouse must have adequate ventilation arrangement to prevent the accumulation of toxic gases from the damaged bulbs and tubes.
- There must be a legal agreement for the safe disposal or recycling of hazardous waste material between the vendor and the SPCB authorized hazardous waste recycling/disposal units.
- The site management must ensure that all the necessary records are maintained as per the applicable waste management rules including Hazardous Waste Rules 2016 and E-waste Management rules 2016.

Refer ***SOP 02 – Waste Management*** for detailed processes on waste segregation, storage, handling and disposal.

5. OCCUPATIONAL HEALTH AND SAFETY

5.1 EMERGENCY PREPAREDNESS AND FIRE SAFETY

Emergency preparedness, readiness for evacuation and fire safety are critical to the safety of man and material within our operations. At our offices, project warehouses and other facilities identified as 'large facilities' by the EHSS department, it is essential to implement an emergency evacuation plan. Follow ***SOP 03 – Fire and emergency procedures*** to implement this plan.

5.1.1 First aid

First aid kits should be placed in all EESL offices, project warehouses and project vehicles when on-site installation/distribution is being undertaken. The components of first aid kit will be in accordance with the state factories rules.

Each vendor/ PMC, subcontractor has to ensure first aid kit at kiosks, warehouse, Worker cart, Transport vehicles, Installation Sites, Stores and other locations as identified from time to time. The kit should be placed in space marked with "a red cross +", "FIRST AID KIT". The kit should contain the following at the minimum:

- Emergency telephone numbers for emergency medical services (EMS) 1092/102/108
- Sterile gauze pads (dressings) in small and large squares to place over wounds
- Disinfectants

- Medicines like pain killers (ibuprofen) and antibiotics
- Roller bandages to hold dressings in place
- Adhesive tape
- Adhesive bandages in assorted sizes
- Scissors
- Tweezers
- Safety pins
- Antiseptic wipes or soap
- Thermometer
- Barrier devices, such as a pocket mask or face shield

Besides various useful medicines may also be provided along with the first aid kit. The contractors should also ensure the use of face masks and sanitizers/hand-wash at workplaces.

The EHSS department/ regional teams will ensure that adequate personnel within the company and project teams (including on-site teams which comprise of PMC, vendor and labour contract workers under the sub-contractors) are trained in first aid assistance. In case first aid needs to be delivered, following steps should be adopted:

- If the affected person has received an electric shock and is still in contact with the equipment causing the shock, switch of the electrical power to that source
- Do not touch the victim's body with bare hands, but if rubber gloves are not available at the site, pull the person off the source of shock using a non-conductor – example newspaper, shirt, wood etc.
  - In case of heart attack, the prescribed CPR procedures should be followed
  - In case of burns, cut off the fire source

5.2 WORKING PRACTICES

The working practices at EESL and project locations are in line with the EHSS manual. At our offices, ergonomics forms an important aspect of safe working method and employees should always maintain good posture. Other processes where employees/workers are bound to work in the certain posture for a long time must follow these guidelines:

- Weight of the arms should always be supported
- Head position should be appropriate. Avoid craning of neck and head
- Slouching should be avoided and a firm straight posture should be adopted
- If employees are using the computer, brightness and screen clarity should be adequate. The monitor, mouse and keyboard should be placed at comfortable positions. The monitor should not be higher than the eye level
- Avoid typing while talking on the phone
- Rest your eyes periodically
- Once in 30 mins, walk or stand for 5 mins
- Feet should be firmly rested on the ground or seat base, they should not be dangling

Project specific working methods are defined in the following SOPs. It is the responsibility of the EHSS Department and project teams to ensure that these SOPs are being followed diligently.

SOP 04 – Electrical safety

SOP 05 – Work at height and fall prevention

SOP 06 – Portable tools and equipment

SOP o7 – Traffic safety

SOP 08 – Personal Protective Equipment

SOP 09 – Work permit system

SOP 10 – Safe lifting operations

6 HUMAN RIGHTS AND SOCIAL ISSUES

6.1 SOCIAL FACTORS

It is important to identify critical social issues that can impact our operations and those that involve our stakeholders. Further, when we take note of social factors, we also take into account national and state regulations such as living wage, working hours and so on that should be applied uniformly across our supply chain.

6.1.1 Child & Force labour

"Child labour" is defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. It refers to work that:

- is mentally, physically, socially or morally dangerous and harmful to children; and
- interferes with their schooling by:
  - depriving them of the opportunity to attend school;
  - obliging them to leave school prematurely; or
  - Requiring them to attempt to combine school attendance with excessively long and heavy work.

Whether or not particular forms of "work" can be called "child labour" depends on the child's age, the type and hours of work performed, the conditions under which it is performed and the objectives pursued by individual countries. In determining the types of work referred to under Article 3(d) of the Child Labour Convention (ILO), and in identifying where they exist, consideration should be given, inter alia, to:

(a) Work which exposes children to physical, psychological or sexual abuse;
(b) Work underground, under water, at dangerous heights or in confined spaces;
(c) Work with dangerous machinery, equipment and tools, or which involves the manual handling or transport of heavy loads;
(d) Work in an unhealthy environment which may, for example, expose children to hazardous

substances, agents or processes, or to temperatures, noise levels, or vibrations damaging to their health;
(e) Work under particularly difficult conditions such as work for long hours or during the night or work where the child is unreasonably confined to the premises of the employer. A summary of rules under ILO convention no. 138 is given below:

	The minimum age at which children can start work	**Possible exceptions for developing countries**
Hazardous work: Any work which is likely to jeopardize children's physical, mental or moral health, safety or morals should not be done by anyone under the age of 18.	18	18 (16 under strict conditions)
Basic Minimum Age: The minimum age for work should not be below the age for finishing compulsory schooling and in any case not less than 15.	15	14
Light work: Children between the ages of 13 and 15 years old may do light work, as long as it does not threaten their health and safety or hinder their education or vocational orientation and training.	13-15	12-14

According to the ILO Forced Labour Convention, 1930 (No. 29), forced or compulsory labour is: "all work or service which is exacted from any person under the threat of a penalty and for which the person has not offered him or her voluntarily."

EESL recognizes that child and forced labour is one of the most devastating consequences of persistent poverty and has adopted a clear position to help reduce & eliminate harmful child & forced labour through our clear overarching objectives/commitment to not employ child & forced labour in any of our operations. We will ensure that no child labour or worker is employed at our office facilities, project locations and project warehouses. We also commit to discourage forced and bonded labour in our projects by means of better communication with the stakeholders. EESL will continuously monitor this parameter to identify non- compliances and develop provisions of penalty for the same.

6.1.2 Working hours and overtime

This section is applicable to only those persons who are categorized as 'Workers' in the Factories Act,

1948 or similar regulations. E.g.- workers involved in housekeeping, security, material handling, logistics etc. It does not apply to office staff.

The daily work hours for any adult worker should not exceed 8 hours per day/48 hours per week. The work spread over should not exceed 10-1/2 hours in a day. The work spread over is the total time spent at work, including breaks – tea break(s), lunch or other rest time. The maximum daily work hours (time spend on work excluding breaks) should not exceed 9 hours per day for an adult. In case of overtime, the overtime wage should be paid at the rate of twice his ordinary rate of wages of the worker. All workers should be allowed to take a weekly holiday on the first day of the week, which is Sunday or any other day as may be approved by the employer. In case of permission to work on a weekly holiday, there should be a provision to allow compensatory holiday in lieu of un-availed weekly holiday.

In case of an adult worker, rest interval of at least half an hour should be provided, in such a way that no period of work shall exceed 5-1/2 hours. The young person as per provision of Factories Act, 1948 is defined as "adolescent" (a person who has completed 15 years of age, but not completed 18 years of age). It mentions that working hours of adolescent workers are limited to 4-1/2 hours a day. It also specifies that the spread-over should not exceed 5 hours. The provisions of the Act also specify that female adolescent workers are prohibited to work between 7.00 pm to 8.00 am as per Section 71 of the Factories Act, 1948.

The employment of adolescent workers shall follow the regulations listed under Factories Act, 1948. As per Section 87 of Factories Act 1948, the dangerous operation is any manufacturing process or operation carried on in a factory exposes any persons employed in it to a serious risk of bodily injury, poisoning or disease, there is a provision of prohibiting or restricting the employment of women, adolescents or children in the manufacturing process or operation.

As per the Minimum Wages Act, 1948 the number of hours of work for adolescent shall be fixed by the medical practitioner as approved by the Government, which be decided on consideration of adolescent as an adult or child. The adolescent should, however, not be allowed to work for more than 4-1/2 hours on any day.

Documents and records related to working hours to be maintained: Both EESL and supply chain actors (Vendor, Contractor, Sub-contractor, Labour Contractor, Equipment provider, etc.) should maintain attendance (absent/present) and time in/out register for all workers. The in-out timings recorded in the registered should either be entered by the workers themselves, or if entered by the supervisor, should be signed by the worker daily. These records are to be maintained at the distribution/ installation sites during project operational phase and at our office during project maintenance phase. The register must also record overtime hours done of workers.

6.1.3 Wages

The details of wages for both EESL employees and its sub-contractors are provided below:

- The contractor shall be responsible for payment of wages to each worker employed by him as contract labour and such wages shall be paid by him before the expiry of 7th day of a particular month.
- The contractor shall ensure that minimum wages, as prescribed by the State Labour Department are paid to the workers, depending on their skill category
- We shall nominate a representative duly authorized by him to be present at the time of disbursement of wages by the contractor and it shall be the duty of such representative to certify the amounts paid as wages in such manner as may be prescribed.
- In case the contractor fails to make payment of wages within the prescribed period or makes short payment, then we shall be liable to make payment of wages in full or the unpaid balance due, as the case may be, to the contract labour employed by the contractor and recover the amount so paid from the contractor either by deduction from any amount payable to the contractor under any contract or as a debt payable by the contractor.
- The Contractor shall make payment of contribution by way of employees' contribution towards Provident Fund, Family Pension Scheme, Deposit Linked Insurance Scheme, Administrative Charges, etc. at the rates made applicable from time to time by Government of India or other Statutory authorities.

Documents and records related to wages to be maintained: We and our contractor shall maintain registers and records giving particulars of contract labour employed, the nature of work performed by the contract labour, the rates of wages paid to the contract labour and other particulars if any. The wage register shall contain the information about daily working hours, overtime hours, number of days

worked, deductions if any, bonus payment, leaves obtained and any other information as may be prescribed. The Contractor shall keep and maintain registers and forms as prescribed under the Factories Act, 1948, Payment of Bonus Act, 1965, Payment of Gratuity Act, Contract Labour Act, PF Act and other Labour Laws in force from time to time.

6.1.4 Insurance

EESL shall ensure that all the workers are covered under employee state insurance/Medical insurance scheme. Contractors shall be responsible for ensuring that provisions of state insurance scheme or equivalent are made available to all their workers. This will give the workers free medical treatment in case of any accident or illness in their dedicated hospitals. In case of any accident the workers shall be given first aid at the nearest medical center / hospital. If required, the worker could be then taken to the ESIC hospitals for further treatment. Otherwise, workman can also be covered under any personal accident policy with medical extension added in the policy. The Contractor shall make payment of compensation in case accidental injury in accordance with provisions of Workmen Compensation Act, 1923. The contractors shall periodically provide to EESL, sufficient documents (insurance deductions/cover note etc.) with regards to coverage of their workers under relevant insurance schemes.

EESL is in the process of including the need to obtain insurance as a mandatory requirement for bidding documents. EESL is committed to strengthening worker insurance throughout its supply chain, especially with sub-contractors and labour contractors. It will be the responsibility of the project teams to monitor the insurance compliance of labour contractors.

6.2 GENDER EQUALITY

Women play an important role in the well-being of the society and our company. We are committed to providing equal opportunities to both genders and end gender related discrimination, if any. We strongly support the sustainable development goals, including SDG 5 on achieving gender equality and empowering all women and girls. As per World Bank 2017 report, India must address the issue of women participation in workforce in order to achieve double digit growth. The EHSS department and HR department will proactively identify cases of gender discrimination with key focus on the following topics:

- Gender based violence, including sexual harassment at the workplace
- Disparity in benefits provided
- Termination on account of pregnancy

Through our HR policies we have ensured that we treat all our employees equally. In order to promote women to take up challenging roles, the HR department will continuously identify opportunities. These could be interventions that assist women to work flexible hours, people or resource support (especially medical, childcare, etc.), networking and capacity building initiatives. EESL has always tried to provide an environment favorable for women at work. Either having women in top managerial posts or having women friendly policies, EESL has always been preemptive to nip the menace of

gender inequality at its bud.

6.2.1 Creation of Internal Complaints Committee (ICC)

An Internal Complaints Committee has been constituted within the organization in accordance with the "Sexual Harassment of Women at Workplace Act 2013" for prevention, prohibition and Redressal of complaints of Sexual Harassment from all women employees (Permanent/ Contractual/ Outsources) of EESL Group of Companies. The same was first constituted on May 30, 2014 enforcing Vishakha guidelines in EESL. Currently, the committee is working with 5 Members i.e. 3 Female & 2 Male members. EESL representatives from higher management are also the part of the committee. Any staff member can submit complaints about sexual harassment and abuse at the workplace to this committee. The members of the committee meet on a quarterly basis or on receipt of any complaint. Committee responds to the complaints or request on an immediate basis and sets the timeframe for resolving the complaints. The committee also carries out gender sensitive trainings, self-defense workshops etc.

6.2.2 Child Care policy

EESL understands the vital role of motherhood for its women employees. Hence, it has provided a Childcare leave policy which allows for a paid leave from work for providing much needed care and attention to the newborn. Also, there is provision of 2 years childcare leave without pay for the women employees. Male employees are given 15 days childcare leave.

Special Child Care Leave on adoption of a child: This leave is facilitating employees with less than two surviving children to take care of their legally adopted child upto one year of age. Female employees are granted the Special Child Care Leave on adoption of a child for a period of 135 days from the date of valid legal adoption. Male employees are granted the Special Child Care Leave on adoption of a child for a period of 15 days to be availed within a period of 135 days from the date of valid legal adoption.

6.2.3 Maternity& Paternity policy

Women expecting motherhood are provided 6 months of paid leave. The leave can be combined with the Child Care policy and can be utilized to avail complete care and attention during the period. Male employees are also given 15 days child paternity leave.

6.2.4 Structure of Top Management

EESL is committed to achieving gender parity in its workforce. During the project period, the goal is to increase employment of women across all job categories and contract types from the existing 15% to 25%. A Gender Baseline has been conducted to establish targets. Currently, EESL has active participation of Women at Senior Management as well as at various levels of the decision-making process. In the past, several women have held key managerial positions such as Directors, National Program Managers, and Company Secretary Etc.

6.3 GRIEVANCE REDRESSAL MECHANISM

In a project there might be some issues, concerns, problems, or claims (perceived or actual) that an individual or group of workers or local community wants a company or contractor to address and resolve. Grievance mechanism provides a platform for all the concerned stakeholders from contractors, staff to local people to express concerns and issues to the management, and receive the effective solutions for the same in a time bound manner. The grievance mechanism system must be transparent and legitimate to enhance the trust between the workers, society, and the system.

Grievance mechanism in its scope covers all aspects of operations and stakeholders. It is applicable to all the relevant stakeholders of the project like workers, local community, vendor and contractors. This system must ensure that all the grievance of the workers and community must be addressed in a time bound and effective manner. At each level of the project, there are designated representatives, who will look at the grievance raised at the workplace and ensure timely mitigation measures for the same. There is also a provision of continuous monitoring of the system to track the issues and the solution. Monitoring the system will be beneficial in the trend analysis of the issues and the effectiveness of the system to resolve the same.

6.3.1 Receive and Register

A complaint redressal system is already in place (support.eeslindia.org/) to ensure that complaints are resolved in an efficient and timely manner. EESL also receives complaints via EESL app, e-mail, SMS, phone calls, toll free numbers etc.

Complainants can also directly reach the regional offices for reporting the complaints. For project sites, Vendor, Contractor, and the labour contractor must have a representative to look at the problems and issues faced by the workers and the local community members. There must be one representative at each level to receive and address the complaints raised by the workers and local community. It should be ensured that all the issues raised must be registered and shall be resolved in a timely manner. It is necessary to keep the identity of complainant confidential, if desired so.

A record of the grievances received at site must be maintained mentioning the name & Address (Optional), details of grievance and location.

6.3.2 Review and Investigate

It is very important that the issues registered must be reviewed and investigated in detail within the limited period of time. Management should try to investigate the issue within seven working days. It is essential to conduct root-cause analysis of the issues and to have an assessment of the number of workers/ people getting impacted by that problem. It also provides an opportunity to conduct assessment of the risk it poses on the project.

6.3.3 Resolve the Issue

The issue must be resolved within the limited time period and the recommended solutions must be SMART (Specific, Measurable, Attainable, Relevant and Time-bound). EESL plans to inform the complainant during multiple stages of the issue redressal via notifications in App/SMS (to be developed). Also, the solution must address all the issues raised by complainant and ensure preventive measure to avoid the same issue. A maximum time frame of 15 days to be developed within which all complaints received should be resolved and/or addressed.

Table 13: Issue Resolution Roles and Responsibilities

S. No	Roles	Responsibilities
1	Labour Contractor	Ensure all the grievances raised by the workers or local community must be registered at site. Worker along with contractor and vendors to resolve the issues raised by the complainant.
2	EHS Coordinator	Ensure that concerns raised by the workers and community must be registered and evaluated as per the required procedure.
3	Contractor	Must ensure that all the issues raised must be investigated in details and timely solution provided to the complainant. Must ensure continuous monitoring of the issues raised and evaluate the effectiveness of the solutions.
4	Vendor	Ensure that all the issues raised must be evaluated in details and timely solution must be provided in all the cases. Must ensure that issue once raised should be monitored continuously to prevent its recurrence. All grievances must be reported to EESL, along with the corrective action and timeline. Vendors will be responsible for documentation of issues in sub-tiers, however, EESL will conduct self/third party reviews to check any instances of bypass.
5	EESL – CMU Complaint Monitoring Unit	Keep track of grievances and monitor their progress carefully. Ideate on newer methods of obtaining grievances from various sources; e.g. setting up SMS/internet messaging based groups, consolidating list of mobile numbers and sending alerts to workers

The grievances received directly at site through the workers and the local community are also to be received and registered properly in the form of a Grievance Record duly signed by the aggrieved mentioning

1. Complainant Name, Age, Gender
2. Contact Details,
3. Date and time
4. Location & Details of Grievance.

5. Confidentiality required (yes or no)
6. Signature

The same should also be resolved/addressed within the timeframe through escalation at different levels initially at Site level (Labor Contractor, Vendor, Contractor with EHSS Coordinator), followed by at the level of EESL Program Team and EHSS Coordinator. (wherein Team may invite representation from the local community).

6.3.4 Monitoring, Evaluation & Complainant Feedback

After resolving the issue, information shall be passed on to the complainants via e-mail, SMS, phone calls etc. Complainant can further confirm on the grievance redressal and provide feedback on the services provided by EESL.

It is most important to monitor the issues registered on a regular basis (based on lessons learnt). The issues raised in the grievance mechanism will be assessed monthly for the actions being taken and its closure. This analysis will help in the trend analysis of the issues taking place at the workplace and to assess the effectiveness of the solutions provided by the system.

Further, Social audits are to be conducted at Urban Local Body or state level on periodic basis for looping back with some complainants to estimate and evaluate the system performance and user's satisfactions towards the EESL's services. Improvement steps may be incorporated to boost the robustness of the complaint redressal system based on the audit & its suggestive measures.

7 MONITORING, EVALUATION AND REPORTING

7.1 ACCIDENT, INCIDENT REPORTING AND INVESTIGATION

The effective, reporting, classification and resulting actions including investigation, closure and communication of incidents, is crucial to enable EESL to understand the effectiveness of its EHS risk management programs and to ensure that the organization learns lessons so as to be able to avoid future recurrences.

7.1.1 General requirements

EESL's project operations and project owners shall implement and maintain procedures and other arrangements for the effective, reporting, classification, escalation, investigation, closure and communication of incidents (including near misses). The Project Owners are the local bodies – Municipal Corporations and with whom EESL ties up for project execution. These requirements also apply to incidents involving contractors (directly commissioned by, or under our direction) whilst they are on EESL premises or engaged in off-site activities (not on the contractor's own premises). It shall be ensured that personnel have the necessary competencies, appropriate to their role in the process (lead investigator/team member), to be able to conduct effective incident investigation and root-cause analysis. This shall include formal training where necessary.

7.1.2 Initial incident actions

The initial incident action pertains to procedures that will be implemented to ensure the prompt reporting of incidents. These procedures shall identify those that are to be informed regarding an incident, as described below:

- Incident shall be reported to the relevant business or site personnel on the same work-day on which it occurs (or is discovered).
- Dependent on the incident classification, we shall be informed of incidents within the time period stated in the table below.

Refer ***DF 02 – Accident/Incident Reporting*** for the format for reporting incidents.

In the case of a Category 4 or 5 accident or incident, work shall cease immediately and not be re-started until after the accident or incident has been investigated and risk controls reviewed, that necessary corrective and preventive actions have been taken to reduce risk to an acceptable level, and that formal authorization to re-start has been given by top management. The project teams shall ensure that any relevant statutory incident reporting requirements are complied with. E.g.-Form 18 and Form 18A, of Factories Act, 1948.

7.1.3 Incident classification and escalation steps

Project team will be responsible for incident classification and escalation steps. The incidents will be

categorized according to their actual severity and maximum reasonable consequence, according to the EESL Incident Classification System (See Appendix 2). Our project teams will ensure that the following incident escalation steps and recording / reporting actions are followed in the event of an incident.

Table 14: Incidence/Accident Escalation Matrix

Incident Category	Description	Incident Escalation Steps	Recording / Reporting Actions
1 & 2	Negligible Minor	Managed locally in accordance with local procedures.	All incidents recorded in the Incident Management Database & Reporting System in line with requirements and reported monthly in the Incident Monthly Report. **Refer appendix 2: Accident & Incident Classification for indicative incidents**
3	Moderate	Managed locally in accordance with local procedures Must be reported by email to the EESL CEO, COO, Head of SDU and Legal Counsel within 24 hours of the incident occurrence.	
4	Serious	Initially managed locally in accordance with local procedures Must be reported by email to the EESL CEO, COO, Head of SDU and Legal Counsel within 12 hours of the incident occurrence. If additional support is needed, then the Protocol for calling a "Crisis" will be followed.	
5	Catastrophic	Initially managed locally using the subsidiary Emergency Plan Must be reported by email to the EESL COO, Head of SDU and Legal Counsel within 12 hours of the incident occurrence. If additional support is needed then the protocol for calling a "Crisis" will be followed	
Potential Category 4 & 5 Near Misses	Serious	Managed locally in accordance with local procedures Must be reported by email to the EESL CEO, COO, Head of SDU and Legal Counsel within 24 hours of the near hit incident occurrence.	

Crisis Protocol

A crisis is defined as any unplanned event that significantly threatens the health and welfare of EESL's stakeholders; causes operational disruption; or causes physical or environmental damage and harm to the EESL's public standing.

In any crisis, EESL's foremost concern is for the protection of human life, health, and welfare.

Protection of property and the protection of the integrity and reputation of EESL are also critical; however, they are always secondary to protection of life, health, and welfare.

A primary responsibility of the EESL crisis management team - is to make recommendations for the senior management that they may successfully lead through the crisis. The crisis management team will manage the crisis from beginning to end, making determinations about the scope and nature of the response, as well as coordinating communication of information about the crisis to all internal and external stakeholders. The crisis management team will comprise of:

- **Head - Projects & BD**
- **Head – Corporate Planning**
- **Head – SDU**
- **Head - Human Resources**

7.1.4 Investigation of incidents

The procedure for investigation of incidents includes two aspects – investigation teams and investigation methodology. The composition of investigation teams will vary depending on the actual/potential consequence of the incident. The investigation team must comprise of individuals competent to complete the investigation. The local Supervisor(s) would typically be expected to be involved in all incident investigations. Area, line and site management would typically be expected to lead and/or participate in higher category incidents.

Our project team and EHSS Department shall ensure that legal defenses are not compromised during the initial or subsequent management/investigation of an incident. EHSS department will lead the root-cause analysis. Mechanisms / methodologies / tools (including root-cause analysis) to establish immediate, underlying and root causes of incidents, appropriate to the actual/potential consequence of the incident should be applied. Category 4 and 5 incidents (including Potential Category 4 and 5 Near Misses) shall be investigated by root-cause analysis (refer Appendix 5)

The formal written report should be produced as fast as is reasonably possible (e.g. in India 7/10 days to meet the Government Factories Department reporting requirements) but in any case, within 28 days of the incident unless specific documented reasons prevent this. Prioritized corrective and preventive actions shall be identified to address the identified immediate, underlying and root causes. These will be supported by clear responsibilities for completing the actions together with allocated timescales and resources.

Proposed corrective and preventive actions (including identified control measures) shall be reviewed and approved by senior management. They shall be subject to risk assessment to ensure that (i) they are appropriate to the nature and scale of the hazards and associated risks and (ii) that additional risks are not unwittingly being introduced into the organization.

7.1.5 Closure of reported incidents

Upon incident investigation, formal systems shall be in place to ensure that the status of corrective and preventive actions is monitored through to closure. The EHSS department should take this

responsibility for monitoring. Confirmation of the effectiveness of corrective and preventive actions shall be undertaken by the project teams.

7.1.6 Communication regarding the incident for future precaution

It shall be ensured that lessons learned from incident investigations are documented and communicated to relevant employees and, where appropriate, contractors. Systems shall be in place to manage the external communication of information relating to incidents where this is needed. Systems shall be in place to review and, where appropriate, act upon incident information received from other EESL sites.

7.1.7 Review of incident and investigation data

Our senior management shall undertake and document a periodic (at least annual) review of incident and investigation data to identify any trends, assess the effectiveness of current risk controls, and establish whether any additional measures are necessary. Incident classification, reporting and investigation procedures shall be periodically reviewed as needed to ensure that they remain current, relevant to the business, effective and in alignment with relevant EESL policies and standards. Our EHSS department shall review all Class 5 incidents with the CEO in person or by Telepresence within one month of the completion of the final investigation report. The report will be submitted to the Board of Directors and the EESL EHSS Committee for review.

Each of our operation shall ensure they comply with the requirements of this standard. Performance against meeting the requirements of this Standard shall be assessed periodically documented and, where required, reported to the company. The evaluation of performance shall include, as a minimum, confirmation that:

- Incidents are being reported and acted upon.
- Incidents are being correctly classified.
- Investigations are being carried out by competent personnel – including the active involvement of management – using appropriate methodologies.
- Investigations are identifying basic and underlying causes and contributory factors.
- Corrective and preventive actions, appropriate to the nature of hazards and level of risk, are being identified and implemented.
- The effectiveness of corrective and preventive actions is being assessed.
- Learning arising from incidents are being communicated internally and, where appropriate, outside the company.
- Senior Management and BOD/EHSS department reviews have taken place.

7.2 CORRECTIVE AND PREVENTIVE ACTION

It is essential to ensure that a program is in place in relation to the management of identifying, recording, tracking and closing-out actions. This includes consideration of corrective actions (e.g. resulting from inspections, audits, etc.) and preventive actions to prevent recurrence and/or ensure continual improvement in sustainability performance.

- We shall have a centralized system for managing actions that need to be addressed. The process shall ensure that corrective and preventive actions are taken as appropriate. The process shall ensure that actions are tracked; the actions are communicated to those potentially affected; and monitoring and verification mechanisms are implemented to ensure actions continue to be managed effectively.
- We shall also be consistent with the requirements of the *Incident Reporting and Investigation* Standard (including the tracking and close-out of actions arising from incidents and near misses).
- We shall appoint a nominated individual with responsibilities for managing the collection and collation of corrective and preventive actions.
- Each operation/business shall have an equivalent corrective and preventive action process as mentioned in subsequent sections.

7.2.1 Process for corrective and preventive action

We shall ensure that a formal corrective and preventive action program that conforms to EESL requirements, Company and operation requirements, stakeholder requirements and regulatory requirements, as applicable is in place. The project teams, in consultation with the EHSS department shall define and document definitions associated with non-conformance, corrective and preventive actions. The project teams shall define activities and that have the potential to generate non-conformances and corrective/preventive actions. This may include, but not be limited to, non-conformances and actions associated with the following:

- Accident/Incidents and near misses (including grievances and stakeholder concerns);
- Internal audits
- External audits by a third party (e.g. stakeholders and regulators)
- EESL audits including self-assessment questionnaires
- Inspections
- Compliance assessments
- Management reviews
- Staff suggestions schemes
- Whistle-blower procedures

Refer ***SOP 11 –Health & Safety audit procedure*** for conducting internal audits on safety

The project team shall develop and implement a procedure that outlines the roles and responsibilities associated with identifying and investigation non-conformances. These might include processes for:

- Identifying and recording non-conformances
- Communicating non-conformances
- Investigating and taking action to correct non-conformances
- Determining corrective and preventive actions
- Assigning roles and responsibilities for actions
- Deciding upon, and approving, action timelines for completion and close-out
- Keeping aging reports for management review

The project teams shall ensure a process is in place to assign and track corrective and preventive actions that consider the following:

- Preventive and corrective actions shall be communicated to relevant personnel
- Actions taken shall be communicated to external stakeholders as appropriate
- An escalation process shall be established for actions that become significantly overdue specifying reporting lines and due process
- Operations shall ensure periodic management reviews consider the effectiveness of action tracking and closure processes and identify opportunities for reoccurrence.

Sample project reporting format can be obtained from ***Documentation Format 04 – Sample project report.*** The project teams should ensure that vendor specific project reports are obtained on a quarterly basis and submitted in due time to the EHSS department.

Each of our operation shall ensure that it complies with the requirements of this Standard. Performance against the requirements of this Standard shall be assessed periodically, documented and, where required, reported to the company. The evaluation of performance shall include, as a minimum, confirmation that:

- A formal corrective and preventive process is in place
- A Manager at the operation level has been assigned with ultimate responsibility and accountability for action tracking and close-out
- Actions are being completed according to due dates (suggested Key Performance Indicator is number of outstanding actions and an aging report)
- Actions have been communicated to affected personnel.

8 CAPACITY BUILDING, TRAINING AND AWARENESS

We shall ensure all employees including front-line leaders, senior managers and including contractor employees working on EESL operations are competent to carry out their work activities effectively and manage the associated risks and impacts appropriately. Employees shall be equipped with the necessary knowledge, skills and behaviors to provide a basis for continuous improvement, to protect the day-to-day health and safety of employees and contractors.

Training is intended to develop appropriate *knowledge*, *skills and behaviors* which will enable individuals to become competent in their roles, to fulfil their responsibilities and required activities in their specific environment whilst remaining safe, healthy and simultaneously contributing to the overall long-term sustainability of the company. In this way, training is a key risk mitigation method for the business. Training shall be based on the following principles:

- Training shall be provided to both employees and contractors based on role, risk, and responsibilities
- The training program shall seek to ensure competency and quality outcomes rather than only training attendance
- The training program shall focus on the needs of the audience and use different learning methods to cater for differing needs, and
- Training shall be an ongoing and iterative process.

8.1 COMPETENCY FRAMEWORK

Competency derives from the three elements of knowledge (through provision of information) which, over time, becomes skill (through coaching and practice) and leading on from this, the ability to demonstrate positive behaviors (through acting out the correct messages and responsibilities). Training shall target all three elements cumulatively in order to achieve competency. In order for the business to understand what competencies are required as well as a current state of the existing competencies within the business, a Competency Framework shall be created.

- The first stage of the Competency Framework is to identify the knowledge, skills and behaviors required per job function, taking into consideration associated risks and activities, legal and regulatory requirements and leadership level and responsibilities

- Competency frameworks shall be designed on a stepped scale for example competency levels 1-3 or 1-5 to reflect the different competency requirements of different employee groups for each subject area. The following example is based on a management of change:

Table 15: Competence Framework

Competency Level 1	Competency Level 2	Competency Level 3
Knowledge that a change in person, equipment, process or environment can increase risk.	Ability to identify needs for change management and Communicate this to staff.	Champions the importance of Change Management at an operational level.
Understanding that many incidents occur as a result of poorly managed changes.	Ability to be involved in a Change Management processes and organize associated people and resources.	Assesses the effectiveness of change management at an operational level.
Awareness that any changes which affect a person or process needs to be communicated to all affected parties	Will raise awareness of the importance of Change Management with peers and Reports	Seen as a subject matter expert domain and who can provide advice and expertise to operations in implementing Change Management processes.

- The second stage of the Competency Framework is to identify which existing competencies individual employees and contractors have. Existing education, training, qualifications and experience shall be considered in context of the skills required to fulfil their role, however, it is advised that baseline training is repeated for high risks. This process will confirm what skills are currently in place for the existing workforce and gaps which need addressing through the Training Needs Analysis, and

- Specific competencies for the EESL Programme shall be developed which will include Stakeholder Management, Environmental Impacts and Controls, Health and Safety Hazards and Controls and social factors.

8.2 TRAINING NEEDS ANALYSIS

The Competency Framework will dictate Competency Requirements, and when these are mapped against existing employee and contractor skills, a Training Needs (or Gap) Analysis will result. Where gaps are identified, these must be addressed through a defined training plan stating who requires training in which areas, to which competency level, and who will provide this training. HR Department in collaboration with EHSS Department will be responsible for the undertaking training need analysis. A Training Needs Analysis shall be completed as follows:

- For all employees and contractors as a baseline. Training needs must be created on a yearly basis for each operation based on risk
- For new employees and contractors, this must address the risks and responsibilities including appropriate induction and skills building. Training requirements for new starters must be identified with a development plan to address the increased risk of their presence due to inexperience
- Within Change Management Processes; if there are any planned or unplanned changes to scope, environment, legislation, equipment, personnel, operational conditions or processes, training must be provided to ensure any additional risk is mitigated, and
- When an incident has occurred and training is identified as either a contributing or causal factor. High risk groups must be identified, such as new starters, who require additional and immediate mitigations such as additional supervision alongside a coaching and training plan to address competency gaps.

EESL has nominated the officials at state & national level to assess environmental risks, impacts and identify mitigation measures. The designated staff shall be trained for carrying out this analysis along with implementation, supervision and EHSS reporting on the projects. Training will also cover record keeping; facilitation of licenses, permits etc.

Training shall be imparted among various stakeholders of the projects like Manufacturers, Installation agencies, distribution agencies, PR agencies, consultants etc. Modules for training may be developed keeping in view the needs of the various target groups/stakeholders. A more comprehensive plan on training and capacity building is proposed to be included in the operations Manual for the project.

EESL has developed sustainable development unit with segregated expertise in all three segments of EHSS. Responsibilities are charted out in accordance with institution's EHSS (SDU) governing structure mentioned in clause 1.4 among SDU team members at State/regional & National levels. Training contents applicable to each stakeholder shall be prepared by the specialist officers and empaneled consultants of the SDU. Existing training modules will also be updated based on latest EHSS manual and program needs. Empaneled consultants will carry out the exposure visits, prepare the detailed training modules & perform training sessions along with Team audits with direction from SDU team members. Training shall cover but not be limited to following aspects of the projects (In line with Table 6 of ESSA):

Table 16: Capacity Building on Environment Aspects

Broad areas	Topics	Stakeholders
Awareness on guidelines and legislation including development of required guidance material	Government of India and state environmental guidelines, legislation, and project guidelines, clauses to be incorporated in bid documents for all stages including safe disposal of wastes, refrigerants	EESL staff of the Sustainable Development Unit Managing Program Operations at Main, Regional, and site offices Contract and procurement Departments Project Management Units of EESLs Registered Vendors of EESL Managerial and Engineering staff of Local bodies and project implementing agencies (for various programs)
Energy efficiency specific training and capacity building.	Mechanisms to monitor energy efficiency, groundwater data collection and systematic reporting	Managerial and Engineering staff of Local bodies and project implementing agencies
Environmental impacts and mitigation	Identification of environmental impacts from construction, placement decisions and waste management	EESL staff of the Sustainable Development Unit Program units at Main, Regional, and site offices Project Management Units of EESL
Construction and overall program safety	Safety concerns, guidelines, operationalization of safety procedures, PPEs and their use, safe equipment and implementation methodology	EESL staff of the Sustainable Development Unit Managing Program Operations at Main, Regional, and site offices
Monitoring and supervision	Environment issues during construction and material sourcing, site management, public and worker safety concerns, disposal of waste	EESL staff of the Sustainable Development Unit Managing Program Units at Main, Regional, and site offices Project Management Units of EESLs

Benefits and Environmental Management Opportunities (including End of life disposal)	Awareness on environmental and other benefits, savings, maintenance of appliances, provisions under EPR and End of Life disposal of appliances	Beneficiaries Producers / Vendors
Management Information System	Training on inputs into the Management Systems (environmental aspects) which would be created including for emergencies, disasters; and operations	EESL staff of the Sustainable Development Unit Managing Program Units at Main, Regional, and site offices Project Management Units of EESL Representatives of Local body / departments involved
Contingency Plan, Emergency Plan	Provisions of contingency Plans and Emergency response and preparedness plans	EESL staff of the Sustainable Development Unit Managing Program Units at Main, Regional, and site offices Project Management Units of EESL Representatives of Local body / departments involved
Work Close out Strategy	Mechanisms to run the operations while EESL exits from each program area	Representatives of Local body / departments involved Beneficiaries

EESL staff shall also be trained on gender & social aspects of EESL programs. Trainings shall be provided on various implementation measures to inculcate gender inclusive and gender sensitive actions within EESL. SDU has prepared the EHSS training calendar for CY 2021 & CY 2022 indicating the participation, frequency and coverage of the training. (Appendix-7).

8.3 TRAINING DELIVERY AND METHODS

Training Delivery is a critical consideration to ensure the effectiveness of learning and competency. Training programs must be developed and delivered based on the outcome of the Training Needs Analysis. Training can be delivered in-house and/or through external training providers, however the following shall be considered as a minimum for both types of training:

- Consideration of the audience being trained, including language and literacy abilities;
- Setting objectives (goal, purpose and intent) of the training based on the required competencies
- Use of the most appropriate (and varied) training methods for the required competencies
- Ensure that the trainers or facilitators are experienced and/or qualified to deliver training. Checks must be made on external trainers, such as asking for copies of relevant training certificates and references
- Where internal courses are deployed by internal staff, 'Train the Trainer' courses shall be provided to equip trainers with the skills necessary to train on internal EESL requirements and practices, and
- Training for significant risks shall be repeated every year as a minimum for all employees and contractors.

Training can comprise both formal and informal training methods for example:

Table 17: Training methods

Formal	Informal
E-Learning	Coaching
PowerPoint	Mentoring
Classroom Training	Background Reading
Flip Chart sessions	On-the-job learning
Learning based games	Focused group discussions
Toolbox Talks	Leading by Example

Using a combination of these methods, effective trainers, both internal and external to the organization will be able not only to transfer knowledge and tangible skills, but also behaviors, organizational culture and values.

8.4 TRAINING: IDENTIFICATION OF ENVIRONMENTAL RISKS &, MITIGATION MEASURES AND SOCIAL OUTREACH

Training would identify the environmental aspects at each and every level and among all stakeholders at EESL. The identified environmental risks and impacts identified would be analyzed and proper impact mitigation plan (available templates) would be implemented with proper supervision.

On Social front, training would be provided for implementation of Social and Gender actions, promote outreach of benefits of EESL programs during and after the project implementation to understand the demands and needs of the people. Trainings shall include plans to facilitate the implementation of gender inclusive and gender sensitive actions within EESL. It shall be ensured that local people especially women stakeholders have equal opportunity to benefit from relevant training and capacity building activities under the project. Moreover, the trainers will ensure that training materials are gender-sensitive. Environmental & Social training modules shall be prepared by trainers which shall be updated continuously to cover all EESL programs.

8.5 INDUCTION FOR NEW EMPLOYEES

Inductions for new employees (to their role, responsibilities, site and relevant risks), contractors (to their role, responsibilities, site and relevant risks) and visitors (to the site and relevant risks) must be provided. Also at the start of new projects or programs, training to be provided for each location to regional staff and other stakeholder like contractors, labour, general public etc. The same shall be carried out by capacity building expert, consultants or the regional EHS staff. Inductions will be maintained and delivered consistently by competent personnel and should cover as a minimum:

Induction to site

- Site orientation, site rules and no-go areas;
- Emergency procedures and medical facilities;
- Site hazards and associated risk controls;
- Incident reporting procedures, and
- An overview of group and site-level Sustainability Policies.

Induction to Role and Responsibilities

- Requirements and risks associated with the role;
- Expectations and responsibilities;
- Company and site Policies, Systems and Standards;
- Integrated Health, Safety and Sustainability practices, and
- Relevant risks and control measures for EESL operations and activities.

Employees, contractors and visitors receiving induction training shall confirm through documented acceptance that induction training has been provided. All new employees and contractors shall receive induction training prior to starting their job function. Additional supervision will also be implemented

until the individual is deemed and documented competent to work alone.

8.6 TRAINING RESOURCES

EHSS Department will be responsible for the training resources and would be assisted by Consultants employed for the preparation of training materials. Training resources shall be varied, appropriate to the audience, activity and environment wherever possible with maximum use of examples and case studies to maximize the impact and longevity of the messages conveyed. For example, use of the following shall be considered:

- Multimedia (photos, audio, videos);
- Incident Investigations;
- Practical scenarios and role-plays, and
- Company and industry safety shares and case studies.

During or at the end of training, competency shall be assessed by someone who is qualified to do so using consistent and demonstrable criteria. The acquired competency can then be added to the individual's training record. For contractors, due to the increased risk profile, and in line with Contractor Management practices, business units shall collaborate with the EHSS department to assess the competency of all contractors prior to their appointment on EESL projects to ensure levels of competency are appropriate to the scope of work being undertaken.

All our employees assessing contractor competencies shall have the appropriate level of skill and expertise to conduct the assessment. Contractor qualifications shall be requested and maintained on record. A sample set of qualifications are given below:

Table 18: Contractor's Qualification

Aspect	Criteria
Technical Ability	Experience Plant and Equipment Personnel Ability
Management Capability	Past Performance and Quality Project Management Organization Experience of technical personnel Management Knowledge
Health & Safety	Safety, Experience modification rating OSHA Incident Rate Management Safety Accountability

The competency of subcontractors conducting activities contracted out by approved contractors shall be assessed and documented by the approved contractor and our company. Where gaps in competencies are identified, appropriate training shall be provided in conjunction with increased levels of supervision.

8.7 RECORD KEEPING AND REPORTING

It shall be ensured that participation in internal and external training is recorded and records are valid, up to date and kept secure, typically in the personnel training file. Only an approved internal or external trainer can issue a certificate of training or training attendance. Copies of training and evaluation materials shall be retained.

As a minimum, training records shall include the date of training, location, name of trainee(s), name of training course or competency, pass or fail (where applicable and if so, reasons where possible), level of competency achieved, sign-off by relevant authorized trainer, any relevant certification achieved and any remedial actions (for example in the case of competency not being achieved). Documented checks on the qualifications and experience of employees and contractors where their qualifications are relevant shall be maintained where required. For example, new employees and contractors shall be asked for their technical certificates such as a driver's license and required qualifications for operations.

EESL plans to develop a Knowledge Management System (KMS) for dissemination of working philosophy, Best Practices, lesson learnt, training material etc. The EHSS training material shall also form the part of the KMS. EHSS Training material to be updated based on new business lines as well by inputs from the KMS.

Appendix 1: List of major regulations applicable to EESL

S. No	Legislation	Central/ state
1.	The Water (Prevention and Control of Pollution) Act, 1974 and amendments	Central
2.	The Environment Protection Act, 1986 and amendments	Central
3.	The Air (Prevention and Control of Pollution) Act, 1981 and amendments	Central
4.	Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2016 and Amendments	Central
5.	Solid Waste Management Rules 2016 and Amendments	Central
6.	E-wastes (Management) Rules, 2016 and Amendments	Central
7.	Batteries (Management and Handling) Rules, 2001 and Amendment	Central
8.	Contract Labour (Regulation and Abolition) Act, 1970 and amendments	Central
9.	Minimum Wages Act, 1948 and amendments	Central
10.	Payment of Wages Act, 1936 and amendments	Central
11.	Workmen's Compensation Act, 1923 and amendments	Central
12.	Employees' State Insurance Act, 1948 and amendments	Central
13.	Maternity Benefits Act, 1961 and amendments	Central
14.	Sexual Harassment at the Workplace (Prevention, Prohibition and Redressal) Act, 2013 and amendments	Central
15.	Environmentally Sound Mercury Management in the Fluorescent Lamp Sector	Central
16	The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	Central
17	Employees PF and Miscellaneous Provision Act 1952	Central
18	Child Labour (Prohibition and Regulation) Act, 1986	Central

Note: Besides above, other rules and regulations (at Central and State level; as applicable: e.g. Fire Rules, Land Acquisition related rules, NOC for DG Sets, Tree felling permission etc) are also to be complied with.

Appendix 2: Accident and Incident classification system

Incident Category	Definition	Severity Criteria						Action	Maximum time allowed
		Safety	**Health**	**Environment**	**Social**	**Labour**	**Security**		
Category 1	Negligible	First Aid Case	N/A	Inside warehouse/Site/Stores - Toxic/ Hazardous material and volume up to $1m^3$ or equivalent vol. of gas emission/ discharge of waste	Complaints - Local complaints in company office (written or verbal) from external sources.	Complaints - Concern / Grievances restricted to local complaints in company office (written or verbal) by Employees / Contractors.	N/A	1. Manage locally in accordance with local procedures.	-
				Outside warehouse/Site/Stores - Causing negligible, reversible environmental impact, requiring very minor or no remediation				2. All incidents recorded in the Group Incident Management Database & Reporting System	2 Weeks
								3. Statutory report to authorities (as required by local regulatory agencies)	Statutory Requirement
				Complaints - Local complaints in company office (written or verbal) from external sources				4. Report monthly in the Incident Monthly Report	Monthly

Category 2	Minor	Medical Treatment Injury	N/A	Inside warehouse/Site/Stores - Toxic/ Hazardous material and volume up to 1-10m^3 or equivalent vol. of gas emission / discharge of waste	Complaints - Receipt of multiple complaints on same topics from external sources	Complaints - Receipt of multiple complaints on same topics by Employees / Contractors	Robbery or Assault	1. Manage locally in accordance with local procedures.	See Local Procedures
				Outside Warehouse/Site/Store 1) Toxic/ Hazardous material and volume up to 1m^3 or equivalent vol. of gas emission/ discharge of waste 2) Causing minor, reversible environmental impact, requiring minor remediation	Protest - Minor protest (single family / small group less than 5 people)	Protest Type - Minor protest (small group less than 5 people)		2. All incidents recorded in the Group Incident Management Database & Reporting System	1 Week
								3. Statutory report to authorities (as required by local regulatory agencies)	Statutory Requirement
				Complaints - Receipt of multiple complaints on same topics from external sources	Coverage - Minor / adverse local public or media attention	Coverage - Minor / adverse local public or media attention		4. Report monthly in the Incident Monthly Report	Monthly

Category 4	Serious	Lost Time Injury / Illness	Complaints - Receipt of multiple complaints on same topics from/ to Local NGO/ Govt. body	Complaints - Receipt of complaints / multiple complaints on same topics from / to National NGO / State Govt. body	Complaints - Receipt of complaints / multiple complaints on same topics from / to National Union/ State Govt. body	Shooting (non-fatal)	1. Manage locally in accordance with local procedures	-
							2. Report by email to the EESL and EHS head	12 Hours
			Coverage - In Regional media- Newspaper / TV	Protest - Large scale demonstration (group including more than 20 people) - No work stoppage	Protest Type - Large scale strike (group including more than 20 people) - No work stoppage		3. Report to the EHS Head and CEO	12 Hours
							4. Statutory report to authorities (as required by local regulatory agencies)	Statutory Requirement
			Inside Warehouse/Site/Stores - Toxic/ Hazardous material and volume up to 100-1000m^3 or equivalent vol. of gas emission/ discharge of waste	Coverage - In National media- Newspaper / TV/ Internet	Coverage - In Regional media- Newspaper / TV/ Internet		5. Investigate for root cause analysis	Investigation within 28 days
							6. Report monthly in the Incident Monthly Report	Monthly

Category 5	Catastrophic	Fatality / ies	Outside Warehouse/Site/Stores s– 1) Toxic/ Hazardous material and volume up to 10-100 m^3 or equivalent vol. of gas emission/ discharge of waste 2) Causing serious environmental impact, with medium-term effect, requiring significant remediation	Complaints - Receipt of complaints / multiple complaints on same topics from/ to International NGO / Central Govt. body	Complaints - Receipt of complaints / multiple complaints on same topics from / to Central Govt. body	Assault – Fatal Direct Terrorist Attack	1. Manage locally in	-
							accordance with local procedures	
							2. Report immediately by verbal communication to the EESL CEO, and EHS head	0 Hours
							3. Report immediately by email communication to the EESL CEO, and EHS head	12 Hours
			Complaints - Receipt of complaints / multiple complaints on same topics from/ to National NGO/ State Govt. body	Protest - Large scale demonstration (group including more than 20 people) - Stoppage of Work	Protest Type - Large scale strike (group including more than 20 people) - Stoppage of Work		4. Report to the EESL CEO, and EHS head	12 Hours
							5. Statutory report to authorities (as required by local regulatory agencies)	Statutory Requirement
			Coverage - In National media- Newspaper / TV / Internet	Coverage - In International media- Newspaper / TV/ Internet	Coverage - In International media- Newspaper / TV/ Internet		6. Investigate for root cause analysis	Investigation within 28 days

							7. Report monthly in the Incident Monthly Report	Monthly
Potential Category 4 or 5 Near Miss	Near Miss	See above for Category 4 and 5 Incidents					1. Manage locally in accordance with local procedures	See Local Procedures
							2. Report to the EESL CEO, and EHS head	24 Hours
							3. Statutory report to authorities (as required by local regulatory agencies)	Statutory Requirement
							4. Investigate for root cause analysis	Investigation within 28 days
							5. Report monthly in the Incident Monthly Report	Monthly

Appendix 3: Indicative key performance indicators

Level	EHSS risks	Indicative key performance indicators (KPI)
Company (EESL)	Environmental impacts due to office operations	▪ No. of locations not proximity to eco-sensitive areas. ▪ Reduction in energy consumption (absolute/per capita/per sft) ▪ Reduction in Scope 1, Scope 2 & Scope 3 GHG emissions ▪ Reduction in water consumption (absolute/per capita) ▪ Quantity of water recycled ▪ Reduction in waste generation ▪ Quantity of waste recycled Benchmarks could be drawn from national average consumption figures, indicative set is given below: ▪ Energy consumption (2017-18): 23355 MegaJoules/capita (Source: ***http://mospi.nic.in/sites/default/files/publication_reports/Energy%20Statistics%202019-finall.pdf?download=1***) ▪ Water consumption (2003); 52 cu meter/year per capita (Source: http://www.unwater.org/downloads/Water_facts_and_trends.pdf) ▪ Municipal solid waste Annual Report (2018-19): 152,076.7 Tons per day (cumulative across 35 SPCBs/PCCs; Source: https://cpcb.nic.in/uploads/MSW/MSW_AnnualReport_2018-19.pdf)
	Health & safety risks (of fire, other emergencies)	▪ Total locations with/without fire and emergency preparedness procedures (emergency evacuation plan and fire-fighting equipment) ▪ Number and category of incidents reported ▪ Hours of training on EHS aspects (absolute/per capita/per department) ▪ Number of mock drills conducted ▪ Total number of employees certified in emergency preparedness (third party certification such as for First Aid and Fire-fighting Trainings.). ▪ Total number of audits conducted & findings closed
	Social risks (discrimination, harassment, etc.)	▪ Number of complaints received and resolved ▪ Actions taken with respect to those complaints ▪ Hours of training provided on these issues ▪ Number of committee meetings held (ethics committee, sexual harassment committee, etc.)
Project		
Street lighting	Environmental damage due to improper disposal of dismantled lights	▪ Number of lights replaced as per type of bulbs dismantled (vendor wise breakup) ▪ Number of lights to be dismantled ▪ Number of lights sent to recycling unit (vendor wise breakup) ▪ Details of recycling units used by each vendor ▪ Hazardous waste disposal consent from SPCB for all recyclers

Level	EHSS risks	Indicative key performance indicators (KPI)
		▪ Quantities of dismantled bulbs collected & processed by the recyclers ▪ Manifests for the total number of lights given to the recyclers (vendor wise)
	Accidents, incidents due to improper working practices	▪ Number and category of incidents reported ▪ Number of incidents investigated and closed ▪ Hours of training on EHS aspects (absolute/per capita/per department)
	Social issues (Ex. Minimum wage violation, excessive overtime)	▪ Total cases of minimum wage violation ▪ Percentage of workers with/without accidental insurance ▪ Percentage of workers undertaking excessive overtime consistently
	Harassment and discrimination	▪ Number of complaints received and resolved ▪ Actions taken with respect to those complaints ▪ Hours of training provided on these issues ▪ Number of committee meetings held (ethics committee, sexual harassment committee, etc.)
	Lack of emergency preparedness and inadequate fire control measures at project warehouses	▪ Total locations (esp. warehouses) with/without fire and emergency preparedness procedures (emergency evacuation plan and firefighting equipment) ▪ Hours of training on EHS aspects (absolute/per capita/per department) ▪ Number of mock drills conducted ▪ Total number of employees certified in emergency preparedness(third party certification) ▪ Total number of audits conducted & findings closed
UJALA	Accidents, incidents due to improper working practices	▪ Number and category of incidents reported ▪ Number of incidents investigated and closed ▪ Hours of training on EHS aspects (absolute/per capita/per department)
	Social issues (E.g. Minimum wage violation, excessive overtime)	▪ Total cases of minimum wage violation ▪ Percentage of workers with/without accidental insurance ▪ Percentage of workers undertaking excessive overtime consistently

Level	EHSS risks	Indicative key performance indicators (KPI)
	Harassment and discrimination	▪ Number of complaints received and resolved ▪ Actions taken with respect to those complaints ▪ Hours of training provided on these issues ▪ Number of committee meetings held (ethics committee, sexual harassment committee, etc.)
Smart Meter	Environmental damage due to improper disposal of dismantled meters	▪ Number of meters replaced (vendor wise breakup) ▪ Number of meters to be dismantled/replaced. ▪ Number of meters sent to recycling unit/ULBs (vendor wise breakup) ▪ Details of recycling units used by each vendor / as applicable ▪ Quantities of dismantled meters collected & processed by the recyclers ▪ Manifests for the total number of meters given to the recyclers (vendor wise)
	Accidents, incidents due to improper working practices	▪ Number and category of incidents reported ▪ Number of incidents investigated and closed ▪ Hours of training on EHS aspects (absolute/per capita/per department)
	Social issues (E.g. Minimum wage violation, excessive overtime)	▪ Total cases of minimum wage violation ▪ Percentage of workers with/without accidental insurance ▪ Percentage of workers undertaking excessive overtime consistently
	Harassment and discrimination	▪ Number of complaints received and resolved ▪ Actions taken with respect to those complaints ▪ Hours of training provided on these issues ▪ Number of committee meetings held (ethics committee, sexual harassment committee, etc.)
	Lack of emergency preparedness and inadequate fire control measures at project warehouses	▪ Total locations (esp. warehouses) with/without fire and emergency preparedness procedures (emergency evacuation plan and firefighting equipment) ▪ Hours of training on EHS aspects (absolute/per capita/per department) ▪ Number of mock drills conducted ▪ Total number of employees certified in emergency preparedness (third party certification) ▪ Total number of audits conducted & findings closed

Level	EHSS risks	Indicative key performance indicators (KPI)
Solar Program	Environmental damage due to improper disposal of dismantled panels/ Used Lead-Acid Batteries	▪ Number of damaged/end of life panels replaced (vendor wise breakup) ▪ Number of panels to be dismantled after End of Life ▪ Number of panels sent to recycling unit (vendor wise breakup) – after end of life or non repairable. ▪ Details of recycling units used by each vendor ▪ Quantities of dismantled panels collected & processed by the recyclers ▪ Number of End of Life/Used Batteries including lead and acid. ▪ Manifests for the total number of panels given to the recyclers (vendor wise)
	Accidents, incidents due to improper working practices	▪ Number and category of incidents reported ▪ Number of incidents investigated and closed ▪ Hours of training on EHS aspects (absolute/per capita/per department)
	Social issues (Ex. Minimum wage violation, excessive overtime)	▪ Total cases of minimum wage violation ▪ Percentage of workers with/without accidental insurance ▪ Percentage of workers undertaking excessive overtime consistently
	Harassment and discrimination	▪ Number of complaints received and resolved ▪ Actions taken with respect to those complaints ▪ Hours of training provided on these issues ▪ Number of committee meetings held (ethics committee, sexual harassment committee, etc.)
	Lack of emergency preparedness and inadequate fire control measures at project warehouses	▪ Total locations (esp. warehouses / panel storage areas) with/without fire and emergency preparedness procedures (emergency evacuation plan and firefighting equipment) ▪ Hours of training on EHS aspects (absolute/per capita/per department) ▪ Number of mock drills conducted ▪ Total number of employees certified in emergency preparedness (third party certification) ▪ Total number of audits conducted & findings closed

Appendix 4: Sample photographs of safety procedures

Sample 1 – Work in progress board with traffic diversion

Sample 2 – Safety harnesses used while replacement of street light

Sample 3 - Safe usage of cranes

Appendix 5: Accident Investigation/Root Cause Analysis Form

Complete This Report When Injured Employee Needs To Seek Medical Attention

Date of Injury_____ Time of Injury_____AM/PM

Employee_____ Insurance Claim Number_____

Please indicate the location of the accident_____

What task was being performed, how did the accident happen, and explain the nature of the injury_____
_____
_____
_____

Describe any tools, machinery, equipment, or PPE that was being used at the time of the accident_____
_____

Was the employee working alone?_____ Witness Name(s)_____

How much experience did the employee have in performing this task?_____

_____

****

STEP 1—Obtain and review physical evidence, employee and witness information, and paper evidence pertinent to the investigation.

<u>Physical</u>—Photographs, drawings, equipment manuals, etc… (Forward with report)

<u>Employee/Witnesses</u>—statements, interviews

<u>Paper</u>—Policies, programs, training records, maintenance records, incident reports, etc.

STEP 2—Direct Cause, Contributing Cause, and Root Cause

Use the following listing as an aid for identifying the factors that led to the accident.

Don't be limited by the categories listed—add items as needed. Check all that apply.

****

POLICIES/PROGRAMS		**COMMUNICATION**	
Not Developed or Inadequate		**Insufficient Planning for Tasks**	
Developed and Communicated		**Lack of Worker Communication**	
Developed—Not Communicated		**Lack of Supervisor Instruction**	
Developed-Not Followed/Enforced		**Sufficient Supervisor Instruction**	
Developed—Not Understood		**Confusion After Communication**	
Lack of Disciplinary Policy		**Lack of Understanding of Task**	
Disciplinary Policy Not Enforced		**Work Team Breakdown**	

HAZARDS		**BLOODBORNE PATHOGEN**	
Unidentified or Not Labeled		**Unaware/Aware of Air Borne Hazard**	
Known but Not Corrected		**Stuck with Contaminated Needle**	
Known but Not Reported		**Client Contact/Exposure**	
Created by External Factors		**Inmate Contact/Exposure**	
Known but Not Reported		**Sharps Container Not Available**	
Condition Changed Not Conveyed		**Improper Clean up**	
Equipment Repaired Deficiently		**Contaminated Waste Not Labeled**	
PPE Not Adequate or Defective			

PRODUCTIVITY FACTORS		WORK BEHAVIOR	
Heavy Workload		Shortcuts Taken	
Tight Schedule to Complete Task		Deviations-Common, Allowed etc…	
Long/Unusual Working Hours		Special Infrequent Task	
Falsely Perceived Need to Hurry		Tool/Equipment Used Improperly	
Staff Assistance Unavailable		History of Accidents/Incidents	
Staff Assistance Inadequate		Disregard/Refused to Follow Procedure	
Changes in Process		Staff Assistance Required	
Was Employee Ill?		Horseplay	
Medication, Drugs, Alcohol Factors		Repetitive or Physically Demanding	
Double Shift		Going On/Coming Off Vacation	

TRAINING		ENVIRONMENT	
Deficient Orientation Training		Weather/Temperature Factors	
Deficient Job Specific Training		Poor Housekeeping	
Insufficient Training for New Process or Task		Poor Lighting	
Lack of Supervisor Follow-up or Reinforcement		Poor Visibility	
Lack of Supervisor Training		Air Quality	
Lack of Employee Training		Noise	
Communication of Expectations		Visibility of Labels/Warning Signs	
Communication of Rules/Policy		Visible and Audible Alarms	
Hazards Overlooked in Training			

Personal Protective Equip (PPE)		FACILITIES/EQUIPMENT	
Available		Poor Facility Design	
Required		Poor/Faulty Equipment or Design	
Required PPE Not Used/Worn		Poor Workstation Design	

Trained on How To Use		**Equipment Not Guarded**	
Adequate Fit		**Equipment Repair Deficient**	
PPE Not Used Adequately		**Lack of Preventative Maintenance**	
Poor Condition		**Employee Lack of Knowledge**	
Adequate for Job Performed		**Equipment Failure**	
Lack of Supervisor Enforcement		**Inadequate Inspection Timelines**	

STEP 3—CAUSES

From the categories identified above, circle the major cause, or causes of the accident:

POLICIES/PROCEDURES **PRODUCTIVITY FACTORS**

TRAINING **ENVIRONMENT**

FACILITIES/EQUIPMENT **HAZARDS**

BLOODBORNE PATHOGEN **WORK BEHAVIORS**

COMMUNICATION **PERSONAL PROTECTIVE EQUIPMENT**

****

Comments Related to Investigation_____

_____

_____

STEP 4—ROOT CAUSE ANALYSIS

Why Did This Happen?

WHY…?

WHY…?

WHY…?

WHY…?

How Can This Be Prevented? (Develop Safety Policy, Enforce Safety Policies, Follow Safety Policies, Develop Training, Additional Training, etc…)

Steps For Corrective Action and Projected Completion Date:

Engineering Controls—Eliminate/ reduce hazards through equipment redesign, enclosure, replacement, substitution, etc. **Administrative Controls—**Eliminate/ reduce frequency and duration of exposure through (1) changes of work procedures and practices, and/or (2) scheduling, job rotation, breaks, etc. 3) Training 4) Additional Training

Personal Protective Equipment—for personal use that presents a barrier between worker and hazard.

1) **Est. Completion Date**_____

2) **Est. Completion Date**_____

3) **Est. Completion Date**_____

4) **Est. Completion Date**_____

The following persons have participated in the accident investigation and root cause analysis and are aware of the findings:

_____		_____	
Risk Manager	**Date**	**Witness**	**Date**
_____		_____	
Supervisor	**Date**	**Witness**	**Date**
_____		_____	
Employee	**Date**	**Witness**	**Date**

Appendix 6: Job Description of SDU Staff

Scope of Work for Environmental Officer/ Specialist for SDU

Environmental Specialist would oversee the updation and implementation of EHS aspects of the EHSS Manual developed by EESL and oversee the implementation of environmental aspects by the SDU. Scope of work of Environment specialist would include but not be limited to following tasks:

1. Co-ordinate with Program heads for each of EESLs program to ensure systematic and comprehensive integration of environmental aspects for each program.
2. Support the updation of EHSS Guidelines and manuals to ensure full coverage of all EESL programs. EHSS, which is currently a static document covering some of the Environmental and Social (E&S) issues associated with various Energy Efficiency Programs of EESL , shall be updated to cover all environmental and social risks and mitigation plans for each, and transforming it into a "living document."
3. Develop plans for operationalization of EHSS Guidelines. Prepare Program Implementation Plan for Streamlining E&S aspects for each Program in co-ordination with concerned EESL officials, experts, Local Bodies, consumers, line departments and other stakeholders (as applicable) with Rapid E&S Screening, Contingency Plan & Emergency Response mechanism prior to initiating the works. This would also include the incorporation of key E&S provisions and implementation responsibility into the contractual framework with EESL contractors, vendors and implementation partners.
4. Development of staff and contractor capacity in relation to EHSS. The officer would develop and deliver training to EESL's program, operational, technical and contractual staff on Environmental aspects along with the Training Specialist.
5. Monitor the implementation of EHSS guidelines, and prepare bi-annual report on implementation performance, strengths, weaknesses and to be delivered directly to EESL.
6. Periodical reporting to EESL management on key EHSS implementation, compliance, and training needs and any challenges related to specific programs or institutional capacity with respect to environmental aspects.
7. Co-ordinate with Senior EHS officer in various regulatory procedures (also for new greenfield projects involving land-based activities).
8. Include site specific Contract conditions to manage Environmental aspects to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules and Laws.
9. Check permits and ensure tender conditions on safe storage, handling, transporting, recycling and disposal to Suppliers, Recyclers and Disposal agencies
10. Incorporate considerations related to environmental Issues due to the Products (incl. RoHS), operations, Wastes and placement decisions into the Grievance Redressal Mechanism
11. Introduce Screening, Supervision and Monitoring Mechanisms and Ratings on E&S Aspects including, facilities & housekeeping, labor facilities and safety, noise & vibration. Develop mechanisms / tools / checklists specified in the EMF and suggest training plan and undertake or supervise relevant field staff on how to conduct project screening and use guidelines.
12. Prepare Maintenance and Service Charters and supervising its implementation
13. Oversee Environmental Auditing
14. Maintain project wise records on EHSS / EMF implementation

Scope of Work ToR for Social Officer/ Specialist for SDU

Key objective of the Social Specialist would be to draw attention to the promotion of social benefits of EESL programs, recognize the need to redress the imbalance between men and women within EESL's and its programs, ensure that Social & gender considerations are an integral part of the EESL's work. Social specialist would oversee the updation and implementation of social aspects of the EHSS Manual developed by EESL and oversees the implementation of social aspects by the SDU. Under direct supervision and guidance of the SDU head and in close collaboration with social experts/consultants, the Social Specialist will assume the following tasks in the table below

1. Promote and increase outreach of social benefits of EESL programs. Carry out social surveys before, during and after the project implementation to understand the demands and needs of the people from EESL projects.

2. Draft and implement action plan to meet the site-specific social needs, eliminate social constraints and create awareness on social aspects of EESL programs.

3. Review relevant EHSS documents, projects on the requirements for gender mainstreaming and develop policy and action plan to facilitate the implementation of gender inclusive and gender sensitive actions within EESL.

4. Conduct a detailed gender analysis as guided by EESL for Gender Mainstreaming, particularly emphasizing gender issues in the area and region of intervention (E.g. gender division of labor, access to a control of resources and technologies, women's and men's needs and preferences, and opportunities for and constraints to women's participation).

5. Based on the review, and in keeping with program objectives, prepare in consultation with the project team, a Social & Gender Strategy, to ensure meaningful participation of locals in planning, implementation and access to benefits.

6. Based on the gender strategy, develop a plan of action that identifies opportunities and entry points for mainstreaming gender issues in the project. Integrate relevant gender components from the plan of action for gender mainstreaming in the project document, including cost estimates for its implementation. The plan of action for gender mainstreaming should mirror the project's log frame and include the development of gender specific project components, gender responsive targets and indicators, timelines, assigned responsibilities, and implementation arrangements. Identify based on this analysis, potential opportunities to pilot initiatives using women's organizations and associations.

7. Stakeholder engagement: Undertake and update at periodic intervals, a list of stakeholders. Identify government agencies, NGOs, community-based organizations, and women's associations or groups whose work focuses on social, gender and the specific area of intervention that can be utilized during project preparation and implementation.

8. Training and capacity building: Ensure that local people especially women stakeholders have equal opportunity to benefit from relevant training and capacity building activities under the project. Moreover, the consultant will ensure that training materials which are gender-sensitive. Train EESL staff for implementation of Social and Gender actions.
9. Impact assessment; Monitoring and reporting: Assess and identify potential social & gender related impacts of the project. Social expert shall carry out impact assessment of social outreach of EESL plan. Expert shall carry out relevant surveys based on site and program questionnaires.
10. Collect sex-disaggregated baseline data that could be used to monitor potential gender impacts. Provide reports reflecting progress on gender-sensitive indicators. Prepare quarterly reports on progress in gender activities and relevant gender indicators in projects and its sub-components.
11. Prepare Grievance Redressal Mechanism on social issues faced by locals, consumers or other stakeholders due to EESL projects.
12. Prepare gender specific Grievance Redressal Mechanism Complying with Anti-Sexual Harassment Act, 2013.

Scope of Work for Capacity Building expert/specialist in Sustainable Development Unit (SDU) in EESL

Training & Capacity Building expert/specialist would oversee the of Capacity Building requirements of relevant stakeholders in EESL programmes that shall involve EHSS training of EESL Staff members, suppliers, installation & distribution agencies, DISCOMs, ULBs and other project agencies. Training & Capacity building expert shall

1. Develop and deliver training to EESL program's operational, technical and contractual staff on EHSS aspects.
2. Disseminate EESL EHSS requirements to Manufacturers, Installation & Distribution agencies and other stakeholders.
3. Develop training calendars to cover all EESL programs and relevant stakeholders
4. Carry out procurement for requisite consulting services on specialised training requirements to meet the project needs.
5. Reach out to Govt Bodies for inclusion of EHSS activities in joint projects.
6. Identify specific capacity building requirements and define the EHS skills needed for the different participating stakeholders.
7. Assist in implementing environmental & social aspects in various types of EE programme of EESL along with environmental & social specialist.
8. Preparation of study material, guidelines and its dissemination in the project.
9. Develop plans for building awareness among the staff, consumers & contractors regarding disposal of solid & e-wastes.
10. To conduct workshops for EESL staff at state, zonal & national level.
11. Conduct Training of govt. institutions at National, Municipal and Divisional levels and submit training

reports to SDU

12. Preparation of safety concerns guidelines operationalization of safety procedures, Personal Protective Equipment (PPEs) and their use; safe equipment and its implementation methodology.
13. Undertake any other function directly related to the EHSS execution as directed by the SDU.
14. Provide expert guidance for the implementation of trainings at state & regional level.
15. Carry out GAP analysis for implementation of EHSS activities at the ground level.
16. Develop regional & State level EHSS experts for implementation of ground level EHSS activities as mentioned in the ESSA document.

Appendix 7: Training calendar[i] for CY 2021 & CY 2022

Topics	April-June' 2021 Term 1	July-Sep' 2021 Term 2	Oct-Dec'2021 Term 3	Jan-Mar'2022 Term 4	April-June'2022 Term 5	July-Sep' 2022 Term 6	Oct-Dec'2022 Term 7
Risk Management & Occupational, Health & Safety, First Aid	**Location:** R.Os NZ/C.O Participants nos.: 20	**Location:** R.Os WZ Participants nos.: 20	**Location:** R.Os SEZ Participants nos.: 20	**Location:** R.Os EZ Participants nos.: 20	**Location:** R.Os NCZ Participants nos.: 20	**Location:** R.Os CZ Participants nos.: 20	**Location:** R.Os SWZ Participants nos.: 20
Environment & Waste Management	**Location:** R.Os WZ Participants nos.: 20	**Location:** R.Os SEZ Participants nos.: 20	**Location:** R.Os EZ Participants nos.: 20	**Location:** R.Os: NCZ Participants nos.: 20	**Location:** R.Os CZ Participants nos.: 20	**Location:** R.Os SWZ Participants nos.: 20	**Location:** R.Os NZ/CO Participants nos.: 20
Electrical & fire safety, protection and emergency procedures	**Location:** R.Os SEZ Participants nos.: 20	**Location:** R.Os EZ Participants nos.: 20	**Location:** R.Os NCZ Participants nos.: 20	**Location:** R.Os CZ Participants nos.:20	**Location:** R.Os SWZ Participants nos.: 20	**Location:** R.Os NZ/C.O Participants nos.: 20	**Location:** R.Os WZ Participants nos.: 20
Overall Capacity building on i) Energy Efficiency ii) Social & Gender Strategy	**Location:** R.Os EZ Participants nos.: 20	**Location:** R.Os NCZ Participants nos.: 20	**Location:** R.Os CZ Participants nos.:20	**Location:** R.Os SWZ Participants nos.: 20	**Location:** R.Os NZ/C.O Participants nos.: 20	**Location:** R.Os WZ Participants nos.: 20	**Location:** R.Os SEZ Participants nos.: 20
Exposure visits/Experience sharing workshops	Term-I **Location: Delhi/Lucknow (NZ/NCZ/CO/WZ)** Participants: Stakeholders Participants nos.: 50			Term-II **Location: Bangalore/ Chennai (SEZ/SWZ/CZ)** Participants: Stakeholders Participants nos.: 50			

Topics	April-Dec'2021	Jan-Dec'2022
Environment Impacts & Mitigation **Construction and overall program safety** **Awareness on guidelines and legislation including development of required guidance material** **Contingency Plan, Emergency Plan** **Monitoring & Reporting framework** **Social and Gender Aspects**	Training 1: Government Bodies (Participant:10 Nos) Training 2: Installation & Distributing agencies (10 Nos) Training 3: Manufacturing agencies (10 Nos) Training 4 Regional EHSS Officers (25 Nos)	Training 1: Government Bodies (10 Nos) Training 2: Installation & Distributing agencies (10 nos) Training 3: Manufacturing agencies (10 Nos) Training 4: Regional EHSS Officers (25 Nos)

Note: Training may be finalized as per the need and as per the assessment by the concerned team members from time to time.

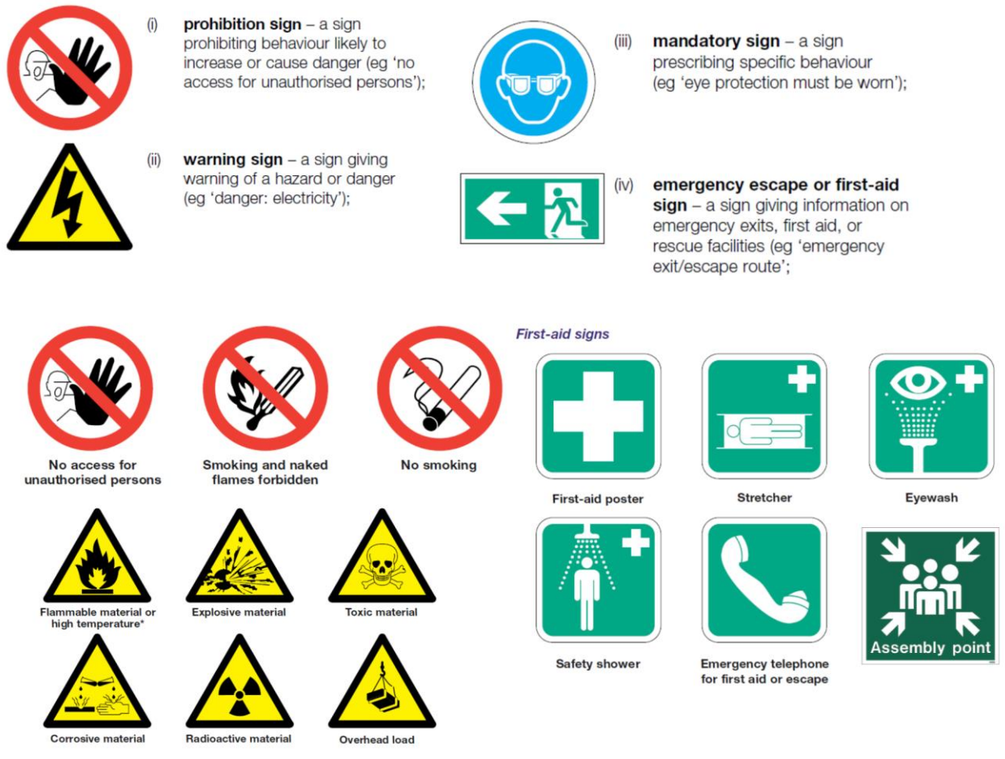
Abbreviations -EESL's R.O Offices:

- **North-Zone (NZ) & Corporate Office (CO):**Gurgaon, Himachal Pradesh, J&K, Delhi and Chandigarh
- **North Central Zone (NCZ):** Lucknow, Varansi & Dehradun.
- **West-Zone (WZ):** Rajasthan and Gujarat.
- **Central Zone (CZ):** Madhya Pradesh, Chhattisgarh, Odisha
- **South West Zone (SWZ):** Mumbai, Nagpur, Bangalore, Thiruvananthapuram, Goa.
- **South East Zone (SEZ):** Telangana, Vishakapatnam, Andhra Pradesh, Tamil Nadu, Pondicherry, Andaman & Nicobar Islands.
- **East & North East Zone (EZ):** Bihar, West Bengal, Jharkhand, Tripura, Assam

[i] ***Indicate Calendar and Training may be finalized as per the need and as per the assessment by the concerned team members from time to time.***

1.1.1 SOP 1: Risk Management

Index No.	Head	Description
SOP_01. 1	Purpose	To ensure EHS-related risks are managed in an effective manner and that EESL adopts a rigorous risk analysis process to make informed and proactive decisions
SOP_01. 2	Coverage: Program / Region	**UJALA, SLNP, SMNP, Solar Program** Applicable to work sites throughout the country (Transportation, Warehouse, Local Storage, any Construction activity, and Installation and maintenance activities)
SOP_01. 3	References	Guidance Note - IFC Available at: https://siteresources.worldbank.org/INTRANETENVIRONMENT/Resources/244351-1279901011064/OccupationalHealth.pdf Accessed on November 2017. EHSS Manual The Health and Safety (Safety Signs and Signals) Regulations 1996 (http://www.hse.gov.uk/pUbns/priced/l64.pdf)
SOP_01. 4	Hazard Mapping / Assessment	Risk from various activities under Transportation, Warehouse, Local Storage, Construction Site, and Installation and maintenance: Building and Grounds Conditions – floors, walls, ceilings, exits, stairs, walkways, ramps, platforms, driveways, aisles Chemicals – storage, handling, transportation, spills, disposals, amounts used, labelling, toxicity or other harmful effects, warning signs, supervision, training, protective clothing and equipment, hazard communication requirement Electricity – equipment, switches, breakers, fuses, switch-boxes, junctions, special fixtures, circuits, insulation, extensions, tools, motors, grounding, national electric code compliance Evacuation Plan – establish and practice procedures for an emergency evacuation in response to a fire, chemical/biological incident, bomb threat; include escape procedures and routes, critical plant operations, employee accounting following an evacuation, rescue and medical duties, ways to report emergencies Fire Prevention – extinguishers, alarms, sprinklers, smoking rules, exits, personnel assigned, separation of flammable materials and dangerous operations, explosion-proof fixtures in hazardous locations, waste disposal, training First Aid Program/Supplies – medical care facilities locations, posted emergency numbers, accessible first aid kits Hand and Power Tools – purchasing standards, inspection, storage, repair, maintenance, grounding, use, handling Heating and Ventilation – type, effectiveness, temperature, humidity, controls, natural and artificial ventilation, exhausting Housekeeping Program – waste disposal, tools, objects, materials, leakage and spillage, cleaning methods, schedules, work areas, remote areas, storage areas Lighting – type, intensity, controls, conditions, diffusion, location, glare and shadow control Machinery – points of operation, flywheels, gears, shafts, pulleys, key ways, belts, couplings, sprockets, chains, frames, controls, lighting for tools and equipment, brakes, exhausting, feeding, oiling, adjusting, maintenance, lockout/tagout, grounding, work space, location, purchasing standards Maintenance – provide regular and preventive maintenance on all equipment used at the worksite, record all work performed on the machinery and train personnel to properly care for and service the equipment Personnel – training, including hazard identification training; experience; methods of checking machines before use; type of clothing to be worn; use of guards; tool storage; work practices; methods for cleaning, oiling, adjusting machinery Processing, Receiving, Shipping, and Storage – equipment, job planning, layout, heights, floor loads, projection of materials, material handling and storage methods, training for material-handling equipment Provide Personal Protective Equipment (PPE) – type, size, maintenance, repair, age, storage, assignment of responsibility, purchasing methods, standards observed, training in care and use, rules of use, method of assignment Transportation – motor vehicle safety, seat belts, vehicle maintenance, safe driver programs
SOP_01. 5	Incident Categorization (may be Classification/ levels)	Classification of Risk based on the significance and frequency of occurrence: Risk management processes, including identification and evaluation, at EESL and EESL operations shall meet requirements of the IFC Performance Standard 1 – Assessment and Management of Social and Environmental Risks and Impacts. This includes: - having an effective management system in place appropriate to the nature and scale of EESL operations and commensurate with the level of its sustainability risks and impacts; – identifying and evaluation of risks within the area of influence of EESL operations; – Identifying risks related to all stages of the operation lifecycle including pre-construction, construction, operations, and decommissioning or closure. The scope of the identification process will be consistent with international good practice and will determine the appropriate and relevant methods and assessment tools; – consideration of emissions of greenhouse gases and potential transboundary effects (e.g. pollution of air or international waterways) during the identification process; – development of an action plan; – Establishing and managing a programme of mitigation and performance improvement measures and actions that address the identified social and environmental risks and impacts This should include, where appropriate, consideration for involving representatives from affected communities to complement or verify monitoring activities; and consulting and communicating with local communities on identified risks and how they are being managed on an on-going basis.
SOP_01. 6	Suitability and Intended use of the activity, tool or material	Applies to: (i) all activities as identified in SOP 01.4 ii) all emergency cases predicted during hazard mapping

Index No.	Head	Description
SOP_01. 7	General Operating Procedures and Best Practices	Most of the procedures suggested in current SOPs will fall in this Each EESL operation shall ensure that it complies with the requirements of this standard. Performance against the requirements of this Standard shall be assessed periodically, documented and, where required, reported to EESL. The evaluation of performance shall include, as a minimum, confirmation that: – Stakeholders/ sub-contractors have been identified and engaged with; – Both corporate and programs EHS risk registers are in place and these have been reviewed and updated; – EHS Manager at the operation level has been assigned with ultimate responsibility and accountability for EHS risk management issues; – Risk assessments are conducted, documented, available and accessible; – Risk assessments are reviewed by competent personnel; – An action plan is in place to implement control measures where these have been identified; – Hazards, Risks and control measures have been communicated to affected personnel;
SOP_01. 8	Use, Storage of Tools and Records maintenance	Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_01. 9	Compliance to regulations/permits	Fire NOC, Building Permit, Trade License, Requirements under Disaster Management Plan and other permits depends on site location
SOP_01. 10	Safety Precautions	Implementation of recommendations as under Disaster Management Plan (DMP) / as applicable
SOP_01. 11	Emergency Preparedness and Response (including PPE/First aid)	Ensure the availability of first Aid Kits on Site and in Inspection Vehicles Contact List of Health units, Rescue Vehicles within easy reach of all sites
SOP_01. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	NA
SOP_01. 13	Signage systems and symbols or coding	General Warning Signages, Assembly Points, Evacuation Guidance Map, Emergency Exit Indicators, first aid, material storage, PPEs, Restricted areas etc.: 

Index No.	Head	Description
SOP_01. 14	Details on competent users	This SOP is to be used by EESL site teams for all projects, Regional Manager and Contractors, vehicle operators, distribution and installation teams
SOP_01. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel, drivers, labours on Site
SOP_01. 16	Duties / Responsibilities	EESL: Unit Head - UJALA, Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials:
SOP_01. 17	Inspection Procedures and Documentation Required	Internal Audit (Monthly): (Risk Assessment Reports on Site) Site engineer, Contractor - Interview with site employees, Discussions on risk assessment reports availability on site. The disaster management report shall be prepared and made available on site, as applicable. The training to the employees and contractors are provided and they are well aware about the potential risks during the activity DOCUMENTS: (i) Risk Assessment Report, Disaster Management Plan, Emergency Response Plan and Protocols (ii) List of subcontractors and major material suppliers including address, telephone number, and name of contact person, (iii) Training Records (iv) mock-drill plans and records v) Records of communication with external agency
SOP_01. 18	Disposal of scraps and process wastes	As per above procedures & agreed Contract Conditions Suitable receptacles shall be kept on site with signages, without hindrance to movement or traffic; for segregated storage of different types of wastes and construction Materials
SOP_01. 19	Site management	HOUSEKEEPING STANDARDS (Cover all the aspects as per checklist in SOP_01.4) A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection. B. Protection and Control: 1. Fire Protection (a) Store volatile waste removed during final cleaning in covered metal containers and remove from premises in accordance with local, state and central regulations. (b) Gasoline and fuel oil storage facilities shall be located offsite and maintained in full compliance with local, state and central regulations. 2. Pollution Control: Conduct clean up and disposal operations as required by local, state and central regulations. C. Cleaning Materials: 1. Use only cleaning materials recommended by manufacturer on surfaces to be cleaned., 2. Use cleaning materials only on surfaces and as recommended by the cleaning material manufacturer. D. Scope of Final Clean-Up: 1. General (a). Use experienced workers or professional cleaners for final cleaning activities, (b) Maintain clean work spaces without sharps, rejects and wastes; 2. Remove grease, dirt, dust, stains, labels, fingerprints and other foreign materials from interior and exterior surfaces, 3. Repair, patch and touch up marred surfaces to match surfaces to adjacent finishes, 4. Clean surfaces of equipment; remove excess lubrication. 5. Clean light fixtures and lamps., 6. Remove waste, foreign matter and debris from footpaths, drainage systems and dispose in appropriate points suggested by the local body in closed/covered containers. Ensure proper waste containment at disposal points 7. Remove waste, debris and surplus materials from site. Clean grounds; remove stains, spills and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.
SOP_01. 20	Info and Instructions to be passed on to Communities	- To Alert on various equipment, sharps, wires abandoned on site - To be aware of the risks associated with project activities - Special issues in case of emergencies - Suggested Grievance Reporting Mechanisms, - To be aware of assembly points and emergency response protocols to be followed.
SOP_01. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website, Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017 Version 3: This version, updated for new program on February 19 2021

1.1.2 SOP 2: Waste Management

Index No.	Head	Description
SOP_02. 1	Purpose	To set out a procedure for disposal of waste from transportation, warehousing, installation and maintenance, and site based activities under the programs in an environmental sound manner by complying with regulatory requirements.
SOP_02. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to installation/work sites, warehouses, operation and transportation vehicles throughout the country
SOP_02. 3	References	CPCB Guidelines/Rules on hazardous waste/ e-waste/ solid waste/ Construction & Demolition Waste/ Batteries Waste management as well as on Water Pollution - Rules for Management of Hazardous and Other Wastes Available at: *https://cpcb.nic.in/rules/*, *https://cpcb.nic.in/rules-2/*, *https://cpcb.nic.in/e-waste/*, *https://cpcb.nic.in/displaypdf.php?id=d2FzdGUvQyZEX3J1bGVzXzIwMTYucGRm*, *https://cpcb.nic.in/uploads/hwmd/battery%20management%20&%20handling%20rules%202001.pdf* and *https://cpcb.nic.in/water-pollution/* respectively. Accessed on February 2021, - EHSS Manual
SOP_02. 4	Hazard Mapping / Assessment	Hazards from Handling of waste, transportation of waste, storage conditions, disposal protocols and regulations; Broken LED during transportation, Vehicle Accidents, Waste generation from faulty LED, maintenance of DG set, sewage generation from warehouse/kiosks; Generation of Hazardous wastes (due to mercury/heavy metals/toxic gas content of old lamps), Generation of hazardous waste in the form paint/ solvent container and rags, Generation of e-waste from broken/faulty/old LED lamps, Electric Meters, PV panels while replacement/installation, leakage/seepage of battery acids during handling at Solar sites, Waste Generation of end of life Lead Acid Batteries/other batteries at sites, Potential generation of excavated soil, demolition waste, waste wood, waste metals, cables, insulations, plastic, other demolished utilities if any, removal of parts of existing structures etc.
SOP_02. 5	Incident Categorization (may be Classification/ levels)	NA
SOP_02. 6	Suitability and Intended use of the activity, tool or material	Applicable to waste generations from i) Transportation, ii) Storage & handling (sites, stores, warehouse and kiosks), iii) construction, iv) distribution, installation and maintenance activities ((a) prevention; (b) minimization; (c) reuse, (d) recycling; (e) recovery, utilization including co-processing; (f) safe disposal.))
SOP_02. 7	General Operating Procedures and Best Practices	**A. Procedure for Key Waste Handling and Disposal** The procedure for disposal of few key waste categories are described here. These are e-waste (dismantled street lights/replaced bulbs/ replaced meters) and used oil. However, it is the responsibility of the EHSS department/Regional heads/EHSS Officers to ensure that all applicable wastes/hazardous waste is disposed of in an authorized manner. i) Collection, transportation, storage, and disposal of e-waste (dismantled street lights/replaced bulbs/ replaced meters) The following procedure has been extracted from regulatory requirements, national and state level guidelines. The following steps must be followed: – At the assembly point where the replacement of lights/meters/PV Panels is taking place, there must be designated storage boxes/areas for collecting the damaged luminaries and old/replaced e-wastes & batteries. The damaged and undamaged wastes should never be collected in the same area/box. – While transporting these wastes from the assembly points to the warehouse, it must be stored separately (covered manner) and should not be mixed with other waste materials. – At the warehouse there must be designated area for storing different wastes (separate for hazardous materials), and segregation between damaged and undamaged wastes must be maintained. – There must be adequate PPEs provided to the workers engaged in the collection, storage, loading and unloading work to prevent the exposure of workers with the toxic materials. – Warehouse must have adequate ventilation arrangement to prevent the accumulation of any toxic gases from the damaged bulbs/tubes/etc. – There must be a legal agreement for the safe disposal or recycling of hazardous waste material between the vendor and the SPCB authorized hazardous waste recycling/disposal units. – The management must ensure that all the necessary records are maintained as per the applicable Waste Management Rules including the Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016, e-waste Management Rules 2016. ii) Collection, transportation, storage, and disposal of used oil The following procedure has been extracted from regulatory requirements, national and state level guidelines. The following steps must be followed: – Only authorized and trained personnel must remove used oil from the DG sets – The used oil should be stored in separate containers, meant for the purpose. Storage in inappropriate containers should be strictly avoided – The used oil should be stored in a cool, shady place, away from smoking areas, sources of ignition and fire

Index No.	Head	Description
		– There must be a legal agreement for the safe disposal or recycling of hazardous waste material between the vendor and the SPCB authorized hazardous waste recycling/disposal units. – Only SPCB authorized vendors should transport the used oil from one location to another The management must ensure that all the necessary records are maintained as per the Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 Measures to be taken in case of hazardous oil spill - The following measures must be taken in the case of a hazardous oil spill: – Assess the spill and categorize as major (>=500 ml) or minor (<500 ml). For minor spill, the following remedial actions can be implemented by the site team. For major spills, external experts must be summoned with the help of EHSS department/representatives. – Inform the site representative and EHS coordinator immediately. – Cordon off the area (preferably using warning tape) and establish a no-smoking/fire zone in the vicinity – Use appropriate Personal Protective Equipment and ensure that oil does not enter storm water drains, rivers or run into the sea. – If the spill has occurred on soft ground, dig the contaminated earth and refill with fresh earth. – Bund the area of spill immediately using sand, cloth, or other appropriate material, as per availability on site. – The used absorbent material (contaminated earth, cloth, cotton, or sand) should be treated as hazardous waste and be disposed in the applicable manner. **B. Non-hazardous waste segregation** In EESL's office and project operations, significant quantities of non-hazardous waste are also generated. This waste consists of the metal body parts of luminaries, glass cover, plastic parts, broken glasses, wires, paper, food, cloth, packing materials etc. Due to the large scale of the project, the quantity of the waste generated is high and it needs to be disposed or recycled in an environmentally sound manner. i) Collection, Transportation, Storage, and Disposal of non-hazardous waste The following procedure has been extracted from regulatory requirements, national and state level guidelines and industry best practices. The following steps must be followed: – At the assembly point, there must be separate and designated storage boxes for collecting different category of non-hazardous waste generated during the replacement process. Different category of wastes (e.g. Organic, Metallic, Plastic etc.) should not be mixed and should not be mixed with the hazardous waste generated at the site. – The color of the boxes for storing hazardous and non-hazardous waste must be different, and workers must be aware to store the replaced items in the correct boxes. – While transporting these materials from the assembly points to the warehouse, it must be stored separately to avoid any mixing at the warehouse. – At the warehouse there must be designated area for storing non-hazardous materials and ensure segregation between different types of wastes. – There must be adequate PPEs provided to the workers engaged in the collection, storage, loading and unloading work to prevent the injuries from the broken pieces/sharps present in the waste. – There must be a legal agreement for the safe disposal or recycling of waste material (as applicable under various waste management rules) between the vendor and the PCB authorized hazardous waste recycling/disposal units. – It should be ensured by the Regional EHS coordinator and labour contractor that no waste is being disposed at the assembly point. Entire waste generated at the site must be brought back to the warehouse and then sent for the recycling or disposal via approved vendors. **E-waste** Ensure that e-waste generated by them is channelized to authorized collection centre (s) or registered dismantler (s) or recycler (s) or is returned to the pick-up or take back services provided by the producers; Maintain records of e-waste generated by them in Form 2 (e-waste Management rules 2016), as applicable; **BATTERIES WASTE MANAGEMENT** – Ensure that used batteries are disposed of only through dealer/manufacturer/registered recycler/importer/reconditioned or at the designated collection centres. – File half-yearly return in Form VIII to the SPCB (as applicable) **Handling Batteries and Managing Waste Batteries** – Use of Lead acid batteries may pose major source of toxic and hazardous substances. They contain sulphuric acid that is corrosive and lead plates that are highly toxic. Damaged Lead-acid Batteries shall be removed and stored safely. – Batteries should be checked for any leakages during routine maintenance. Leaking batteries shall be drained and acid to be stored in containers safely. – In case of any spillage, remedial action to be taken in consultation with site authorities with immediate information. The area should be barricaded, appropriate PPEs should be used and exposure to dust as well as vapor should be prevented. Spills (Acids) should be neutralized as possible, and the spread of spill should be controlled. The area should be cleaned, and the clean-up residues should be disposed off in a safe manner. – Intact or drained batteries shall be stored indoors avoiding heat and rain. Waste Batteries shall be sent for recycling in registered recycling units.

Index No.	Head	Description
SOP_02.8	Use, Storage of Tools and Records Maintenance	Records to be maintained at Regional Office of EESL and site offices, Submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_02.9	Compliance to regulations/permits	All permits and regulations for generation, handling, transportation and disposal of waste
SOP_02.10	Safety Precautions	Handling of waste, transportation of waste, storage conditions, disposal protocols and regulations
SOP_02. 11	Emergency Preparedness and Response (including PPE/First aid)	Ensure the availability of first Aid Kits on Site and in Inspection Vehicles Contact List of Health units, Rescue Vehicles within easy reach
SOP_02. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	NA
SOP_02. 13	Signage systems and symbols or coding	  Dedicated storage for each type of waste, labelling, consignment notes, authorisation documentation etc.
SOP_02. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors, waste transportation and disposal contractors;
SOP_02. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Procedures, Discussions & format instructions for Contractors Personnel,
SOP_02. 16	Duties / Responsibilities	EESL: Unit Head - UJALA, Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials:
SOP_02. 17	Inspection Procedures and Documentation Required	Internal Audit (Monthly): (Waste Generation Log on site) Site engineer, Contractor – Interview/Interaction with site employees, Discussions on waste generation and management records and reports availability on site. The waste management report availability on site. The training to the employees and contractors are provided and they are well aware about the potential risks during the handling and storage and transportation protocols for various types of wastes and disposal requirements and responsibilities; **DOCUMENTS:** (i) Waste classification report, Waste generation reports, Disaster Management Plan, Emergency Response Plan and Protocols (ii) List of subcontractors, Local Body, Scrap Dealers selected by Local Body and major material suppliers including address, telephone number, and name of contact person, (iii) Training Records; iv) Daily/Periodic Total number of luminaries/batteries/electronic items replaced at the assembly point/site and the number of luminaries getting damaged during the changing process, v) SPCB authorization for Hazardous waste generation, storage, & disposal, vi) Total quantity of waste stored in the warehouse on each day and the percentage of waste sent for reuse, recycle and disposal, categorized as per type of waste, vii) Records of the work permit issued by the EHS coordinator issued at the site, viii) Manifest (Form-13) of disposed hazardous waste and appropriate forms maintained in line with relevant waste management rules., ix) Annual return (Form-iv) to SPCB by 30th June each year x) Half-yearly return in Form VIII to the SPCB, xi) E-waste generation record in Form 2, xii) Agreement with the PCB authorized hazardous waste recycling/ reuse/ disposing unit, xiii) Records of the injuries to the workers during the waste segregation, storage, loading and unloading process.

Index No.	Head	Description
SOP_02. 18	Disposal of scraps and process wastes	Waste Generation Records, Waste Segregation, Storage, and Disposal Plan (agency names and schedule of disposal)
SOP_02. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection. B. Protection and Control: waste storage/treatment as per waste management plan/applicable rules. C. Pollution Control: Containment at storage locations, Spill prevention and clean-up plan. D. Scope of Final Disposal (solid/e-waste/hazardous/C&D wastes): to authorized agency/designated agency as per waste management plan and institutional mechanism.
SOP_02. 20	Info and Instructions to be passed on to communities	– To collect/handle, segregate, store, classify, transport, dispose the waste – To ensure dedicated storage location for various types of waste – Storage conditions and control measures for pollution prevention – Final disposal plan / methodology
SOP_02. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website, Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017 Version 3: This version, updated on Feb. 19, 2021

1.1.3 SOP 3: Fire and Emergency Procedures

SOP 03	**Fire and Emergency Procedures**	
Index No:	**Head**	**Description**
SOP_03. 1	Purpose	To set out a procedure to establish the procedures to ensure safety of EESL operations from fire incidences
SOP_03. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable for installation work sites, warehouse and transportation vehicles throughout the country
SOP_03. 3	References	Guidance Note - IFC Available at: https://siteresources.worldbank.org/INTRANETENVIRONMENT/Resources/244351-1279901011064/OccupationalHealth.pdf Accessed on November 2017; - EHSS Manual;
SOP_03. 4	Hazard Mapping / Assessment	Fire risk during Transportation, warehousing, temporary storage at kiosks, installation and maintenance activities and also from Handling of waste, transportation of waste, and storage sites; Injury due to the accidental fire event; handling of broken lamps, Fire risk due to storage of diesel for the back-up DG set;
SOP_03. 5	Incident Categorization (may be Classification/ levels)	Fires are classified in the following categories: Class A Fires: Involving combustible materials of organic nature, such as wood, paper, rubber and many plastics etc. where the cooling effect of water is essential for extinction of fires. Class B Fires: Involving flammable liquids, petroleum products or the like, where a blanketing effect is essential Class C Fires: Involving flammable gases under pressure including liquefied gases, where it is necessary to inhibit the burning gas at fast rate with an inert gas, powder or vaporising liquid for extinguishers Class D Fires: Involving combustible metals, such as magnesium, aluminium, zinc, sodium, potassium, etc. when the burning metals are reactive to water and water containing agents and in certain cases to carbon dioxide, halogenated hydrocarbons and ordinary dry powders.
SOP_03. 6	Suitability and Intended use of the activity, tool or material	Applicable to all sites, transportation vehicles, waste storage and transportation activity, installation and maintenance sites
SOP_03. 7	General Operating Procedures and Best Practices	Most of the procedures suggested in current SOPs will fall in this
SOP_03. 8	Use, Storage of Tools and Records maintenance	Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_03. 9	Compliance to regulations/permits	All permits and regulations: The following IS and BIS standards* and codes should be adhered: - 1641:1988 – Code of practice for fire safety of buildings (general): General principles of fire grading and classification - 2171:1999 – Specification for portable fire extinguishers, dry powder (cartridge type) - 2546:1974 – Specification for galvanized mild steel fire buckets - 2878:2004 – Fire extinguisher, carbon dioxide type (portable and trolley mounted) – specification - 4308:2003 – Dry chemical powder for fighting B and C class fires - specification - 7673:2004 – Firefighting equipment - 10204:2001 – Specification for portable fire extinguisher, mechanical foam type - 14609:1999 – Dry chemical powder fighting A, B, C class fires – specification - IS 2190:2010 – Selection, installation and maintenance of first aid fire extinguishers – code of practice - IS 15683: 2006 – Portable fire extinguishers – performance and construction *As updated from time to time
SOP_03. 10	Safety Precautions	Detection and Prevention mechanism in place; Warehouse Plan - to keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC obtained and emergency response procedures;

SOP 03	Fire and Emergency Procedures	
Index No:	**Head**	**Description**
SOP_03. 11	Emergency Preparedness and Response (including PPE/First aid)	Depending on the size of the facility, locality and type of work being undertaken, the requirement of firefighting equipment changes. It is essential for all facilities to obtain No Objection Certification from the state or local Fire Department. This certification prescribes the appropriate firefighting equipment to be installed at the facility. These could include: - Fire hose reel - Fire extinguishers - Sand buckets - Fire extinguishers are the most common type of firefighting equipment being installed at office facilities, warehouses and sales offices. They should be selected based on the type of fire hazard, as depicted below: - Class A fires – Water, foam, ABC dry powder and halocarbons - Class B fires – Foam, dry powder, clean agent and carbon dioxide - Class C fires – Dry powder, clean agent and carbon dioxide extinguishers - Class D fires – Extinguishers with special dry powder for metal fires; - Fire Prevention – extinguishers, alarms, sprinklers, smoking rules, exits, personnel assigned, separation of flammable materials and dangerous operations, explosion-proof fixtures in hazardous locations, waste disposal, training First Aid Program/Supplies – medical care facilities locations, posted emergency numbers, accessible first aid kits
SOP_03. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	- Placement of the extinguishers at appropriate locations and heights - Identification of a fire safety team, comprising of security guards and fire marshals (typically employees comprising of EHSS department personnel at site and nominated people from other departments) - Training and capacity building of fire safety team on the usage of fire extinguishers. External training must be sought for all security guards on the usage of these equipment - Mock drills to train employees on emergency evacuation - Regular inspection of fire extinguishers to identify leakage, discharge, breakage, etc. Refilling them wherever required

SOP 03	Fire and Emergency Procedures	
Index No:	**Head**	**Description**
SOP_03. 13	Signage systems and symbols or coding	
SOP_03. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors, waste transportation and disposal contractors;
SOP_03. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
SOP_03. 16	Duties / Responsibilities	EESL: Unit Head - UJALA, Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials:
SOP_03. 17	Inspection Procedures and Documentation required	The following general safety precautions must be ensured to avoid fire accidents: - Smoke only in designated areas. Extinguish matches, tobacco products and place them in approved containers - Close containers of flammable liquids when not in use - Only operate equipment that you have been trained on. Before operating new equipment, read the instructions carefully - In case of emergency evacuation, do not panic or run. Do not use elevators. Use the staircase to evacuate and stand in the safe assembly area till instructed by the site EHSS coordinator or security supervisor to resume work - In case you spot fire first, inform the site EHSS supervisor or security and sound the emergency alarm - Follow the precautions issued by the local government in case of earthquake or other natural disasters
SOP_03. 18	Disposal of scraps and process wastes	Waste Generation Records, Waste Segregation, Storage, and Disposal Plan (agency names and schedule of disposal) shall be in place. Quick removal of flammable wastes from site (preferably within 1 hour of generation). Leave fire exits free of wastes
SOP_03. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection. B. Protection and Control: waste storage as per waste management plan C. the fire prevention and control measures as covered in SOP 03.11 and SOP 03.17;

SOP 03	Fire and Emergency Procedures	
Index No:	**Head**	**Description**
		D. OHS Training to be part of the training provided to all workers
SOP_03. 20	Info and Instructions to be passed on to communities	Fire risks from the facility, the evacuation plan, emergency information and signal types and meaning, emergency response and control provisions on site;
SOP_03. 21	Amendment Record (Version No: Link)	Version 1: EHSS Manual of EESL, Available at EESL Website Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.4 SOP 4: Electric Safety

SOP 04	**Electrical Safety**	
Index No:	**Head**	**Description**
SOP_04. 1	Purpose	To set out a procedure to establish the procedures to ensure safety of EESL operations from electrical risks (electrical hazards can cause burns, shocks and electrocution)
SOP_04. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable mainly to installation and maintenance works on sites in SLNP, SMNP & Decentralized Solar program and partly applicable to warehouse and temporary storage activities in all the applicable programs throughout the country.
SOP_04. 3	References	– IFC - Environmental, Health, and Safety (EHS) Guidelines – EHSS Manual; Controlling Electrical Hazards - OSHA 3075 – The Health and Safety (Safety Signs and Signals) Regulations 1996 (http://www.hse.gov.uk/pUbns/priced/l64.pdf)
SOP_04. 4	Hazard Mapping / Assessment	Electric risk during installation and maintenance activities on site, from electrical installations in the warehouse and kiosks;
SOP_04. 5	Incident Categorization (may be Classification/ levels)	Burns, shocks and electrocution;
SOP_04. 6	Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs;
SOP_04. 7	General Operating Procedures and Best Practices	Workers may get exposed to safety hazards from contact with live power lines during on-site work. The prevention and control measures associated with live power lines/cables includes: - Only trained/certified workers shall be allowed to install, maintain, or repair electrical equipment. - Deactivate and properly ground live power cables before work is performed on, or in close proximity to the lines. - Ensure that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems shall: 1. Distinguish live parts from other parts of the electrical system. 2. Determine the voltage of live parts. 3. Understand the minimum approach distances outlined for specific live line voltages. 4. Ensure proper use of special safety equipment and procedures when working near, or on, exposed energized parts of an electrical system - Workers shall not approach an exposed, energized or conductive part even if properly trained unless: 1. The worker is properly insulated from the energized part with gloves or other approved insulation; 2. The energized part is properly insulated from the worker and any other conductive object; or 3. The worker is properly isolated and insulated from any other conductive object (live-line work); - Strict procedures for de-energizing and checking of electrical equipment shall be in place before any maintenance work is conducted. If de-energizing is not possible, electrical installations should be moved or insulated to minimize the hazardous effects; - In order to protect workers from electric shock in case of a faulted circuit to conductive equipment, all non-current carrying conductive components must be bonded together with a conductor of sufficient size. The impedance of the complete ground-fault circuit (phase conductor and bonding conductor) should be low enough to ensure sufficient flow of ground-fault current for fast operation of the proper circuit protective devices, and to minimize the potential for stray ground currents on solidly grounded systems. § Assume that all overhead wires are energized at lethal voltages. Never assume that a wire is safe to touch even if it is down or appears to be insulated. - Never touch a fallen overhead power line. Call the electric utility company to report fallen electrical lines. § Stay at least 10 feet (3 meters) away from overhead wires during on-site activities. If working at heights or handling long objects, survey the area before starting work for the presence of overhead wires. § Never operate electrical equipment while you are standing in water. § If working in damp locations, inspect electric cords and equipment to ensure that they are in good condition and free of defects, and use a ground-fault circuit interrupter (GFCI).
SOP_04. 8	Use, Storage of Tools and Records maintenance	Records to be maintained at Regional Office of EESL and site offices, Submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_04. 9	Compliance to regulations/permits	All permits and regulations: Indian Electricity Act 2003 Indian Electricity Rules 2005

SOP 04	Electrical Safety	
Index No:	**Head**	**Description**
SOP_04. 10	Safety Precautions	Avoid working during rains, 'Use of signs, barriers (e.g. locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment; ·Grounding conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock - Detection and Prevention mechanism in place; Other precautions are mentioned in SOP 04.7;
SOP_04. 11	Emergency Preparedness and Response (including PPE/First aid)	Employees who work directly with electricity should Use the personal protective equipment required for the jobs they perform. This equipment may include rubber insulating gloves, hoods, sleeves, matting, blankets, line hose, and industrial protective helmets designed to reduce electric shock hazard. All help reduce the risk of electrical accidents.
SOP_04. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Audit for faulty cables and electrical equipment; Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work;
SOP_04. 13	Signage systems and symbols or coding	Buddy system for working at heights; Signages for public during the installation and maintenance plan;  Signs for marking obstacles and dangerous locations  
SOP_04. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors
SOP_04. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
SOP_04. 16	Duties / Responsibilities	EESL: Unit Head - UJALA, Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials:
SOP_04. 17	Inspection Procedures and Documentation required	Preventive maintenance at Warehouse/Kiosks; The inspection reports to be in place with Corrective actions and preventive actions taken;
SOP_04. 18	Disposal of scraps and process wastes	NA

SOP 04	Electrical Safety	
Index No:	**Head**	**Description**
SOP_04. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, avoid; C. Prevention and control measures also in line with points as covered in SOP 03.11 and SOP 03.17; -Marking all energized electrical devices and lines with warning signs ·Locking out (de-charging and leaving open with a controlled locking device) and tagging-out (warning sign placed on the lock) devices during service or maintenance ·Checking all electrical cords, cables, and hand power tools for frayed or exposed cords and following manufacturer recommendations for maximum permitted operating voltage of the portable hand tools ·Double insulating / grounding all electrical equipment used in environments that are, or may become, wet; using equipment with ground fault interrupter (GFI) protected circuits ·Protecting power cords and extension cords against damage from traffic by shielding or suspending above traffic areas ·Appropriate labelling of service rooms housing high voltage equipment (‘electrical hazard’) and where entry is controlled or prohibited (see also Section 3 on Planning, Siting, and Design); ·Establishing “No Approach” zones around or under high voltage power lines ·Rubber tired construction or other vehicles that come into direct contact with, or arcing between, high voltage wires may need to be taken out of service for periods of 48 hours and have the tires replaced to prevent catastrophic tire and wheel assembly failure, potentially causing serious injury or death; ·Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work
SOP_04. 20	Info and Instructions to be passed on to communities	Emergency response plan, electrical safety instructions on the cables, transformers sets and other installations outside the site/work boundary where people can come in contact with these equipment, emergency information and signal types and meaning, emergency response and control provisions on site
SOP_04. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website, Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.5 SOP 5: Work at Height and Fall Prevention

SOP 05	**Work at Height and Fall Prevention**	
Index No:	**Head**	**Description**
SOP_05. 1	Purpose	To set out a procedure to prevent injury and property damage when conducting work at height.
SOP_05. 2	Coverage: Program / Region	SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM (as case may be) Applicable mainly to installation and maintenance works on sites in SLNP program throughout the country;
SOP_05. 3	References	IFC - Environmental, Health, and Safety (EHS) Guidelines - EHSS Manual;
SOP_05. 4	Hazard Mapping / Assessment	Risk related to fall from height during installation and maintenance activities on site,
SOP_05. 5	Incident Categorization (may be Classification/ levels)	High - due to potential risk involved
SOP_05. 6	Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs for installations and maintenance
SOP_05. 7	General Operating Procedures and Best Practices	The following precautions are to be taken: ·Installation of guardrails with mid-rails and toe boards at the edge of any fall hazard area ·Proper use of ladders and scaffolds by trained employees ·Use of fall prevention devices, including safety belt and lanyard travel limiting devices to prevent access to fall hazard area, or fall protection devices such as full body harnesses used in conjunction with shock absorbing lanyards or self retracting inertial fall arrest devices attached to fixed anchor point or horizontal life-lines ·Appropriate training in use, serviceability, and integrity of the necessary PPE ·Inclusion of rescue and/or recovery plans, and equipment to respond to workers after an arrested fall Prior to initiating work, the equipment and location must be verified for safety and appropriateness using the following steps - For all work of more than 1 day in duration, a systematic verification of the satisfactory implementation of this procedure must carried out by Competent Person, at a frequency appropriate the duration and risk of the task. - On completion of the work it must be formally verified by a Competent Person, that the work place has been left in a satisfactory condition and that all persons have safely returned from the workplace. Note: 1.Many accidents occur because floor gratings have been removed and not replaced, or superfluous materials are left in elevated positions causing slip, trip and fall Hazards 2.Any site, Poles, Towers where the work is to be executed should be ensured free from fall risks.
SOP_05. 8	Use, Storage of Tools and Records maintenance	Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_05. 9	Compliance to regulations/permits	The Public Liability Insurance Act, 1991, amended 1992 - for compensations to victims; February 2009, the National Policy on Safety, Health and Environment at Work Place; and other rules & regulations as applicable from time to time.
SOP_05. 10	Safety Precautions	Fall prevention and protection measures should be implemented whenever a worker is exposed to the hazard of falling more than two meters; into operating machinery; into water or other liquid; into hazardous substances; or through an opening in a work surface. Fall prevention / protection measures may also be warranted on a case-specific basis when there are risks of falling from lesser heights.

SOP 05	Work at Height and Fall Prevention	
Index No:	**Head**	**Description**
SOP_05. 11	Emergency Preparedness and Response (including PPE/First aid)	Install fall protection devices such as full body harnesses; Usage of the approved (type and rating) fall protection equipment is mandatory. - Fall Protection Equipment must be inspected by the user & trained person daily. - Double hook full body Safety harnesses that have been used in a fall arrest situation must be withdrawn from service and not reused/issued until after a full examination. - Records of the results of thorough examinations must be kept on site - Lifelines fall arrestor used for the attachment of Double hook full body Safety harnesses must be: – Horizontal lifelines must be made of steel rope 12 mm diameter (min) – Installed at waist height or above – Tensioned by use of a turnbuckle or similar – Designed to support the maximum number of workers – Securely anchored at both ends with triplicate wire rope clamps at points able to withstand the dynamic load generated by a fall - All lanyards must be made of flame resistant materials. Inertia reels may be used to enable more safe movement around certain areas.
SOP_05. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Monthly Safety Audits at installation site;
SOP_05. 13	Signage systems and symbols or coding	Buddy system for working at heights; Signages for public during the installation and maintenance plan;  **Signs for marking obstacles and dangerous locations** 
SOP_05. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors
SOP_05. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel, Safety procedures for working at confined spaces, safety procedures for handling of hazardous materials; Use of suitable masks for reducing exposure to dust emissions and toxic fumes on site; Providing training to the workers for handling hazardous material and exposure to toxic gases
SOP_05. 16	Duties / Responsibilities	EESL: Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials

SOP 05	Work at Height and Fall Prevention	
Index No:	**Head**	**Description**
SOP_05. 17	Inspection Procedures and Documentation required	The inspection of procedures, PPEs, Usage and Trainings on site; Incident Reporting Records, Event Logs, PPE inventory, Work plan, Manpower details to be maintained by safety officer;
SOP_05. 18	Disposal of scraps and process wastes	NA
SOP_05. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, follow the safe work procedures and close out;
SOP_05. 20	Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site;
SOP_05. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website, Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.6 SOP 6: Portable Tools and Equipment

SOP 06	**Portable Tools and Equipment**	
Index No:	**Head**	**Description**
SOP_06. 1	Purpose	To describe the steps while using, maintaining and storing portable tools and portable equipment
SOP_06. 2	Coverage: Program / Region	SLNP, SMNP, Decentralized Solar and UJALA Applicable for all activities throughout the country;
SOP_06. 3	References	IS/ISO 6789 (2003): Assembly tools for screws and nuts – Hand torque tools – Requirements and test methods for design conformance testing, quality conformance testing and recalibration procedure - IS 841:1983 – Specification for steel hammers - IS 844:1979 (Part 1, 2 & 3) – Technical supply conditions, dimensions, dimensions for screw drivers for recessed head screws - IS 2027:1992 – Spanners and sockets – width across flats - IS 6131:1980 – Technical requirements for hand operated wrenches (spanners) and sockets - IS 6586:1989 – Claw hammers – specification - IS 9065: 1979 – Specification for Aluminum hammers - IS 12453:1988 – Specification for nut drivers - EHSS Manual
SOP_06. 4	Hazard Mapping / Assessment	Hazards during the use of tools and equipment;
SOP_06. 5	Incident Categorization (may be Classification/ levels)	Medium to High - due to various types of tools and equipment involved
SOP_06. 6	Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs;
SOP_06. 7	General Operating Procedures and Best Practices	- All tools and equipment will be maintained in good working condition and have current certificates & calibration as required by law - Equipment and tools used on site (by EESL employees or contractors) will be inspected on a daily basis by the site supervisor - Equipment and tools approved by the supervisor on a daily basis can only be used - Any tool or equipment that is found to be unsafe or not in safe working condition must immediately be set aside for service, repair or replacement - Only the right tools should be used for the job - Users of tools must have received training on the tools they are meant to use. The training has to be provided by the supervisor or safety in charge of that programme - Tools and equipment must be disconnected prior to service or maintenance - Contractors and sub-contractors (irrespective of levels of sub-contracting) must take ownership of the hand tools provided by them and be responsible for the safe upkeep of the tools
SOP_06. 8	Use, Storage of Tools and Records maintenance	Records to be maintained at Regional Office of EESL and site offices; PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_06. 9	Compliance to regulations/permits	The Public Liability Insurance Act, 1991, amended 1992 - for compensations to victims; February 2009, the National Policy on Safety, Health and Environment at Work Place;

SOP 06	Portable Tools and Equipment	
Index No:	**Head**	**Description**
SOP_06. 10	Safety Precautions	Personal protective equipment approved for the selected hand tools must be used while operating with the hand tools -All portable electrically powered tools need to be grounded and insulated to prevent electrical shock -Power tools should not be lifted or carried using its cord -Pocket knives, utility knives, swiss knives or any other self-assembled tools shall not be used for stripping wires -All fuel powered tools shall be stopped and disconnected at the time of refueling, servicing and maintaining -Safety goggles with side shields should be used to prevent eye injuries from particles/pieces -Sharp edges of the tools should be covered with appropriate material prior to storage -Tools should not be carried in pockets or unassigned bags -Tools should not be modified informally, extended, sharpened or twisted in an unauthorized manner - While drilling, cutting, striking or breaking, it should be ensured that any electrical wiring in the vicinity, especially wiring that can come in contact with the hand tool is not live -Special safety requirements while using striking tools or hammers: o Always hit with a striking face of the hammer o Do not modify the hammer on your own o Ensure that if the hammer head is loose, please set it aside and use an alternate hammer o Choose the appropriate hammers for drilling nails or strike steel or concrete chisels o The striking face must not be cracked or mushroomed, as there is a likelihood of the hammer chipping, leading to small particles moving around the place
SOP_06. 11	Emergency Preparedness and Response (including PPE/First aid)	First Aid Program/Supplies – Medical care facilities locations, posted emergency numbers, accessible first aid kits; Provide Personal Protective Equipment (PPE) – type, size, maintenance, repair, age, storage, assignment of responsibility, purchasing methods, standards observed, training in care and use, rules of use, method of assignment;
SOP_06. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Monthly Safety Audits at installation site;
SOP_06. 13	Signage systems and symbols or coding	Signage system to be in place for storage of tools, usage areas, list of Dos and Don'ts at work areas, markings on tools/equipment
SOP_06. 14	Details on competent users	This SOP is to be used by EESL site teams, safety officer, Regional Manager and Contractors
SOP_06. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
SOP_06. 16	Duties / Responsibilities	EESL: Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials
SOP_06. 17	Inspection Procedures and Documentation required	The inspection of procedures, PPEs, Usage and Trainings on site; Incident Reporting Records, Event Logs, PPE inventory, Work plan, Manpower details to be maintained by safety officer;
SOP_06. 18	Disposal of scraps and process wastes	NA
SOP_06. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation and follow the safe work procedures
SOP_06. 20	Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site;
SOP_06. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.7 SOP 7: Traffic Safety

SOP 07	**Traffic Safety**	
Index No:	**Head**	**Description**
SOP_07. 1	Purpose	To set out a procedure to be adopted by the site management team to ensure the safe and efficient movement of traffic and also to ensure the safety of workmen at construction sites.
SOP_07. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to vehicles at installation work sites, warehouse and transportation vehicles throughout the country
SOP_07. 3	References	IFC - Environmental, Health, and Safety (EHS) Guidelines - EHSS Manual;
SOP_07. 4	Hazard Mapping / Assessment	Hazard to workplace from heavy vehicles and access roads traffic, hazard to community
SOP_07. 5	Incident Categorization (may be Classification/ levels)	High
SOP_07. 6	Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs - During transportation, loading-unloading at warehouse/storage kiosks and also the traffic of construction vehicles at the installation/maintenance sites;
SOP_07. 7	General Operating Procedures and Best Practices	1) Traffic at Construction Site: All construction workers should be provided with high visibility jackets with reflective tapes as most of viaduct /tunnelling and station works or either above or under right-of-way. The conspicuity of workmen at all times shall be increased so as to protect from speeding vehicular traffic. -Warn the road user clearly and sufficiently in advance. -Provide safe and clearly marked lanes for guiding road users. - Provide safe and clearly marked buffer and work zones -Provide adequate measures that control driver behaviour through project's operational zones. -Traffic management plans shall include provision for traffic diversion and selection of alternative routes for transport of equipment. If necessary, the contractor shall carry out road widening before commencement of works to accommodate the extra load -The primary traffic control devices used in work zones shall include signs, delineators, barricades, cones, pylons, pavement markings and flashing lights. 2) Traffic on Roads: In EESL operations, there are projects which require workers to undertake work on/beside roads where traffic flow is ongoing. This could include main roads, street roads and roads in commercial and residential areas. Therefore, it is extremely important to follow this SOP for reducing traffic related accidents while working on roads - Traffic cones of 500mm, 750mm and 1000mm high and 300mm to 500mm in diameter or in square shape at base and are often made of plastic or rubber and normally have retro-reflectorized red and white band shall be used wherever required. - Drums about 800mm to 1000mm high and 300mm in diameter can be used either as channelizing or warning devices. These are highly visible, give the appearance of being formidable objects and therefore command the respect of drivers. -Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement. In the same way barricades protect the road users from the danger due to equipment and other temporary structures falling off from height. -All barricades shall be erected as per the design requirements of the Employer, numbered, painted and maintained in good condition and also Barricade in-charge maintains a barricade register in site. -The contractor shall not undertake loading and unloading at carriageways obstructing the free flow of vehicular traffic and encroachment of existing roads by the contractor applying the excuse of work execution. -The contractor shall ensure the cleanliness of roads and footpaths by deploying proper manpower for the same. The contractor shall have to ensure proper sweeping, cleaning washing of roads and footpaths on all the time throughout the entire stretch till the currency of the contract including disposal of sewerage.

SOP 07	Traffic Safety	
Index No:	**Head**	**Description**
SOP_07. 8	Use, Storage of Tools and Records maintenance	Records to be maintained at Regional Office of EESL and site offices; PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_07. 9	Compliance to regulations/permits	The motor vehicle act 1988 and its amendments till date; The National Road Safety Policy; Vehicle Safety Standards; and other relevant/local rules and regulations at concerned areas; The Public Liability Insurance Act, 1991, amended 1992 - for compensations to victims; February 2009, the National Policy on Safety, Health and Environment at Work Place; Pollution Under Control Certificate; Vehicle Maintenance Plan with Manufacturer Authorized Service Stations receipts,
SOP_07. 10	Safety Precautions	1) General Safety: driving safety, traffic rules, vehicle maintenance routine, community areas, accident preventions measures by speed limits and lane restrictions for heavy vehicles, construction vehicles with speed restrictions and work procedures, trained drivers for each activity; 2) Traffic Management: - Traffic management plans shall include provision for traffic diversion and selection of alternative routes for transport of equipment. If necessary, the contractor shall carry out road widening before commencement of works to accommodate the extra load - The primary traffic control devices used in work zones shall include signs, delineators, barricades, cones, pylons, pavement markings and flashing lights.
SOP_07. 11	Emergency Preparedness and Response (including PPE/First aid)	Accident response plan, first aid procedures, rescue operations plan, data of nearest hospitals on the vehicle route (Contact Details, Emergency Numbers, Insurance Coverage)
SOP_07. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Monthly Safety Audits of vehicle contractors and drivers; PUC Check of vehicles; Drivers trainings schedule and vehicle maintenance program;
SOP_07. 13	Signage systems and symbols or coding	Signages for vehicle parking, moving, no-parking areas, traffic flow direction, work-in-progress instructions, congestion areas, signal system for traffic control; Warehouse Management Plan: showing vehicular movement, parking space for vehicle to avoid honking and idling 
SOP_07. 14	Details on competent users	This SOP is to be used by EESL site teams and Contractors,
SOP_07. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel, Provide Training for Drivers: trainings to drivers on precautions to be taken while driving near the sensitive areas (school, residential area, eco-sensitive areas, no-honking zones etc.), Vehicle to operate avoiding night time operation near residential areas and traffic congestion time on busy routes

SOP 07	Traffic Safety	
Index No:	**Head**	**Description**
SOP_07. 16	Duties / Responsibilities	EESL: Unit Head (SLNP, UJALA, SMNP, DECENTRALIZED SOLAR PROGRAM); Respective Regional Managers, Site Supervisors (Give Contact Details), EHSS Officials, Traffic controller;
SOP_07. 17	Inspection Procedures and Documentation required	Vehicle inspection for emissions, maintenance records, traffic routes, selection of optimized routes by transportation vehicle, fuel consumption trends; Vehicle records, Registrations, Insurance, Driver details, PUC records
SOP_07. 18	Disposal of scraps and process wastes	NA
SOP_07. 19	Site management	NA
SOP_07. 20	Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site;
SOP_07. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.8 SOP 8: Personal Protective Equipment

SOP 08	**Personal Protective Equipment (PPEs)**	
Index No:	**Head**	**Description**
SOP_08. 1	Purpose	To set out a procedure to describe the requirements of Personal Protective Equipment (PPE) for the on-site operations. The purpose of this Standard is to describe the requirements of Personal Protective Equipment (PPE) for the on-site operations. PPEs are intended to be worn or held by a person at work which protects them against one or more risks to their health and safety.
SOP_08. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to vehicles at installation work sites, warehouse and transportation vehicles throughout the country
SOP_08. 3	References	IFC - Environmental, Health, and Safety (EHS) Guidelines - EHSS Manual; - OSHA Personal Protective Equipment (PPE) Standards - OSHA Safety and Health Topic “Personal Protective Equipment” - OSHA Technical Manual, Section VIII: Personal Protective Equipment - NIOSH Safety and Health Topic: “Protective Clothing and Ensembles” - OSHA 29 CFR 1926.1050Stairways and Ladders - OSHA Non Mandatory Compliance Guidelines for Hazard - Assessment and Personal Protective Equipment Selection 1910 Subpart I App B - NIOSH Personal Protective Equipment Checklist
SOP_08. 4	Hazard Mapping / Assessment	At all workplaces (Installation sites, warehouse and kiosks and waste handling on vehicles) Hazard assessment shall be conducted separately. In addition to the PPEs required for general hazards associated with UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM; PPEs shall be chosen to take care of special location / activity based hazards as well
SOP_08. 5	Incident Categorization (may be Classification/ levels)	High
SOP_08. 6	Suitability and intended use of the activity, tool or material.	Applicable to all sites under the programs; To be able to choose the right type of PPE, the hazards involved in the task or work environment shall be carefully considered by EESL. PPE must also meet the needs of the individual. The following factors should be considered when assessing the suitability of PPE: - Is the PPE appropriate for the risk involved and conditions at the place where exposure may occur? e.g. goggles are not suitable when full-face protection is required - Does the PPE prevent or adequately control the risks involved without increasing the overall risk? e.g. gloves should not be worn when using a pillar drill, due to the increased risk of entanglement - Can the PPE be adjusted to fit the wearer correctly? e.g. if a person wears glasses, ear defenders may not provide a proper seal to protect against noise hazards - Has the state of health of those using it been taken into account? - What are the needs of the job and the demands it places on the wearer? How long will the PPE need to be worn? What are the requirements for visibility and communication? - If more than one item of PPE is being worn, are they compatible? For example, does a particular type of respirator make it difficult for eye protection to fit properly?
SOP_08. 7	General Operating Procedures and Best Practices	Safety requires proper planning of work, proper usage of safety tools, exercise of good judgment and intelligent supervision. Experience proves that majority of the accidents are preventable. Working unsafely such as throwing materials or tools, at another worker should be prohibited. The following are the minimum requirements of safety devices and special tools: - Safety Helmets, - Gloves; - Safety Belts; - Well supported ladders; - Hand Tools kit; Safety Shoes Personal protective equipment is available for different purposes and to protect various functions of the human body. It is essential to pick the appropriate PPE for the hazard type. The following PPE have been suggested keeping EESL’s operations in mind: 1) Hearing Protection: · There are three main types of hearing protection: earmuffs/defenders, which completely cover the ear, -earplugs, which are inserted into the ear canal, · Semi-inserts (also called canal-caps), which cover the entrance to the ear canal. Hearing protection must be worn by anyone who is likely to be exposed to noise at or above the Exposure Action Level set by The Control of Noise at Work Regulations 2005. 2) Head protection There are three widely used types of head protection:

SOP 08	Personal Protective Equipment (PPEs)	
Index No:	**Head**	**Description**
		-industrial safety helmets (hard hats), which are designed to protect against materials falling from height and swinging objects - industrial scalp protectors (bump caps), which are designed to protect from knocking against stationary objects - caps/hair nets, which protect against entanglement Tasks where head protection may be required include: - construction, · building repair, · work in excavations and tunnels, · work with bolt driving tools - driving motorcycles and all-terrain vehicles, etc. Turban-wearing Sikhs are exempt from the requirement to wear hard hats on construction sites by virtue of The Employment Act 1989 3) Eye protection There are several types of eye protection: -safety spectacles: these are similar to regular glasses but have a tougher lens. They can include side shields for additional protection. - eye shields: a frame-less one-piece moulded lens, often worn over normal prescription glasses - safety goggles: these are made with flexible plastic frames and an elastic headband - face shields: heavier and bulkier than other type of eye protector, face shields protect the face, but do not fully enclose the eyes so do not protect against dusts, mists or gases. Tasks where eye protection may be required include: - handling hazardous substances where there is a risk of splashing - work with power driven tools where materials are likely to be propelled - welding operations, · work with lasers, · using any gas or vapour under pressure. 4) Foot protection There are a number of types of safety footwear: - safety boots or shoes. Normally have steel toe-caps but can have other safety features (e.g. steel mid-soles, slip resistant soles, insulation against heat and cold) - Wellington boots, which can be supplied with steel toe-caps - anti-static and conductive footwear. These protect against the build-up of static electricity. Tasks where foot protection may be required include: construction, demolition, building repair, manual handling where there is a risk of heavy objects falling on the feet, work in extremely hot or cold environments, work with chemicals and forestry. If there is a risk of slipping that cannot be avoided or controlled by other measures, attention must be given to the slip resistance of soles and replacement before the tread pattern is overly worn. 5) Hand and arm protection: Hand and arm protection comes in a variety of forms, including: - - gloves and gauntlets (leather, nitrile, latex, plastic coated, chain mail, etc.) - wrist cuffs and armlets, e.g. used in glass cutting and handling - barrier cream may sometimes be used, where gloves cannot practicably be used. Tasks where hand and arm protection may be required include: the manual handling of abrasive, sharp or pointed objects, work with vibrating equipment such as pneumatic drills and chainsaws, construction and outdoor work, work with chemicals and other hazardous substances (e.g. bodily fluids) and work with hot or cold materials. 6) Body protection: Types of body protection include: - overalls, aprons and coveralls (protection against hazardous substances) - clothing for cold, heat and bad weather - high visibility clothing (e.g. jackets, vests) - harnesses - back supports - life jackets. 7) Respiratory protection There are two main types of respiratory protective equipment: - respirators that filter contaminated air or clean it as it is breathed in - respirators that supply clean air from an independent source. Work with harmful dusts, fumes, vapours can require respiratory protective equipment. Tasks where respiratory protection may be required include; work with harmful substances, work in areas where large amounts of nuisance dust is present, work that creates dust (e.g. disc cutters) Special Tools: - Well protected Hand tools - Well supported ladders for Work at height

<table>
<tr><td>SOP 08</td><td>Personal Protective Equipment (PPEs)</td><td></td></tr>
<tr><td>Index No:</td><td>Head</td><td>Description</td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Objective</th><th>Workplace Hazards</th><th>Suggested PPE</th></tr>
<tr><td>Eye and face protection</td><td>Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation.</td><td>Safety Glasses with side-shields, protective shades, etc.</td></tr>
<tr><td>Head protection</td><td>Falling objects, inadequate height clearance, and overhead power cords.</td><td>Plastic Helmets with top and side impact protection.</td></tr>
<tr><td>Hearing protection</td><td>Noise, ultra-sound.</td><td>Hearing protectors (ear plugs or ear muffs).</td></tr>
<tr><td>Foot protection</td><td>Falling or rolling objects, pointed objects. Corrosive or hot liquids.</td><td>Safety shoes and boots for protection against moving & falling objects, liquids and chemicals.</td></tr>
<tr><td>Hand protection</td><td>Hazardous materials, cuts or lacerations, vibrations, extreme temperatures.</td><td>Gloves made of rubber or synthetic materials (Neoprene), leather, steel, insulating materials, etc.</td></tr>
<tr><td rowspan="2">Respiratory protection</td><td>Dust, fogs, fumes, mists, gases, smokes, vapors.</td><td>Facemasks with appropriate filters for dust removal and air purification (chemicals, mists, vapors and gases). Single or multi-gas personal monitors, if available.</td></tr>
<tr><td>Oxygen deficiency</td><td>Portable or supplied air (fixed lines).
On-site rescue equipment.</td></tr>
<tr><td>Body/leg protection</td><td>Extreme temperatures, hazardous materials, biological agents, cutting and laceration.</td><td>Insulating clothing, body suits, aprons etc. of appropriate materials.</td></tr>
</table>
Table: Summary of Recommended PPEs according to Hazard
Reference: International Finance Corporation (IFC). 2007. Environmental, Health, and Safety (EHS) Guidelines
Available at : https://www.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2B Occupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES
Accessed on: 30 November 2017
Table 2.7.1. Summary of Recommended PPEs according to Hazard
</td></tr>
<tr><td>SOP_08. 8</td><td>Use, Storage of Tools and Records maintenance</td><td>Maintenance of PPE
- An effective system of maintenance of PPE is essential to make sure the equipment continues to provide the degree of protection for which it is designed. Therefore, the manufacturer’s maintenance schedule (including recommended replacement periods and shelf lives) must always be followed.
- Maintenance may include; cleaning, examination, replacement, repair and testing. The wearer may be able carry out simple maintenance (e.g. cleaning), but more intricate repairs must only be carried out by competent personnel.
- The costs associated with the maintenance of PPE are the responsibility of the EESL/ contractor.
- Worn out or ineffective PPEs shall be replaced at the earliest.
- Employer shall maintain additional spares (at least 10 percent of actual required stock) on site.

Storage for PPE
- It is very important to appropriately store PPE to ensure they can be used for a long time
- Where PPE is provided, adequate storage facilities for PPE must be provided for when it is not in use, unless the employee may take PPE away from the workplace (e.g. footwear or clothing). PPEs and Tools associated with the procedures to be stored at Site Offices. Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate
- Accommodation may be simple (e.g. pegs for safety helmets) and it need not be fixed (e.g. a case for safety glasses or a container in a vehicle).
- Storage should be adequate to protect the PPE from contamination, loss, damage, damp or sunlight.</td></tr>
<tr><td>SOP_08. 9</td><td>Compliance to regulations/permits</td><td>Each EESL operation shall ensure that it complies with the requirements of this Standard. Performance against the requirements of this Standard shall be assessed periodically, documented and, where required, reported to EESL. The evaluation of performance shall include, as a minimum, confirmation that:
- Correct usage of PPE for different types of work carried on the sites.
- EHS officers are aware of the hazards related to the work and same is conveyed to the contractors.
- The EHS manager has the ultimate responsibility for action tracking and close-out;
- Awareness shall be created among the workers and the contractors via daily tool box meetings.</td></tr>
</table>

SOP 08	Personal Protective Equipment (PPEs)	
Index No:	**Head**	**Description**
SOP_08. 10	Safety Precautions	- Boots (outer), chemical-resistant steel toe and shank. - Boot-covers, outer, chemical-resistant (disposable). - Hard hat. - Escape mask. - Face shield. 4. Level D - A work uniform affording minimal protection: used for nuisance contamination only - Coveralls - Gloves - Boots/shoes, chemical-resistant steel toe and shank - Boots, outer, chemical-resistant (disposable) - Safety glasses or chemical splash goggles - Hard hat - Escape mask - Face shield
SOP_08. 11	Emergency Preparedness and Response (including PPE/First aid)	- First aid box containing antiseptic liquid and cream, bandage, cotton, painkiller pills. - Quick to access On-call medical aid and transport to nearby hospital; Display of emergency numbers on site - Trained First Aid Providers among works
SOP_08. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Monthly safety audit to ensure adequate PPEs are in place, training programs on PPE usage, Training to First Aid Providers and PPE maintenance records If your workers refuse to wear the required PPE, they should be re-deployed to a less dangerous job or area, or if necessary disciplined. Disobeying safety instructions should be at least as serious as other rule breaking. Contractual terms and conditions should treat failure to follow reasonable Health & Safety instructions as potential gross misconduct.
SOP_08. 13	Signage systems and symbols or coding	Signages at workplace about suitable PPEs to wear, signages at PPE Storage areas   
SOP_08. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors
SOP_08. 15	Training needs	Initial training and engagement of workers on workers shall include (i) Consultation on the best PPEs (ii) Education on why it's needed (iii) Given input on its use Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel where PPE is provided, employees must be provided with adequate information, instruction and/or training on its use. The extent of information, instruction and/or training will vary with the complexity and performance of the kit. Information and instruction should cover: - the risk(s) present and why the PPE is needed - the operation (including demonstration), performance and limitations of the equipment

SOP 08	Personal Protective Equipment (PPEs)	
Index No:	**Head**	**Description**
		- use and storage (including how to put it on, how to adjust and remove it) - any testing requirements before use - any user maintenance that can be carried out (e.g. hygiene/cleaning procedures) - factors that can affect the performance of the equipment (e.g. working conditions, personal factors, defects and damage) - how to recognize defects in PPE, and arrangements for reporting them - where to obtain replacement PPE, In addition to initial training, refresher training may be required from time to time. Supervisor checks on the use of PPE may help determine when refresher training is required.
SOP_08. 16	Duties / Responsibilities	EESL: Unit Head - SLNP; Respective Regional Managers, Site Supervisors (Give Contact Details), EHSS Officials; The workers shall ensure that PPE provided is properly used. - PPE must be worn and used in accordance with the instructions provided to them - workers must take all reasonable steps to ensure that PPE is returned to the accommodation provided for it after it has been used (unless the employee may take PPE away from the workplace e.g. footwear or clothing) - PPE must be examined before use, § any loss or obvious defect must be immediately reported to their supervisor, § employees must take reasonable care for any PPE provided to them and not carry out any maintenance unless trained and authorized. While the responsibility of implementing the procedure lies on all EESL personnel, employees of the vendor, contractor and their supply chain actors, specific responsibilities have been allotted, keeping the significance of the standard in mind. 1) EHSS department and Regional Teams Apart from the responsibility of implementing the entire EHSS manual and SOPs, the EHSS team has the following specific responsibilities for this SOP - Must ensure that appropriate PPEs are used for different types of work carried on the sites., § Should be aware of the hazards related to the work and same is conveyed to the contractors. - Shall conduct surprise site inspections to assure the compliance with the appropriate use of PPEs., § Has the ultimate responsibility for action tracking and close-out; 2) EHS Officer of Contractor Apart from the responsibility of implementing the entire EHSS manual and SOPs, the EHSS officer of the vendor/contractor/sub-contractor has the following specific responsibilities for this SOP - EHS officer must ensure that appropriate PPEs are used for different types of work carried on the sites., § EHS officer should be aware of the hazards related to the work and same is conveyed to the workers. - Awareness shall be created among the workers and the contractors via daily tool box meetings., § Must ensure that PPEs used by workers are in good condition and expiry date is not passed. - In case of non-compliance, the report should be made to EHS officer of EESL (Regional Team to ensure)., § Conduct regular checks twice a day to ensure compliance with the appropriate use of PPEs 3) Workers All workers have a duty to: - Follow instructions from EHS officer of contractor/ EESL., - In case of any problem related to their PPE, workers should immediately inform to the EHS officer of contractor and get replacement. There should be facility on site for the worker to request new PPE§ Follow trainings and instructions (unless they think that would be unsafe, in which case they should seek further instructions before continuing)
SOP_08. 17	Inspection Procedures and Documentation required	The inspection reports to be in place with Corrective actions and preventive actions taken;
SOP_08. 18	Disposal of scraps and process wastes	There should be special suitably labelled storage receptacles on site and labor camps to dispose-off worn out or PPEs or Use and Throw PPEs (Receptacles themselves should not be an impediment to safety and should be kept away from circulation areas and emergency ingress/egress)

SOP 08	**Personal Protective Equipment (PPEs)**	
Index No:	**Head**	**Description**
SOP_08. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; No PPE shall be left around unattended at site in such a manner that it hampers the general work or community safety. B. Protection and Control: risk areas demarcation, avoid; C. It is very important to appropriately store PPE to ensure they can be used for a long time - Where PPE is provided, adequate storage facilities for PPE must be provided for when it is not in use, unless the employee may take PPE away from the workplace (e.g. footwear or clothing). - Accommodation may be simple (e.g. pegs for safety helmets) and it need not be fixed (e.g. a case for safety glasses or a container in a vehicle). - Storage should be adequate to protect the PPE from contamination, loss, damage, damp or sunlight.
SOP_08. 20	Info and Instructions to be passed on to communities	- Immediate host communities shall be informed about the type of hazards assessed for the site and the type of PPEs suggested for workers. - Communities shall be advised top follow PPE protocols and use suitable PPEs while traversing near the work sites. They shall be provided with the information on suitable PPEs and where to access / buy these.
SOP_08. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.9 SOP 9: Work Permit system

SOP 09	**Work Permit system**	
Index No:	**Head**	**Description**
SOP_09. 1	Purpose	To ensure that a safe system of work has been defined for the task so that work may be accomplished in a legal, safe environmentally acceptable and efficient way.
SOP_09. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to vehicles at installation work sites, warehouse and transportation vehicles throughout the country. It applies to all installation, storage, construction, demolition as well as non-routine high-risk process activities like electrical maintenance, and any non-routine activity in a high-risk area like fuel storage area or hazardous waste collection and storage area.
SOP_09. 3	References	- IFC - Environmental, Health, and Safety (EHS) Guidelines - EHSS Manual;
SOP_09. 4	Hazard Mapping / Assessment	Hazard from working without authorization, working without training, the operation procedures of each equipment, unauthorized access to site;
SOP_09. 5	Incident Categorisation (may be Classification/ levels)	High
SOP_09. 6	Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs for specialized & non-routine works, as applicable from time to time.
SOP_09. 7	General Operating Procedures and Best Practices	Only persons who have been trained and authorised shall issue, authorize or accept Work Permit (WP). - Only work, which is specified on the WP, shall be undertaken. - For jobs of long duration, as far as practicable, the WP shall cover only a particular phase of the task at a time, that can be fully specified and to be completed within the duration mentioned in the Permit. - If work requires isolation across operating boundaries, a separate isolation WP shall be issued as evidence that the task can proceed. - The period of validity for a WP in defined areas within a site shall be the estimated time for the completion of the job, but no more than 8 hours or the period during which the Issuer / Eng. Officer is present at site. Work beyond this period shall be re-authorised by the respective Reliever(s) after re-assessment of the job location. - An Acceptor needing to continue with the job into the next shift/period must be asked to contact the Issuing Plant in the next shift and ensure the validity is extended provided that no change has taken place in the conditions stipulated in the permit. - The permit issued on a particular day may be extended, if required, only for the shifts on that particular day. For work extending beyond the day and to continue on the next day(s) a fresh permit shall be issued. - In accepting a WP the Acceptor must: a) understand the scope of work to be carried out, read the permit and b) understand the isolations/preparations made c) visit the Site with the issuer/engineering officer if necessary d) sign the permit and retain the first COPY Special hot work precautions: Special hot work and fire prevention precautions and Standard Operating Procedures (SOPs) should be implemented if welding or hot cutting is undertaken outside established welding work stations, including ‘Hot Work Permits, stand-by fire extinguishers, stand-by fire watch, and maintaining the fire watch for up to one hour after welding or hot cutting has terminated. Special procedures are required for hot work on tanks or vessels that have contained flammable materials Confined Spaces: A “permit-required” confined space is one that also contains physical or atmospheric hazards that could trap or engulf the person. Confined spaces can occur in enclosed or open structures or locations. Serious injury or fatality can result from inadequate preparation to enter a confined space or in attempting a rescue from a confined space. Recommended management approaches include: ·Engineering measures should be implemented to eliminate, to the degree feasible, the existence and adverse character of confined spaces. ·Permit-required confined spaces should be provided with permanent safety measures for venting, monitoring, and rescue operations, to the extent possible. The area adjoining an access to a confined space should provide ample room for emergency and rescue operations. - Prior to entry into a permit-required confined space: • Process or feed lines into the space should be disconnected or drained, and blanked and locked-out. • Mechanical equipment in the space should be disconnected, de-energized, locked-out, and braced, as appropriate.

SOP 09	Work Permit system	
Index No:	**Head**	**Description**
		• The atmosphere within the confined space should be tested to assure the oxygen content is between 19.5 percent and 23 percent, and that the presence of any flammable gas or vapor does not exceed 25 percent of its respective Lower Explosive Limit (LEL). • If the atmospheric conditions are not met, the confined space should be ventilated until the target safe atmosphere is achieved, or entry is only to be undertaken with appropriate and additional PPE. ·Safety precautions should include Self Contained Breathing Apparatus (SCBA), life lines, and safety watch workers stationed outside the confined space, with rescue and first aid equipment readily available. Before workers are required to enter a permit-required confined space, adequate and appropriate training in confined space hazard control, atmospheric testing, use of the necessary PPE, as well as the serviceability and integrity of the PPE should be verified. Further, adequate and appropriate rescue and / or recovery plans and equipment should be in place before the worker enters the confined space. Lone and Isolated Workers A lone and isolated worker is a worker out of verbal and line of sight communication with a supervisor, other workers, or other persons capable of providing aid and assistance, for continuous periods exceeding one hour. The worker is therefore at increased risk should an accident or injury occur. ·Where workers may be required to perform work under lone or isolated circumstances, Standard Operating Procedures (SOPs) should be developed and implemented to ensure all PPE and safety measures are in place before the worker starts work. SOPs should establish, at a minimum, verbal contact with the worker at least once every hour, and ensure the worker has a capability for summoning emergency aid. ·If the worker is potentially exposed to highly toxic or corrosive chemicals, emergency eye-wash and shower facilities should be equipped with audible and visible alarms to summon aid whenever the eye-wash or shower is activated by the worker and without intervention by the worker.
SOP_09. 8	Use, Storage of Tools and Records maintenance	- Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate - PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_09. 9	Compliance to regulations/permits	As identified from time to time.
SOP_09. 10	Safety Precautions	- Fall prevention and protection measures should be implemented whenever a worker is exposed to the hazard of falling more than two meters; into operating machinery; into water or other liquid; into hazardous substances; or through an opening in a work surface. - Fall prevention / protection measures may also be warranted on a case-specific basis when there are risks of falling from lesser heights.
SOP_09. 11	Emergency Preparedness and Response (including PPE/First aid)	- First aid box containing antiseptic liquid and cream, bandage, cotton, painkiller pills. - Quick to access On-call medical aid and transport to nearby hospital; Display of emergency numbers on site - Trained First Aid Providers among works, - PPEs for specialized job.
SOP_09. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	System Audit for checking effectiveness of the WP system It is very essential to understand the effectiveness of the work permit system and this can be achieved through regular system audits. - The Site Safety representative or EHSS department shall conduct formal audit of WP system covering all defined areas at site, at least once in a month, to confirm its appropriateness and full compliance to all provisions of this Standard. - The audit shall be carried out using a checklist developed based on this Standard. Formal audit reports shall be prepared and appropriate corrective actions identified - The EHSS department head and project head shall personally carry out random checks of Work permits records.
SOP_09. 13	Signage systems and symbols or coding	Signages various work permit requirements at certain location of workplace;
SOP_09. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors;
SOP_09. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,

SOP 09	Work Permit system	
Index No:	**Head**	**Description**
SOP_09. 16	Duties / Responsibilities	Responsibility for implementing the work permit system: While the responsibility of implementing the procedure lies on all EESL personnel, employees of the vendor, contractor and their supply chain actors, specific responsibilities have been allotted, keeping the significance of the standard in mind. 1) Project head/in-charge/owner The project owner will have the following specific responsibilities - Nominate managers (department or functional heads) who have authority to appoint persons who may issue or accept WP in their areas of responsibility - Define the plant area boundaries within which their teams will issue WP - Issue a register of any specific tasks exempted from this procedure in their areas of responsibility, after consultation with the Safety representative and concerned managers - Carry out random checks on WP issued 2) Vendor/Contractor Safety Representative The EHSS officer or the safety representative of the vendor/contractor should -Be responsible for imparting the training on WP system and upkeep of the training packages. The training packages must be based on this Standard. - Conduct internal system audits on WP at least once two months and report findings to the management team at site. 3) Issuer of the Work permit should: - Be responsible for determining the nature and extent of the job to be carried out, possible hazards and the necessary precautionary measures to be taken prior to issuing the permit, - Ensure that necessary isolations are carried out, - Provide acceptor with necessary Method Statements / Risk Assessments (where applicable) - Take assistance of maintenance manager/officer in carrying out above responsibilities in case of an engineering job, § Ensure that necessary precautionary measures are taken prior to authorizing the permit., - For jobs directly under charge of the Issuer, the Issuer of WP shall: a) Select competent people for the job b) Be responsible for explaining the safe Work Method to the persons carrying out the job provide them with proper tools / PPE c) Be overall responsible for the job. 4) Acceptor (& the Contractor Supervisor) of the Work Permit The acceptor of the work permit should - Assist the issuer / maintenance officer in hazard identification and developing Method Statement (if required) - Provide the issuer / maintenance officer the names of all persons carrying out the job - Be responsible for explaining fully to his subordinates the nature of the hazards involved in carrying out the task and any precautions necessary to protect others who may be in the area - Ensure that the nature and extent of the work does not differ from that described in the permit and that all persons under his control understand the precautions that they are required to take
SOP_09. 17	Inspection Procedures and Documentation required	The fulfillment of the requirements during issuing work permit to be checked from time to time. The details of Work Permit issued to be maintained.
SOP_09. 18	Disposal of scraps and process wastes	NA
SOP_09. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, avoid
SOP_09. 20	Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site;
SOP_09. 21	Amendment Record (Version No, Link)	Version 1: EHSS Manual of EESL, Available at EESL Website Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.10 SOP 10: Safe Lifting Operations

SOP 10	**Safe Lifting Operations**	
Index No:	**Head**	**Description**
SOP_10. 1	Purpose	To ensure effective management on Lifting Operation and Lifting Accessories to minimize risk due to the material handling operation.
SOP_10. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to vehicles at installation work sites, warehouse and transportation vehicles throughout the country. It applies to all installation, storage, construction, demolition as well as non-routine high-risk process activities like electrical maintenance, and any non-routine activity in high risk areas like fuel storage area or hazardous waste collection and storage area
SOP_10. 3	References	IFC - Environmental, Health, and Safety (EHS) Guidelines - EHSS Manual;
SOP_10. 4	Hazard Mapping / Assessment	Hazard from lifting operations
SOP_10. 5	Incident Categorisation (may be Classification/ levels)	High
SOP_10. 6	Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs Any custom-made lifting device must be: - Designed by a qualified person - Designed with a safety factor of 5 - Proof tested to 125% of rated capacity - Marked with the rated capacity - Certified by a competent body - Inspected every 6 months
SOP_10. 7	General Operating Procedures and Best Practices	1) Category of Lifting Operations: Lifting operations are categorized as routine operations if they involve the following: - Regular shop floor material movement - Fork-lift trucks in a warehouse - Construction site hoist - Mobile elevated work platform (MEWP) used for general maintenance - A vehicle tail lift; 2) A risk assessment must be prepared for all lifting operations. - For routine lifting operations an initial risk assessment and lifting plan is required but need not be repeated i.e. generic risk assessments and lifting plans may be used. However, they must be subject to regular documented reviews (at least annually) to ensure that they are still valid. - Every lifting operation is planned and controlled by the concerned supervisor who ensures that safe procedures are undertaken. Factors to be considered when planning lifting operation include the following: a) Identification of lifting operations to be performed and load characteristics; determine the load characteristics e.g. weight, centre of gravity, stability, and physical size. b) Making ample allowances for unknown factors, and determine the available capacity of the equipment being used. In cases where the assessment of load weight is difficult, safe load indicators of weighing devices must be fitted. It is equally important to rig the load so that it is stable. Unless the centre of gravity of the load is below the hook, the load will shift. - Identification and positioning of equipment to be used: a) Determine lifting equipment position i.e. where it is to be sited to make the lift b) Determine suitability of ground to ensure equipment stability i.e. is the ground sufficiently competent to support the predicted ground loading imposed by the lifting equipment and the load
SOP_10. 8	Use, Storage of Tools and Records maintenance	Records of testing of Lifting Tools and Accessories Safety and preventive Training Records. Records to be maintained at Regional Office of EESL and site offices, Submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices

SOP 10	Safe Lifting Operations	
Index No:	**Head**	**Description**
		Handling and Storage of lifting devices: Proper handling of lifting devices is essential to ensure long-term usability of the equipment - Wire ropes must never be allowed to lie on the ground for any length of time or on damp or wet surface, rusty steel or near corrosive substances. They must be stored in a clean dry place; wire rope slings must be cleaned after use, inspected and hung on pegs to prevent corrosion and kinking - Lifting accessories must be stored in conditions that do not lead to damage or deterioration.
SOP_10. 9	Compliance to regulations/permits	As identified from time to time.
SOP_10. 10	Safety Precautions	Hire of Lifting Equipment and Services The following precautions must be taken while hiring equipment for lifting operations - All mobile cranes and lifting equipment brought onto Site must have valid test certificates to demonstrate they have been inspected before being allowed to operate on site. - If lifting equipment of services are to be hired / purchased, responsibilities for supply of equipment, personnel and documentation must be agreed in the contract. - Slings must be hung up to prevent damage - Chain blocks, turn buckles, chains and similar tackle should be hung up and Lightly oiled - All rope must be kept away from flame cutting and electric welding operations - Avoid contact between any sling and solvents and chemicals. - Suitable precautions should be taken to prevent any sharp edges of loads coming into contact with slings Lifts utilizing cranes, hoists, or other mechanical lifting devices will not commence unless: - An assessment of the lift has been completed and the lift method and equipment has been determined by a competent person; - Operators of powered, lifting devices are trained and certified for that equipment; - Rigging of the load is carried out by a competent person; - Lifting devices and equipment has been certified for use within the last six (6) months (at a minimum); - Load does not exceed dynamic and/or static capacities of the lifting equipment; - Any safety devices installed on lifting equipment are operational; - All lifting devices and equipment have been visually examined before each lift by a competent person. - Ensure no one standing or working below suspended load.
SOP_10. 11	Emergency Preparedness and Response (including PPE/First aid)	Install fall protection devices such as full body harnesses; Usage of the approved (type and rating) fall protection equipment is mandatory. - Fall Protection Equipment must be inspected by the user & trained person daily. - Double hook full body Safety harnesses that have been used in a fall arrest situation must be withdrawn from service and not reused/issued until after a full examination. - Records of the results of thorough examinations must be kept on site - Lifelines fall arrestor used for the attachment of Double hook full body Safety harnesses must be: - Horizontal lifelines must be made of steel rope 12 mm diameter (min), - Installed at waist height or above - Tensioned by use of a turnbuckle or similar, - Designed to support the maximum number of workers - Securely anchored at both ends with triplicate wire rope clamps at points able to withstand the dynamic load generated by a fall - All lanyards must be made of flame resistant materials. Inertia reels may be used to enable more safe movement around certain areas.
SOP_10. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Inspection every 3 months
SOP_10. 13	Signage systems and symbols or coding	Signages for public during the installation and maintenance plan;
SOP_10. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors
SOP_10. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
SOP_10. 16	Duties / Responsibilities	While the responsibility of implementing the procedure lies on all EESL personnel, employees of the vendor, contractor and their supply chain actors, specific responsibilities have been allotted, keeping the significance of the standard in mind. 1) Project head/in-charge/owner Ensures that the procedure is followed during Lifting Operation

SOP 10	Safe Lifting Operations	
Index No:	**Head**	**Description**
		2) EHSS Representative Apart from the responsibility of implementing the entire EHSS manual and SOPs, the following specific responsibilities should be undertaken - Ensures that only trained personnel are engaged. - Conducts awareness programme for the personnel engaged on such jobs - Monitor and audit implementation of this procedure 3) Operational Managers / Maintenance Managers - Responsible for proper deployment of trained personnel. - Ensure proper lifting accessories are present. 4) Competent Person Responsible for periodic checking of lifting tools and accessories as per legal requirement. 5) Employees engaged in lifting operations must: - Never put any part of their body under a suspended load, - Never ride a load while it is being lifted, - Be aware of suspended loads, signals of the operators and any lifting equipment supports, - Use lifting equipment as instructed and report any defects
SOP_10. 17	Inspection Procedures and Documentation required	1) Any new equipment that has not been used before are accompanied by a test certificate/declaration of conformity, which confirms that the equipment has undergone a thorough examination (not more than 12 months previously) and specifying the Safe Working Load, prior to first use. 2) A thorough examination is to be performed following the repair or replacement of a structural component. 3) All other lifting Equipment must undergo a thorough examination at least every 12 months. For passenger lift in Administrative Building, it is ensured that the passenger lift is safe to use and that it receives periodic thorough examinations and inspections, in accordance with local regulations. 4) Lifting accessories / attachments must be visually inspected on each occasion before use.
SOP_10. 18	Disposal of scraps and process wastes	NA
SOP_10. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, avoid
SOP_10. 20	Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site;
SOP_10. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.11 SOP 11: Safety Audit Procedure

SOP 11	**Safety Audit Procedure**	
Index No:	**Head**	**Description**
SOP_11. 1	Purpose	To describe safety audit for EESL onsite operations and for its office
SOP_11. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to offices, vehicles at installation work sites, warehouse and transportation vehicles throughout the country.
SOP_11. 3	References	IFC - Environmental, Health, and Safety (EHS) Guidelines - EHSS Manual; OSHA Safety Audit Checklist - British Standards Institutions (BSI) – Occupational Health and Safety management System - International Organization for Standardization – Guidelines for auditing quality system and Environmental Management System - Workplace Regulations 1992
SOP_11. 4	Hazard Mapping / Assessment	Hazard from unsafe procedures, Injury due to the accidental fire event; handing of broken lamps, Fire risk due to storage of diesel for the back-up DG set; Fire and hazards due to storage of old LED/Other lamps which has potential for toxic release due to heavy metal and other hazardous material content;
SOP_11. 5	Incident Categorisation (may be Classification/ levels)	High
SOP_11. 6	Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs;
SOP_11. 7	General Operating Procedures and Best Practices	1) Audit Types: Safety audit shall be done to ensure safety of workers and EESL employees. Two types of safety audit can be conducted: - Internal Audit - External Audit 2) Audit Requirements: The following requirements should be adhered to - The EHS Officer shall ensure that periodic safety audits are conducted to verify that the system is working as planned and is facilitating achievement of the EESL objectives and targets. - The Safety audits will be completed in accordance with the checklist attached. - Auditors will conduct the safety audits using the audit guidelines. - Auditors will record audit findings using notes, the internal audit report, and safety audit work sheet forms as appropriate. - Each area supervisor will review audit findings: - Develop corrective action or rebuttal to non-conformances. - Implement response actions within one week of their submittal, unless circumstances specified in writing prevent such response. - The EHS Officer will determine which findings will be referred to the formal corrective action review system. - Summarize and present the results of the safety audits to management on a quarterly basis at the Management Review Board meeting. - Collect and file safety audit reports. - Prior to an on-site audit, an auditor is to obtain copies of all documented procedures and training records and arrange a pre-audit interview with the area supervisor. - Each member of an audit team will meet once they have each completed their assigned audit task to compile all notes and complete an audit report. - The safety officer will meet with the area supervisor to hand over the audit report and answer any questions he or she may have at that time.
SOP_11. 8	Use, Storage of Tools and Records maintenance	Records to be maintained at Regional Office of EESL and site offices, Submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_11. 9	Compliance to regulations/permits	NA
SOP_11. 10	Safety Precautions	NA
SOP_11. 11	Emergency Preparedness and Response (including PPE/First aid)	NA
SOP_11. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Monitor the corrective actions; Monitor the effectiveness of the audit procedures Use Annex A: Inspection Checklist provided in EHSS: SOP 11

SOP 11	Safety Audit Procedure	
Index No:	**Head**	**Description**
SOP_11. 13	Signage systems and symbols or coding	NA
SOP_11. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors
SOP_11. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
SOP_11. 16	Duties / Responsibilities	1) EHSS department - EHS officer shall conduct safety audit for on-site operations every month and document it properly. - EESL employees shall conduct monthly office inspection and findings shall be escalated to the higher management. - EHS officer shall ensure that findings of both office inspection and on-site operations shall be followed and mitigated through appropriate measures. 2) EHS Officer of Contractor - EHS officer of contractor shall conduct safety audit daily and document it. Immediate actions shall be taken for the findings. - Every day before start of work, EHS officer shall ensure that findings of previous day are closed. - In case of any critical finding, EHS officer of contractor shall immediately inform EHS officer of EESL.
SOP_11. 17	Inspection Procedures and Documentation required	Inspection procedures for auditing methods and results; Inspection of corrective actions;
SOP_11. 18	Disposal of scraps and process wastes	NA
SOP_11. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, avoid;
SOP_11. 20	Info and Instructions to be passed on to communities	NA
SOP_11. 21	Amendment Record (Version No:, Link/Info)	Version 1: EHSS Manual of EESL, Available at EESL Website Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

SOP 11	Safety Audit Procedure	
Index No:	**Head**	**Description**
SOP 11 – Annex A	**Annexure A**	

Annex A –Office Inspection Checklist

This checklist shall be completed by the EHS Officer; however, consideration should be given to bringing a 'second set of eyes' on each audit.

	Field Visit Review Questions	Yes	No	N/a
1.0	**HOUSEKEEPING**			
1.1	Is the overall condition of the area neat/items not out where they present a hazard?			
1.2	Are cabinet tops free of stored items?			
1.3	Are heavier items are stored at bottoms of shelves or at "thigh height" where they can be more easily lifted?			
1.4	Are aisleways and emergency exits are free of obstruction?			
1.5	Are floors are free of slip/trip hazards?			
1.6	Are cabinets/shelves are secure/anchored to prevent tipping or falling materials?			
2.0	**ELECTRICAL SAFETY**			
2.1	Are electrical plugs, outlets, and cords are in good condition and are not missing covers, taped or broken?			
2.2	If "power strips" are used, they are not overloaded or "daisy-chained?" (e.g., a power strip plugged into another power strip)			
3.0	**FIRE SAFETY**			
3.1	Fire exits and escape routes are clear/free of obstruction.			
3.2	Has a fire drill been conducted (documented) this calendar year? If so, what was the date?			
3.3	If space heaters are used, they are safely located (at least 12") away from combustible materials?			
3.4	All portable fire extinguishers have been inspected (accessible and fully charged) and inspection documented?			
4.0	**ERGONOMICS/MATERIAL HANDLING**			
4.1	Are obvious ergonomic hazards (awkward postures) observed?			
4.2	Dollies/carts are available for handling/moving heavy loads?			
5.0	**EMERGENCY PREPAREDNESS**			
5.1	Does the receptionist have a list of currently trained first responders? Is an adequate number trained in first aid/CPR (guidance 1 trained per 20 staff)			
5.2	An adequately stocked first-aid kit is available in a prominent location?			
5.3	An office "evacuation" map is prominently posted and includes emergency phone numbers?			
5.4	Emergency Exit signs functioning properly?			
5.5	Are office Emergency and Contingency plans available/posted and up to date?			

Audit Overview and Approval			
Date of Inspection:		Office:	
Auditor(s):			
Office H&S Coordinator Signature:			
Office Head Signature:			

Other observations / Auditor's Notes / Photos / Additional comments (including positive observations):

Audit Findings Action Plan			
Finding *(Please provide checklist ref.)*	**Corrective Action**	**Responsible**	**Target date**

1.1.12 SOP 12: Criteria for Selection of Warehouses

SOP 12	**Criteria for Selection of warehouses**	
Index No:	**Head**	**Description**
SOP_12. 1	Purpose	to describe the environment, health, safety and social aspects to be considered while selected temporary and permanent project/company warehouses
SOP_12. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to warehouse selection throughout the country.
SOP_12. 3	References	IFC - Environmental, Health, and Safety (EHS) Guidelines - EHSS Manual; - The Warehouse (Development and Regulation) Act, 2007 - National Building Code of India, Part 4 (Fire and life safety)
SOP_12. 4	Hazard Mapping / Assessment	Hazard from warehouse operations, Environmental sensitivities in the vicinity of selected site as per Table 5.3 and Table 5.4 of ESMF
SOP_12. 5	Incident Categorisation (may be Classification/ levels)	High
SOP_12. 6	Suitability and Intended use of the activity, tool or material	Applicable to all warehouse locations under the programs;
SOP_12. 7	General Operating Procedures and Best Practices	The warehouse should be constructed as per Bureau of Indian Standards - The warehouse should have adequate number of firefighting extinguishers of appropriate type, fire buckets with sand and water. - Warehouse shall ensure that addresses and telephone numbers of Fire Station, Police Station and warehouseman shall be displayed at conspicuous places so that in case of emergency, the concerned authorities may be contacted without any delay - Wherever material handling equipment are used the warehouse in charge shall maintain a list of equipment which require calibration. The equipment would be calibrated at least once in a year by the approved calibration laboratories/institutions. A separate registrar for such equipment with details of calibrations would be maintained in the warehouses. A certificate of calibration for a particular equipment indicating the name of the calibrating agency, date of calibration, validity of calibration etc. should be maintained in the file for records. In case of in house calibration, details of calibration procedure, error between standard procedure of calibration and equipment reading should be maintained - The warehouse in charge and other staff of the warehouse should get training on the basic principles and general procedure of fire fighting in a warehouse. Warehouse official from time to time shall ensure that all the firefighting equipment and devices installed in the premises are in working condition. A separate register to this effect should be maintained in the warehouse and mock firefighting drills at frequent intervals should be carried out. - Warehouses should have at least two separate entry/exit doors for evacuation of personnel in case of emergency. Both the doors should open from inside to out and should be unlocked at all times - Adequate ventilation, along with emergency lights should be provided in the warehouse, § All warehouses must have an emergency evacuation plan which is displayed at prominent places inside and outside the warehouse: - The warehouse in charge may choose to have different size depending upon span of warehouse for optimum space utilization. - Stack plan shall be prepared in such a manner that the stacks shall not obstruct light and free flow of air into godowns. Besides, the stacks may be covered with fumigation covers for curative treatment. - A minimum of 0.75 m wide space between stacks, 0.6 m between wall and stack and 1.20 m between door points as haulage alleyway shall be provided for operational purpose. Stacking - Stacking of commodities in bags / containers / packages shall be done in the identified stacks on a suitable available dunnage material viz, bamboo mats, polythene sheet, wooden crates, poly pallets, etc. - Stacks shall be built in straight line uniformly within the stack area earmarked by stack lines. - Stack card with necessary entries shall be provided on every stack on haulage alleyways side Stack lines. - Each stack shall be identified by drawing a 5cm width stack line in yellow or white colour on all four sides of the floor of the godown as per stack plan. - Each stack shall be given stack number neatly painted on the floor / wall / pillar in front of each stack.
SOP_12. 8	Use, Storage of Tools and Records maintenance	Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices

SOP 12	Criteria for Selection of warehouses	
Index No:	**Head**	**Description**
SOP_12. 9	Compliance to regulations/permits	Compliance depends on the site selection. The local regulations, NOCs, building permits, Fire NOC, Trade license needs to be obtained and compliance under which needs to be followed;
SOP_12. 10	Safety Precautions	Fire safety, accident safety;
SOP_12. 11	Emergency Preparedness and Response (including PPE/First aid)	Whenever there is a disaster, the warehouseman shall proceed as under: - In case of fire, the following steps would be taken immediately: - Put out the fire by using appropriate fire extinguishers / fire buckets - Take steps to avoid loss of other adjacent stocks by removing it from burning stock. - Call Fire Brigade, § In case of flood, cyclone, arrange for draining out of water and take necessary help of local civil authorities. - Arrange photographs of the incidents on the same day - For the fire, theft, burglary and misappropriation, lodge a FIR with the local Police Station and obtain a copy on prescribed format of Police Department. - Inform the details of the incident to the Insurer (In case Goods are insured by more than one Insurance company to the Lead Insurer) - Carryout the activity of salvaging and segregation of the damaged stocks. - Communicate following to Insurance Companies / their surveyor to claim the loss on prescribed Claim Form: •Copy of initial intimation, Copy of FIR, Brief Incident Record •Location of the Godown / Site •Details of loss (This shall be based on valuation of the Goods as per records of the warehouse minus disposal of damaged goods and expenses of salvaging with necessary evidences). •Copy of the insurance policy. •Photographs of the incident. •Newspaper cutting, if any •Certification of Fire Brigade, Police, other local author
SOP_12. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Annual safety audit
SOP_12. 13	Signage systems and symbols or coding	NA
SOP_12. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors
SOP_12. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
SOP_12. 16	Duties / Responsibilities (with contact details)	EESL: Unit Head – SLNP/SMNP/UJALA/SOLAR; Respective Regional Managers, Site Supervisors (Give Contact Details), EHSS Officials
SOP_12. 17	Inspection Procedures and Documentation required	Preventive maintenance at Warehouse/Kiosks; The inspection reports to be in place with Corrective actions and preventive actions taken;
SOP_12. 18	Disposal of scraps and process wastes	NA
SOP_12. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, avoid;
SOP_12. 20	Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site;
SOP_12. 21	Amendment Record (Version No: Link)	Version 1: EHSS Manual of EESL, Available at EESL Website Accessed on October 2017 Version 2: Previous version as updated during Nov, 2017; Version 3: This version, updated on Feb 19, 2021

1.1.13 SOP 13: Special Conditions of Use of New Generation Heavy Equipment and Vehicles

SOP 13	**SPECIAL CONDITIONS OF USE OF NEW GENERATION HEAVY EQUIPMENTS**	
Index No:	**Head**	**Description**
SOP_13. 1	Purpose	Ensure the operations carried out using New Generation Heavy Equipment and Vehicles are safe for the workers and the communities
SOP_13. 2	Coverage: Program / Region	UJALA (warehouse / transport related), SLNP, SMNP and Decentralized Solar (site work including lifting operations, site clearing, support in construction, dewatering and drain maintenance if required); Applicable to work sites throughout the country
SOP_13. 3	References	OSHA Safety and Health Regulations for Construction, Part No; 1926, Motor Vehicles, Mechanized Equipment, and Marine Operations https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10767 Accessed on November 2017
SOP_13. 4	Hazard Mapping / Assessment	High Hazard to Communities A job hazard analysis (JHA) must be prepared for these operations. The written document reminds the operator of hazards associated with equipment use and also serves as a teaching tool during job training.
SOP_13. 5	Incident Categorization (may be Classification/ levels)	High
SOP_13. 6	Suitability and Intended use of the activity, tool or material	These protocols apply to: (i) all heavy equipment used including vehicles, cranes, desilting / dewatering equipment before, during construction or for installation, maintenance and operations
SOP_13. 7	General Operating Procedures and Best Practices	- All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment. - A safety tire rack, cage, or equivalent protection shall be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices. - Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them. Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, shall be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position, with the motors stopped and brakes set, unless work being performed requires otherwise. - Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set. - The use, care and charging of all batteries shall conform to the requirements set out in the equipment /vehicle instruction manual - All cab glass shall be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine covered by this subpart. - All equipment covered by this subpart shall comply with the following requirements when working or being moved in the vicinity of power lines or energized transmitters, except where electrical distribution and transmission lines have been deenergized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines: - For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet; - For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet; - In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltages less than 50 kV, and 10 feet for voltages over 50 kV, up to and including 345 kV, and 16 feet for voltages up to and including 750 kV; - Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition. - All vehicles, or combination of vehicles, shall have brake lights in operable condition regardless of light conditions. All vehicles shall be equipped with an adequate audible warning device at the operator's station and in an operable condition. - All vehicles with cabs shall be equipped with windshields and powered wipers. Cracked and broken glass shall be replaced. Vehicles operating in areas or under conditions that cause fogging or frosting of the windshields shall be equipped with operable defogging or defrosting devices. - All haulage vehicles, whose pay load is loaded by means of cranes, power shovels, loaders, or similar equipment, shall have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.
SOP_13. 8	Use, Storage of Tools and Records maintenance	- Usage, Accident and Near Miss - Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate - PPEs and Tools associated with the procedures to be stored at easily accessible locales near Site

SOP 13	SPECIAL CONDITIONS OF USE OF NEW GENERATION HEAVY EQUIPMENTS	
Index No:	**Head**	**Description**
SOP_13. 9	Compliance to regulations/permits	- All permits and regulations for Transporting the heavy equipment / machinery to site, work on site during traffic conditions, stowage and parking, Site Work, Electrical - Works to be complied with
SOP_13. 10	Safety Precautions	- Pre-inspection discussion with site team regarding precautions, Training to users and awareness to communities - Appropriate signages / warnings on site
SOP_13. 11	Emergency Preparedness and Response (including PPE/First aid)	- Ensure the availability of first Aid Kits on Site and in Inspection Vehicles - Contact List of Health units, Rescue Vehicles within easy reach - Employees engaged in site clearing shall be protected from hazards of irritant and toxic plants and suitably instructed in the first aid treatment available.
SOP_13. 12	Monitoring procedures (or protocol for replacement / refurbishment)	- Proper inspection and maintenance are required to prevent injury, and they can prolong the life of equipment. Only qualified personnel shall perform inspections. - A schedule of inspections and maintenance should be established by site team, based on local sensitivities (during Walkthrough Inspection 1) and meticulously followed - All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is placed in service. -These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.
SOP_13. 13	Signage systems and symbols or coding	General Traffic Warning Signages on parking, crossing, danger, instructions. OSHA sign for heavy Equipment. Roads around should be marked regarding whether entry is allowed for heavy equipment on not; considering road conditions and manageability.
SOP_13. 14	Details on competent users	This SOP is to be used by Workers / Labourers/ Drivers of Heavy Equipment or Vehicles, EESL site teams, Regional Manager and Contractors Only designated, qualified and licenced personnel are allowed to operate. • Operators must have good hearing, vision, and depth perception. • Operators should not operate this equipment if they have a known physical condition that would prevent them from acting quickly in case of an emergency. • Operators who are taking prescribed medication should make sure that the medication will not impair the ability to operate these equipment / vehicles safely. Use of alcohol or drugs is strictly prohibited in the workplace. If anyone suspect an operator's ability to be impaired for this or any other reason, notify a supervisor immediately.
SOP_13. 15	Training needs	Training to Drivers, workers and labourers on site, Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel, Awareness to Communities
SOP_13. 16	Duties / Responsibilities (with contact details)	Drivers / Labourers, Workers, Site Supervisors (Give Contact Details), EHSS Officials
SOP_13. 17	Inspection Procedures and Documentation required	Walkthrough inspection 1: (At the beginning of site work) Site engineer, Contractor - Interview with site employees, Discussions on permits/certificates required from various agencies, Receptacles and special considerations required for wastes, general and emergency situations, singes and barricading requirements, information to be passed on to the communities regarding the work, contact persons, emergency situations, warnings Walkthrough inspection 2: (Daily Site engineer, Contractor - Work Status and daily work completion, check all items stowage off site safely, barricading and signages, reporting near miss-out incidents, waste management, imminent danger. Inspection and Maintenance programs must be based on the manufacturer's recommendations. Signed documentation is required. Periodic inspection must be inspected every 12 months and every month as required. Signed documentation is required.
SOP_13. 18	Disposal of scraps and process wastes	As per above procedures & agreed Contract Conditions Suitable receptacles shall be kept on site, without hinderance to movement or traffic; for segregated storage of different types of wastes and construction materials
SOP_13. 19	Site management	- A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means; - Cage-type boom guards, insulating links, or proximity warning devices may be used on cranes, but the use of such devices shall not alter the requirements of any other regulation of this part even if such device is required by law or regulation; - Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded; - Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter shall be de-energized or tests shall be made to determine if electrical charge is induced on the crane. The following precautions shall be taken when necessary to dissipate induced voltages: - The equipment shall be provided with an electrical ground directly to the upper rotating structure supporting the boom; and Ground jumper cables shall be attached to

SOP 13	SPECIAL CONDITIONS OF USE OF NEW GENERATION HEAVY EQUIPMENTS	
Index No:	**Head**	**Description**
		materials being handled by boom equipment when electrical charge is induced while working near energized transmitters. Crews shall be provided with nonconductive poles having large alligator clips or other similar protection to attach the ground cable to the load. - Combustible and flammable materials shall be removed from the immediate area prior to operations. - Employees engaged in site clearing shall be protected from hazards of irritant and toxic plants and suitably instructed in the first aid treatment available.
SOP_13. 20	Info and Instructions to be passed on to communities	- To alert on any perceived dangers or near misses due to use of heavy equipment, machinery - To be aware of the dangers associated with heavy equipment, machinery on site - Special issues in case of emergencies - Suggested Grievance Reporting Mechanisms
SOP_13. 21	Amendment Record (Version No:, Link/Info)	Version 1 (Original) Dated: 30 November 2017 This version Amended 19 February 2021 (New Programs added)

1.1.14 SOP 14: Emergency Responses

SOP 14	**EMERGENCY RESPONSES AGAINST DISASTERS, ACCIDENTS, BREAKAGES AND COLLAPSE ON SITE/TRANSPORT/STORAGE**	
Index No:	**Head**	**Description**
SOP_14. 1	Purpose	Ensure that EESL can deal with emergency situations effectively by planned and co-ordinated response procedures
SOP_14. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to work sites and offices, facilities throughout the country
SOP_14. 3	References	1) OSHA Principal Emergency Response and Preparedness Requirements and Guidance Available at: https://www.osha.gov/Publications/osha3122.pdf Accessed on November 2017 2) OSHA's Walking-Working Surfaces Standard (1910.22(a))
SOP_14. 4	Hazard Mapping / Assessment	High Hazard to Workers, Communities - Conduct a Process Hazard Analysis (PHA) for each covered process, and update and revalidate the PHA every 5 years. - Incorporate emergency shutdown actions and operations into the written operating procedures for each process. Include conditions that require emergency action and the qualified operator responsible for performing these procedures.
SOP_14. 5	Incident Categorisation (may be Classification/ levels)	High
SOP_14. 6	Suitability and Intended use of the activity, tool or material	Applies to: (i) all instances of natural or manmade emergencies, accidents during planning, design, construction, operation and maintenance activities till full work close out
SOP_14. 7	General Operating Procedures and Best Practices	EXIT ROUTES - Ensure that the number of exit routes is adequate based on the number of employees, the size of the building, its occupancy, and the arrangement of the workplace. - Separate an exit route from other workplace areas with materials that have the proper fire resistance-rating for the number of stories the route connects. - Ensure that exit routes meet width and height requirements. The width of exit routes must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route. - Ensure that doors used to access exit routes have side hinges and swing in the direction of travel (depending on occupancy and hazard areas). - Design exit routes that lead to an outside area with enough space for all occupants. - An outdoor exit route is permitted but may have additional site-specific requirements. - Ensure that required exit routes and fire protections are available and maintained, especially during repairs and alterations. - Ensure that employee alarm systems are installed, operable. - Direct employees through exit routes using clearly visible signs. These signs must meet the required letter height and illumination specifications. - When openings could be mistaken for an exit, post appropriate signs stating "NOT AN EXIT." - Arrange exit routes so that employees are not exposed to the dangers of high hazard areas. - Exit routes must be free and unobstructed. Prevent obstructions, such as decorations, furnishings, locked doorways, and dead-ends within exit routes. FIRE EXTINGUISHERS - Provide only approved portable fire extinguishers. - Maintain fire extinguishers. Maintenance includes monthly visual inspections, hydrostatic testing, annual internal examinations, and all associated documentation. - Ensure that the travel distance from employee to the nearest extinguisher is appropriate for the fire class. EMERGENCY ALARMS - Provide a distinctive and perceivable alarm system for emergency action or safe evacuation. - Specific requirements may apply if the alarm system includes telephones/manual operations, the workplace has 10 or fewer employees, or alarms serve more than one purpose. - Ensure that all equipment used for alarm systems is approved and spare components are available. - Test alarms at the frequency required. Follow special safety requirements for testing or restoring alarms.
SOP_14. 8	Use, Storage of Tools and Records maintenance	- Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate - PPEs and Tools associated with the procedures to be stored at Sites/ Site Offices

SOP 14	EMERGENCY RESPONSES AGAINST DISASTERS, ACCIDENTS, BREAKAGES AND COLLAPSE ON SITE/TRANSPORT/STORAGE	
Index No:	**Head**	**Description**
SOP_14. 9	Compliance to regulations/permits	NA
SOP_14. 10	Safety Precautions	- Pre-inspection discussion with site team regarding precautions for emergencies - Appropriate PPEs shall be used for site visits and stock taking
SOP_14. 11	Emergency Preparedness and Response (including PPE/First aid)	- Ensure the availability of first Aid Kits on Site and in Inspection Vehicles - Contact List of Health units, Rescue Vehicles within easy reach - Ensure that medical personnel are ready and available for advice and consultation on the overall employee safety and health condition in the workplace. - Provide trained personnel and adequate first aid supplies to render first aid when a medical facility is not in near proximity to the workplace. - Provide suitable facilities for immediate emergency use if exposure to injurious or corrosive materials is possible.
SOP_14. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	NA
SOP_14. 13	Signage systems and symbols or coding	- General Warning Signages, - Also posters on response mechanisms can be placed, with contact details (in local language and Hindi) 
SOP_14. 14	Details on competent users	This SOP is to be used by EHSS officials, EESL site teams, Regional Manager and Vendors
SOP_14. 15	Training needs	- Adequately train personnel expected to administer first aid. Provide education specific to any equipment employees are expected to use as part of an emergency action plan. Provide training upon initial assignment and at least annually thereafter. - Establish procedures and instruct employees on when and how to sound an alarm and notify emergency personnel, and what each alarm type means. - Review the emergency action plan with each employee when the plan is developed, responsibilities shift, or the emergency procedures change. - Provide training to employees who are expected to assist in the evacuation. - As a host employer, EESL shall clearly communicate emergency action plans with contractors. Contract employers must ensure that their employees are instructed in potential fire, explosion, or toxic release hazards related to their jobs. - Train employees in emergency procedures applicable to their work, such as pole top and manhole rescue. -Train sufficient employees in first aid and CPR, when working on or near exposed lines or equipment at 50 volts or more.
SOP_14. 16	Duties / Responsibilities (with contact details)	EESL: Unit Head - UJALA, Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials:
SOP_14. 17	Inspection Procedures and Documentation required	Identify possible emergency scenarios based on the nature of the workplace and its surroundings. Prepare a written emergency action plan. The plan does not need to be written and may be communicated orally if there are 10 or fewer employees (like UJALA kiosks). At a minimum, the plan must include: - The fire and emergency reporting procedures; - Procedures for emergency evacuation, including the type of evacuation and exit routes; - Procedures for those who remain to operate critical operations prior to evacuation; - Procedures to account for employees after evacuation; - Procedures for employees performing rescue and medical duties; and - Names of those to contact for further information or explanation about the plan.
SOP_14. 18	Disposal of scraps and process wastes	As per above procedures & agreed Contract Conditions Suitable receptacles shall be kept on site, without hinderance to movement or traffic; for segregated storage of different types of wastes and construction materials

SOP 14	EMERGENCY RESPONSES AGAINST DISASTERS, ACCIDENTS, BREAKAGES AND COLLAPSE ON SITE/TRANSPORT/STORAGE	
Index No:	**Head**	**Description**
SOP_14. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately B. Protection and Control: 1. Fire Protection) Store volatile waste removed during final cleaning in covered metal containers and remove from premises in accordance with local, state and central regulations.) Gasoline and fuel oil storage facilities shall be located offsite and maintained in full compliance with local, state and central regulations. 2. Pollution Control: Conduct clean up and disposal operations as required by local, state and central regulations. C. Cleaning Materials: . Use only cleaning materials recommended by manufacturer on surfaces to be cleaned., 2. Use cleaning materials only on surfaces and as recommended by the cleaning material manufacturer. D. Scope of Final Clean-Up: 1.General (a). Use experienced workers or professional cleaners for final cleaning activities, (b) Maintain clean work spaces without sharps, rejects and wastes; 2. Remove grease, dirt, dust, stains, labels, fingerprints and other foreign materials from interior and exterior surfaces, 3.Repair, patch and touch up marred surfaces to match surfaces to adjacent finishes, 4.Clean surfaces of equipment; remove excess lubrication. 5.Clean light fixtures and lamps., 6.Remove waste, foreign matter and debris from footpaths, drainage systems and dispose in appropriate points suggested by the local body in closed/covered containers. Ensure proper waste containment at disposal points 7.Remove waste, debris and surplus materials from site. Clean grounds; remove stains, spills and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces. 8.All workplaces should be kept clean and orderly and in a sanitary condition including passageways, storerooms and service rooms. Floors should be clean and dry. 9. Drainage should be present where wet processes are used. 10. Prevent trips, slips and falls especially during emergency operations; by maintaining good housekeeping standards around work spaces, kiosks and ware houses. 11. Eliminate fire hazards, control dust, avoid tracking materials, prevent falling objects, clear clutter 12. Maintain emergency evacuation support vehicle easily accessible to work site, discuss with employees and arrange safe assembly point in case of emergencies
SOP_14. 20	Info and Instructions to be passed on to communities	- To Alert the staff, vendors, site personnel on various emergency situations - To be aware of the mock drills and procedures on site - Special issues in case of emergencies occurring prior to close out like Flooding and Drainage problems (Electrical), heavy winds, stampedes near around areas of installation or operations
SOP_14. 21	Amendment Record (Version No:, Link/Info)	Version 1 (Original) Dated: 30 November 2017 Version 2: This version as amended during 19 February 2021.

1.1.15 SOP 15: Work Close-out Procedures

SOP 15	**WORK CLOSE OUT PROCEDURES**	
Index No:	**Head**	**Description**
SOP_15. 1	Purpose	Ensure all work is completed satisfactorily, required documentation is completed and/or received in accordance with contract requirements and effect the project's transition to the Client / Employer
SOP_15. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to work sites throughout the country
SOP_15. 3	References	OSHA Field Inspection Reference Manual Available at: https://www.osha.gov/Firm_osha_data/100005.html Accessed on November 2017
SOP_15. 4	Hazard Mapping / Assessment	High Hazard to Communities
SOP_15. 5	Incident Categorisation (may be Classification/ levels)	NA
SOP_15. 6	Suitability and Intended use of the activity, tool or material	Work Close out procedures applies to: (i) all instances of work completion (ii) all instances of emergency close out by the contractor due to various reasons;
SOP_15. 7	General Operating Procedures and Best Practices	Prepare and Schedule Work Closeout related meetings and activities as per proposed timetable and adhere
SOP_15. 8	Use, Storage of Tools and Records Maintenance	- Records to be maintained at Regional Office of EESL and site offices, submitted to the Client in duplicate - PPEs and Tools associated with the procedures to be stored at Site Offices
SOP_15. 9	Compliance to regulations/permits	All permits and regulations for Transport of Materials and Wastes, Ware House Maintenance, Site Work, Electrical Works to be checked
SOP_15. 10	Safety Precautions	- Pre-inspection discussion with site team regarding precautions - Appropriate PPEs shall be used for site visits and stock taking
SOP_15. 11	Emergency Preparedness and Response (including PPE/First aid)	- Ensure the availability of first Aid Kits on Site and in Inspection Vehicles - Contact List of Health units, Rescue Vehicles within easy reach
SOP_15. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	NA
SOP_15. 13	Signage systems and symbols or coding	General Warning Signages
SOP_15. 14	Details on competent users	This SOP is to be used by EESL site teams, Regional Manager and Contractors
SOP_15. 15	Training needs	Training to Regional Manager, Site Staff and EHSS Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
SOP_15. 16	Duties / Responsibilities	EESL: Unit Head - UJALA, Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials:

SOP 15	WORK CLOSE OUT PROCEDURES	
Index No:	**Head**	**Description**
SOP_15. 17	Inspection Procedures and Documentation Required	Walkthrough inspection 1: (Baseline for Closeout: At the beginning of site work) Site engineer, Contractor - Interview with site employees, Discussions on permits/certificates required from various agencies for work initiation, operation and closeout, Prepare schedule and list of items to be removed from various sites during various stages (Daily, weekly, end of work), Inventorying the materials, List of materials to be collected, and wastes types to be removed, Receptacles and special considerations required for general and emergency situations, signages and barricading requirements, information to be passed on to the communities regarding the work, contact persons, emergency situations, warnings Walkthrough inspection 2: (Daily Closeout) Site engineer, Contractor - Work Status and close out daily; check all items storage off site safely, barricading and signages for any materials or works on site, check items on various sites, Inventorising the materials, reporting near miss-out incidents. - Preparation of Punch List: The EESL site team (EESL site supervisor and PMC) shall prepare a punch list before 15 days of work closeout from each site/local body; on determining that the Contractor's work has progressed to the point of Substantial Completion. Punch list of the Contractor's work which shall include items of work remaining to be performed by the Contractor to bring its work into compliance with the requirements of the drawings and/or specifications. Contractor shall proceed promptly to complete and correct items within fifteen (15) days of its receipt of the punch list from EESL site team from the date of request. The site teams failure to include an item of deficiency on the punch list shall not relieve the Contractor of its responsibility to perform its work in accordance with the project drawings and/or specifications. - O&M Instructions: Contractor shall pass on to the Client - on site & in writing: Before 5 days of Work Closeout A. Contractor shall start up, test, adjust, balance and otherwise place in a satisfactory working condition all components of structural, mechanical and electrical systems, and shall fully instruct representatives of Client regarding the care and operation of such systems. B. Contractor shall instruct the Clients Maintenance Supervisor, proper methods of cleaning and maintaining all parts and equipment and replacement of consumable items. - Walkthrough Inspection with Employer / Client 3: (Final Closeout) Regional Manager, Contractors Engineer, Client: Closeout interview with Sub Contractors, Contractors; Check all items and wastes are inventorised, safely and securely stowed, all materials and equipment are removed from the site including screws, nails, ladders, loose wires, construction material, batteries, packaging wastes; and that all records are maintained. Installed panels, meters, poles and systems will be inspected by a licensed professional engineer (PE) or a state or city certified special inspection agency. If deficiencies are found during the inspection, the contractor shall remediate the deficiencies at its cost until satisfying all requirements set forth by the PE or certified special inspection agency and got certified. Check that all operations and maintenance instructions are passed on and assimilated by the authorized clients personal. V. CONTRACT CLOSEOUT DOCUMENTS Conduct Contract Closeout Meeting with the Client and pass on: (i) All documents, certificates, permits, licences as per Contract Conditions, (ii) List of subcontractors and major material suppliers including address, telephone number, and name of contact person, (iii) Validated warranties and notarized copies of all guarantees for equipment and materials specifically called for in the Contract Document (iv) Conformed Construction Drawings (As-Built) including (a) As-Built drawings that reflect all completed construction work shall be provided. These drawings shall incorporate all changes due to addenda modifications, change orders, field conditions and record actual locations of all items on the tracings, clearly and neatly. To be provided in print and AutoCAD 2010 or higher., (b) For all buried construction, three (3) bid sets of blue line prints, checked with licenced engineer, with recorded changes or as specified in the contract. (iv) Three (3) sets of any operating manual, assembled and bound, each containing: a. Explanatory brochures of all equipment, b. Catalogue cut, c. Wiring diagrams, d. Instruction sheets for operation and maintenance.
SOP_15. 18	Disposal of scraps and process wastes	As per above procedures & agreed Contract Conditions Suitable receptacles shall be kept on site, without hinderance to movement or traffic; for segregated storage of different types of wastes and construction materials
SOP_15. 19	Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection. B. Protection and Control: 1. Fire Protection (a) Store volatile waste removed during final cleaning in covered metal containers and remove from premises in accordance with local, state and central regulations. (b) Gasoline and fuel oil storage facilities shall be located offsite and maintained in full compliance with local, state and central regulations. 2.Pollution Control: Conduct clean up and disposal operations as required by local, state and central regulations.

SOP 15	WORK CLOSE OUT PROCEDURES	
Index No:	**Head**	**Description**
		C. Cleaning Materials 1. Use only cleaning materials recommended by manufacturer on surfaces to be cleaned., 2.Use cleaning materials only on surfaces and as recommended by the cleaning material manufacturer. D. Scope of Final Clean-Up: 1.General (a). Use experienced workers or professional cleaners for final cleaning activities, (b) Maintain clean work spaces without sharps, rejects and wastes; 2.Remove grease, dirt, dust, stains, labels, fingerprints and other foreign materials from interior and exterior surfaces, 3.Repair, patch and touch up marred surfaces to match surfaces to adjacent finishes, 4. Clean surfaces of equipment; remove excess lubrication. 5.Clean light fixtures and lamps., 6.Remove waste, foreign matter and debris from footpaths, drainage systems and dispose in appropriate points suggested by the local body in closed/covered containers. Ensure proper waste containment at disposal points 7.Remove waste, debris and surplus materials from site. Clean grounds; remove stains, spills and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.
SOP_15. 20	Info and Instructions to be passed on to communities	- To alert on various equipment, sharps, wires abandoned on site - To be aware of the dangers associated with strewn materials and wastes on site - Special issues in case of emergencies occurring prior to close out like Flooding and Drainage problems (Electrical), heavy winds, stampedes near around areas of installation or operations - Suggested Grievance Reporting Mechanisms
SOP_15. 21	Amendment Record (Version No:, Link/Info)	Version 1 (Original) Dated: 30 November 2017 Version 2: This version as amended during 19 February 2021.

1.1.16 SOP 16: Project Screening & Categorisation

SOP 16	Project Screening and Categorization	
Index No:	Head	Description
SOP_16. 1	Purpose	To facilitate effective screening and addressing the environmental issues by categorizing the projects into different categories, linked to severity of impacts and regulatory requirements.
SOP_16. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to work sites throughout the country (Transportation, Warehouse, Local Storage, Installation, maintenance and distribution activities)
SOP_16. 3	References	EESL Environment, Occupational Health & Safety & Social (EHSS) Manual EESL Environment Monitoring Framework (EMF) IFC - Environmental, Health, and Safety (EHS) Guidelines
SOP_16. 4	Hazard Mapping / Assessment	a) Environmental and cultural risks due to placement of temporary kiosks for distribution of bulbs. b) Environmental, cultural/social risks on putting new luminaries (Street lights, flood lights), putting new meters, installing Solar PV Panels, pole and storage area. c) Issues of fire safety, waste management, traffic management, Electrical safety, working at heights etc.
SOP_16. 5	Incident Categorization (may be Classification/ levels)	Categorization of projects into Ea, Eb and Ec in line with EMF of EESL ; linked to severity of impacts and regulatory requirements Ea: Environmental issues are likely to be diverse, unprecedented and irreversible indicating long term stress on environmental components; Either avoid or Project Specific EA / EMP to be carried out by independent agency Public Consultation and Disclosure Regulatory clearances to be sought as applicable Eb: Environmental issues are of moderate nature that can be mitigated with a reasonable effort; Project Specific EA / EMP to be carried out along with DPR with Public Consultation as required. Regulatory clearances to be sought as applicable Ec: Insignificant or negligible environmental issues expected that require little or no mitigation; Generic Environmental Management Plan and good environmental practices to be integrated in the sub-project For Social, cultural & other risks identified in 16.4 c), checks to be carried out on individual issues.
SOP_16. 6	Suitability and Intended use of the activity, tool or material	Applies to all sites under the programs.
SOP_16. 7	General Operating Procedures and Best Practices	At each location, UJALA and SLNP will be subjected to screening followed by decision on further assessment or application of mitigation measures. Checklist for sensitive features is provided for UJALA and SLNP respectively in Table 5.3 and 5.4 respectively of the Environment Management Framework. Categorization of the program to be carried out based on outcomes of screening the check lists. Environmental Management Plan (EMP to be prepared for Ec category in line with provisions of chapter 7 of the EMF..
SOP_16. 8	Use, Storage of Tools and Records maintenance	Checklist and screening report for each site to be maintained at Regional Office of EESL and site offices
SOP_16. 9	Compliance to regulations/permits	MoEFCC rules not triggered. WB-Ops OP/BP 4.01 triggered
SOP_16. 10	Safety Precautions	Implementation of recommendations as under EMP.

SOP 16	Project Screening and Categorization	
Index No:	**Head**	**Description**
SOP_16. 11	Emergency Preparedness and Response (including PPE/First aid)	NA
SOP_16. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Checklist (Table 5.3, 5.4 of EMF) to be prepared at start of each sub-project/site/state operations.
SOP_16. 13	Signage systems and symbols or coding	NA
SOP_16. 14	Details on competent users	This SOP is to be used by EESL SDU team, Regional Manager and Contractors, distribution and installation teams
SOP_16. 15	Training needs	Training to Regional Manager and EHSS Personnel on Inspection Procedures & Discussions
SOP_16. 16	Duties / Responsibilities	EESL: Unit Head - UJALA, Unit Head - SLNP; Unit Head- Smart Meter, Unit Head – Solar, Respective Program and Regional Managers, Site Supervisors (to Give Contact Details, as applicable from time to time), EHSS Officials:
SOP_16. 17	Inspection Procedures and Documentation required	Internal Audit (Quarterly): (Project screening reports)- Discussion with site employees, Check on project screening checklists. Discussions on risk assessment at sites. Discussion with regional staff on screening assessment and potential environmental/cultural risks. DOCUMENTS: 1. Screening reports & checklists 2. Risk Assessment Report 3. Environment management Plan (EMP) 4. Records of communication with external agency 5. Audit reports in-line with Annexure IV of the EMF
SOP_16. 18	Disposal of scraps and process wastes	NA
SOP_16. 19	Site management	NA
SOP_16. 20	Info and Instructions to be passed on to communities	NA
SOP_16. 21	Amendment Record (Version No:, Link/Info)	Version 1: Appended as SOP 16 to Amended EHSS Manual dated 04.12.2018 Version 2: This version, updated on Feb 19, 2021

1.1.17 SOP 17: Air pollution control

SOP 17	**Air pollution control**	
Index No.	**Head**	**Description**
SOP_17. 1	Purpose	To mitigate risks due to air emissions during transportations and from power machines running on fossil fuels at site locations
SOP_17. 2	Coverage: Program / Region	UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM Applicable to work sites throughout the country (Transportation, Warehouse, Local Storage, and Installation and maintenance activities)
SOP_17. 3	References	CPCB emission limits for Vehicle Exhaust, DG sets. (Based on the vehicle, Indian Stage 2000 to Bharat Stage-IV emission standards) No.14 of 1981, [29/3/1981] - The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and rules thereof National Ambient Air Quality Standards 2009
SOP_17. 4	Hazard Mapping / Assessment	A routing plan for vehicles to be assessed for control of air Pollution because of transport vehicles. Use of DG sets in warehouses to be monitored and phased out. Checks on following parameters to be carried out in the project planning stage: 1. Transport of materials through unpaved roads 2. Unorganized routes creating air pollution 3. Use of backup diesel generator for the facilities including warehouses; 4. Open burning of solid waste onsite by labors 5. Site enclosure for excavation to check dust/air pollution
SOP_17. 5	Incident Categorization (may be Classification/ levels)	Low
SOP_17. 6	Suitability and Intended use of the activity, tool, or material	Applies to: (i) all activities of transportation. (ii) Power generation at site using fossil fuels e.g. DG sets (iii) Excavation/Site activities of the UJALA, SLNP, SMNP, DECENTRALIZED SOLAR PROGRAM programs
SOP_17. 7	General Operating Procedures and Best Practices	Prepare Logistics Plan: Optimized selection of route reduces the distance, time , fuel and hence the total gaseous emission and dust emissions to air/noise;. Use of BS IV emission standard vehicles for transportation or above. Prepare Site/warehouse management plan by setting up DG set at sufficient height for the Chimney as per Central Pollution Control Board norms; keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC obtained and emergency response procedures. Non-use of DG set can be put as a Selection of warehouse selection. Design of kiosk: Typical design showing weather protection, fire safety and waste storage space In case of dust, Water Sprinkling may be done twice a day on high site-traffic routes during installation works at villages.
SOP_17. 8	Use, Storage of Tools and Records maintenance	Records of DG sets to be maintained at Regional Office of EESL and site offices Routing plan of the vehicle to be submitted to Supply & Logistics team by the suppliers.
SOP_17. 9	Compliance to regulations/permits	Vehicle emission standard of CPCB, India Vehicle Specification Report, PUC certificate of vehicle Emission norms of DG Sets National Ambient Air Quality Standards 2009
SOP_17. 10	Safety Precautions	No Transport of materials through unpaved roads (Controlled manner under special circumstances) Organized routes for reducing air emissions. Restrict use of backup diesel generator for the facilities including warehouses; Stop Open burning of solid waste onsite by labours. Create site enclosure for excavation to check dust/air pollution
SOP_17. 11	Emergency Preparedness and Response (including PPE/First aid)	NA (Pollution from fire is under Fire Safety SOP)
SOP_17. 12	Usage monitoring procedures (or protocol for replacement / refurbishment)	Quarterly checks on: a. Submission of routing plans b. Warehouses
SOP_17. 13	Signage systems and symbols or coding	NA

SOP 17	**Air pollution control**	
Index No.	**Head**	**Description**
SOP_17. 14	Details on competent users	This SOP is to be used by EESL SDU team, Regional Manager and Contractors, distribution and installation teams.
SOP_17. 15	Training needs	Training to Regional Manager, Supply & logistics team and EHSS Personnel on Inspection Procedures & Discussions.
SOP_17. 16	Duties / Responsibilities	EESL: Unit Head - UJALA, Unit Head – SLNP, Unit Head – SMNP, Unit Head - Solar; Respective Regional Managers, Site Supervisors, EHSS Officials.
SOP_17. 17	Inspection Procedures and Documentation required	DOCUMENTS: a) Vehicle routing plans b) Vehicle Specification Report, PUC certificate c) Vehicle Maintenance Plan with Authorized Service Stations receipts d) Report on usage of DG in warehouses
SOP_17. 18	Disposal of scraps and process wastes	NA
SOP_17. 19	Site management	NA
SOP_17. 20	Info and Instructions to be passed on to communities	NA
SOP_17. 21	Amendment Record (Version No:, Link/Info)	Version 1: Appended as SOP 17 to Amended EHSS Manual dated 04.12.2018 Version 2: This version, updated on Feb 19, 2021

Checklist A: Project Screening Checklist

Site Sensitivity	Applicability/ Applicable clause	Category	Compliance or non-compliance
Putting a new Kiosk or setting up Warehouse[1]			
Protected Forests, Biosphere reserves	Within the protected forest area boundary	Ea (Avoid)*	
	Within Eco Sensitive Zone (declared Eco- sensitive zone by MoEFCC)	Eb	
	Up to 500 m from boundary (In absence of declared Eco-sensitive zone by MoEFCC)	Eb	
	Up to 500 m from ESZ	Ec	
	In absence of eco-sensitive zone, by default 10 km eco-sensitive zone from the boundary	Ec	
Coastal Areas - Sand Dunes, Mangroves, Salt Marshes	Within Sand Dunes, Mangroves, Salt Marshes	Ea (Avoid)	
	Up to 500 m from HTL	Ec	
Wetlands as defined by the wetland atlas of India and Wetlands of International Importance	Within wetland	Ea (Avoid)	
	Up to 500 m	Ec	
Important Bird Areas	Within	Ea (Avoid)	
	500 m	Ec	
Other Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell	Within	Ea (Avoid)	
	Up to 500 m	Ec	
Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit (including (a) and (b) below:	Within	Eb	
	In the vicinity (distance up to 3times the height of the pole from edge of the property)	Ec	
(a) Archaeological Properties as defined by Archaeological Survey of India	Within	Eb	
	In the vicinity (distance up to 500 m from edge of property)	Ec	
	Within	Ec	

Site Sensitivity	Applicability/ Applicable clause	Category	Compliance or non-compliance
(b) National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/Local Body/Sustainable Development Unit	In the vicinity (distance up to 3 times the height of the pole from edge of the property)	Ec	
Urban areas with unique urban design or features as identified by Local Body/Sustainable Development Unit	Within	Ec	
Aerodrome	Within 5 km radius of an Aerodrome	Ec	
Railways, docks and near local water channels	Within	Eb	
	Up to 500 m distance	Ec	

*Note: If the area is identified as Indigenous People habitat then EESL shall follow recommendations of the Indigenous Peoples Planning Framework prepared for this project.

CHECKLIST B

IR and IP Categorization Checklists

Program :
LOCATION:

A. SCREENING QUESTIONS FOR INVOLUNTARY RESETTLEMENT CATEGORIZATION

Probable Involuntary Resettlement Effects*	Yes	No	Not Known	Possible	Remarks
Is land acquisition likely to be necessary?					
Is the site for land acquisition known?					
Is the ownership status and current usage of the land known?					
Will the assessments be utilized within an existing Right of Way?					
Are there any non-titled people who live or earn their livelihood at the site or affected area?					
Will there be loss of housing? If yes, please specify the impact.					
Will there be loss of agricultural plots? If yes, please specify the impact					
Will there be losses of crops, trees, and fixed assets? If yes, please specify the impact					
Will there be loss of businesses or enterprises? If yes, please specify the impact					
Will there be loss of incomes and livelihoods? If yes, please specify the impact					
Will there be any impact on vulnerable households (e.g poor, female headed, disabled and etc)? If yes, please specify the impact					
Will people lose access to facilities, services, or natural resources?					
Will any social or economic activities be affected by land use-related changes?					

After reviewing the answers above, EESL/SDU confirms that the proposed subproject/component category as follows:

[ ] Category A, Significant IR impact, a full Resettlement Plan is required.
[ ] Category B, No significant IR impact, a Resettlement Plan is required.
[ ] Category C, No IR impact, no report is required.

B. SCREENING QUESTIONS FOR INDEGINIOUS PEOPLES CATEGORIZATION

KEY CONCERNS (Please provide elaborations on the Remarks column)	**YES**	**No**	**NOT KNOWN**	**Remarks**
A. Indigenous Peoples Identification				
1. Are there socio-cultural groups present in or use the project area who may be considered as "tribes" (hill tribes, schedules tribes, tribal peoples), "minorities" (ethnic or national minorities), or "indigenous communities" in the project area?				
2. Are there national or local laws or policies as well as anthropological researches/studies that consider these groups present in or using the project area as belonging to "ethnic minorities", scheduled tribes, tribal peoples, national minorities, or cultural communities?				
3. Do such groups self-identify as being part of a distinct social and cultural group?				
4. Do such groups maintain collective attachments to distinct habitats or ancestral territories and/or to the natural resources in these habitats and territories?				
5. Do such groups maintain cultural, economic, social, and political institutions distinct from the dominant society and culture?				
6. Do such groups speak a distinct language or dialect?				
7. Has such groups been historically, socially and economically marginalized, disempowered, excluded, and/or discriminated against?				
8. Are such groups represented as "Indigenous Peoples" or as "ethnic minorities" or "scheduled tribes" or "tribal populations" in any formal decision-making bodies at the national or local levels?				
B. Identification of Potential Impacts				
9. Will the project directly or indirectly benefit or target Indigenous Peoples?				
10. Will the project directly or indirectly affect Indigenous Peoples' traditional socio-cultural and belief practices? (e.g. child-rearing, health, education, arts, and governance)				
11. Will the project affect the livelihood systems of Indigenous Peoples? (e.g., food production system, natural resource management, crafts and trade, employment status)				
12. Will the project be in an area (land or territory) occupied, owned, or used by Indigenous Peoples, and/or claimed as ancestral domain?				

KEY CONCERNS (Please provide elaborations on the Remarks column)	YES	No	NOT KNOWN	Remarks
C. Identification of Special Requirements *Will the project activities include:*				
13. Commercial development of the cultural resources and knowledge of Indigenous Peoples?				
14. Physical displacement from traditional or customary lands?				
15. Commercial development of natural resources (such as minerals, hydrocarbons, forests, water, hunting or fishing grounds) within customary lands under use that would impact the livelihoods or the cultural, ceremonial, spiritual uses that define the identity and community of Indigenous Peoples?				
16. Establishing legal recognition of rights to lands and territories that are traditionally owned or customarily used, occupied or claimed by indigenous peoples?				
17. Acquisition of lands that are traditionally owned or customarily used, occupied or claimed by indigenous peoples?				

After reviewing the answers above, EESL/SDU confirms that the proposed subproject/component category as follows:

[] Category A, Significant IP impact, (the subproject site must be excluded)

[] Category B, No significant IP impact, (the subproject site must be excluded)

[] Category C, No IP impact, (the subproject site can be included in the project)

CHECKLIST C

Environmental Sensitivity Checklist-UJALA

Sr. No.	*Aspect to look*	*Yes*	*No*	*Remark*
Project Siting - Putting a new kiosk, Supply route passing through				
1	Within Reserve Forest, Protected Forests, National Parks, Wild Life Sanctuaries, Core Biosphere reserves			
2	Within Eco Sensitive Zone of Protected Forests, National Parks, Wild Life Sanctuaries, Core Biosphere reserves			
3	Within 500m from the boundary of Protected Forest, Eco Sensitive Zone			
4	In coastal areas within Mangroves, Sand Dunes Salt Marshes			
5	Within 500 m from High Tide Line, Mangroves, Sand Dunes, Salt Marshes			
6	Within Wetlands as defined by the Wetland Atlas of India and Wetlands of International Importance			
7	Within 500m from Wetlands as defined by the Wetland Atlas of India and Wetlands of International Importance			
8	Within Important Bird Areas			
9	Within 500m from Important Bird Areas			
10	Within Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell			
11	Within 500m from Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell			
12	Within Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit			
13	Within 500 m. from Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit			
14	Within Archaeological Properties as defined by Archaeological Survey of India			
15	Within 500 m. from Archaeological Properties as defined by Archaeological Survey of India			
16	Within National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/ULB/Sustainable Development Unit			
17	Within 500 m. from National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/ULB/Sustainable Development Unit			
18	Within Urban areas with unique urban design or features as identified by ULB/Sustainable Development Unit			
19	Within 1km upstream of any important water body			

Environmental Sensitivity Checklist-SLNP

Sr. No.	*Aspect to look*	*Yes*	*No*	*Remark*
Project Siting - Putting a new luminary, pole and storage area				
1	Within Reserve Forest, Protected Forests, National Parks, Wild Life Sanctuaries, Core Biosphere reserves			
2	Within Eco Sensitive Zone of Protected Forests, National Parks, Wild Life Sanctuaries, Core Biosphere reserves			
3	Within 500m from the boundary of Protected Forest, Eco Sensitive Zone			
4	In coastal areas within Mangroves, Sand Dunes Salt Marshes			
5	Within 500 m from High Tide Line, Mangroves, Sand Dunes, Salt Marshes			
6	Within Wetlands as defined by the Wetland Atlas of India and Wetlands of International Importance			
7	Within 500m from Wetlands as defined by the Wetland Atlas of India and Wetlands of International Importance			
8	Within Important Bird Areas			
9	Within 500m from Important Bird Areas			
10	Within Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell			
11	Within 500m from Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell			
12	Within Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit			
13	In the vicinity (distance up to 3times the height of the pole from edge of the property) from Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit			
14	Within Archaeological Properties as defined by Archaeological Survey of India			
15	Within 500m from Archaeological Properties as defined by Archaeological Survey of India			
16	Within National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/ULB/Sustainable Development Unit			
17	In the vicinity (distance up to 3 times the height of the pole from edge of the property) from National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/ULB/Sustainable Development Unit			

Sr. No.	*Aspect to look*	*Yes*	*No*	*Remark*
18	Within Urban areas with unique urban design or features as identified by ULB/Sustainable Development Unit			
19	Within 5 km from Aerodrome/ Airport			
20	Within 1 km upstream of any important water body			
Laying of cabling and erecting poles				
1	New cabling work is crossing or touching natural water course			
2	Cutting/ pruning of trees is involved			
3	Passing near Physical / Cultural Properties			

Environmental Sensitivity Checklist-Smart Meter Program

Sr. No.	*Aspect to look*	*Yes*	*No*	*Remark*
Project Siting - Putting a new Meter, pole and storage area				
1	Within Reserve Forest, Protected Forests, National Parks, Wild Life Sanctuaries, Core Biosphere reserves			
2	Within Eco Sensitive Zone of Protected Forests, National Parks, Wild Life Sanctuaries, Core Biosphere reserves			
3	Within 500m from the boundary of Protected Forest, Eco Sensitive Zone			
4	In coastal areas within Mangroves, Sand Dunes Salt Marshes			
5	Within 500 m from High Tide Line, Mangroves, Sand Dunes, Salt Marshes			
6	Within Wetlands as defined by the Wetland Atlas of India and Wetlands of International Importance			
7	Within 500m from Wetlands as defined by the Wetland Atlas of India and Wetlands of International Importance			
8	Within Important Bird Areas			
9	Within 500m from Important Bird Areas			
10	Within Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell			
11	Within 500m from Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell			
12	Within Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit			
13	In the vicinity (distance up to 3times the height of the pole from edge of the property) from Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit			
14	Within Archaeological Properties as defined by Archaeological Survey of India			
15	Within 500m from Archaeological Properties as defined by Archaeological Survey of India			
16	Within National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/ULB/Sustainable Development Unit			

Sr. No.	***Aspect to look***	***Yes***	***No***	***Remark***
17	In the vicinity (distance up to 3 times the height of the pole from edge of the property) from National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/ULB/Sustainable Development Unit			
18	Within Urban areas with unique urban design or features as identified by ULB/Sustainable Development Unit			
19	Within 5 km from Aerodrome/ Airport			
20	Within 1 km upstream of any important water body			
Laying of cabling and erecting poles – if any				
1	New cabling work is crossing or touching natural water course			
2	Cutting/ pruning of trees is involved			
3	Passing near Physical / Cultural Properties			

Environmental Sensitivity Checklist- Solar Program

Sr. No.	*Aspect to look*	*Yes*	*No*	*Remark*
Project Siting - Putting up Solar PV Panel, Assembly and storage area				
1	Within Reserve Forest, Protected Forests, National Parks, Wild Life Sanctuaries, Core Biosphere reserves			
2	Within Eco Sensitive Zone of Protected Forests, National Parks, Wild Life Sanctuaries, Core Biosphere reserves			
3	Within 500m from the boundary of Protected Forest, Eco Sensitive Zone			
4	In coastal areas within Mangroves, Sand Dunes Salt Marshes			
5	Within 500 m from High Tide Line, Mangroves, Sand Dunes, Salt Marshes			
6	Within Wetlands as defined by the Wetland Atlas of India and Wetlands of International Importance			
7	Within 500m from Wetlands as defined by the Wetland Atlas of India and Wetlands of International Importance			
8	Within Important Bird Areas			
9	Within 500m from Important Bird Areas			
10	Within Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell			
11	Within 500m from Natural Habitats as defined by OP 4.04 and Critical Natural Habitats as defined by OP 4.04/ by the Bank or an authoritative source determined by the Regional environment sector unit (RESU)/ Environmental Cell			
12	Within Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit			
13	In the vicinity (distance up to 3times the height of the pole from edge of the property) from Physical Cultural Resources site as defined by OP 4.11 or as recognized by the Sustainable Development Unit			
14	Within Archaeological Properties as defined by Archaeological Survey of India			
15	Within 500m from Archaeological Properties as defined by Archaeological Survey of India			
16	Within National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/ULB/Sustainable Development Unit			

Sr. No.	*Aspect to look*	*Yes*	*No*	*Remark*
17	In the vicinity (distance up to 3 times the height of the pole from edge of the property) from National/local level pilgrimages/ mass gatherings considered as part of local culture by communities/ULB/Sustainable Development Unit			
18	Within Urban areas with unique urban design or features as identified by ULB/Sustainable Development Unit			
19	Within 5 km from Aerodrome/ Airport			
20	Within 1 km upstream of any important water body			
Laying of cables, connections with electric poles				
1	New cabling work is crossing or touching natural water course			
2	Cutting/ pruning of trees is involved			
3	Passing near Physical / Cultural Properties			

CHECKLIST D

RAPID ENVIRONMENTAL ASSESSMENT (REA) CHECKLIST

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (SDES), for endorsement by Director, SDES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

Screening Questions	Yes	No	Remarks
A. Project Siting Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site			
▪ Legally protected Area (core zone or buffer zone)			
▪ Wetland			
▪ Mangrove			
▪ Estuarine			
▪ Special area for protecting biodiversity			
B. Potential Environmental Impacts Will the Project cause…			
▪ encroachment of historical/cultural areas; disfiguration of landscape or potential loss/damage to physical cultural resources?			
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?			
▪ alteration of surface water hydrology of waterways resulting in increased sediment in streams affected by increased soil erosion at construction site?			
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?			
▪ increased local air pollution due to project construction and operation?			

Screening Questions	Yes	No	Remarks
▪ noise and vibration due to blasting and other civil works?			
▪ involuntary resettlement of people? (physical displacement and/or economic displacement)			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?			
▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?			
▪ social conflicts if workers from other regions or countries are hired?			
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?			
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?			
▪ community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			
▪ generation of solid waste and/or hazardous waste?			
▪ use of chemicals?			
▪ generation of wastewater during construction or operation?			

CHECKLIST E
SUMMARY OF WASTE MANAGEMENT MONITORING

S. No.	Contract Name/ No.	Implementing Partner	Date	Type of Subproject	Location of subproject	Amount of LED lights/PV panels/ Old or damaged meter/ ICLs*/ End of Life Batteries (includes lead Acid Batteries)				No. of Agri Pumps Replaced**
						D	C	T	Disp	

Note:
D-Distributed/Supplied, C-Collected, T-Transported, Disp-Disposed, implementing partners could be Discoms/ULBs or Vendors/suppliers.

*ICLs bulbs not being collected/Distributed.

**Agripump Program – records shall be maintained once the program qualifies for developing EHSS Manual.

CHECKLIST F

Monitoring Format- Solar PV Sub-Project Safeguards Screening Checklist

SUB-PROJECT NAME: ……..

LOCATION:…….. , **District**……..

1. PROJECT DESCRIPTION

- **Total capacity**: …….. kWp
- **Solar panels:**
  - **Number** : …… nos.
  - **Capacity/panel:** …… W & above.
  - **Control Building Area : ……. m²**
- **No. of Batteries:** …… Nos.

2. PROJECT SITE

- **Total structure footprint** (Approx.)**:** ……. m²
- **Land type** (√Tick the appropriate one)**:**

cultivation	*forest*	*shrubland*
grassland	*yard*	*degraded land*

- **Ownership**(√Tick the appropriate one)**:**

Private	*government*	*community*

- **Protected Area (PA) or PA buffer zone**(√Tick)**:** *YES*…….. *NO*……..
  - *If yes, name & describe (distance & location relative to site, etc)*

……
……
……
……

- **Other unique values on site or nearby**(√Tick)**:**

Primary Forest	Unique / Aesthetically valuable landform
Cultural Heritage Site	Other

  - **If yes, name & describe (value, distance & location relative to site, etc):**

……
……
……

3. BENEFITS

- **Power supply:**
  - **Households: .....**
  - **Institutions Schools/Health Posts**: **.....**
  - **Businesses: .....**
  - **Community facilities:** (e.g. agriculture): **.....**
    .....

4. ADVERSE IMPACTS

- **Forest clearance/approval:** m^2 for main structures; if required.
- **No. of trees to be cut/felled (if any): .....**
- **Any conservation significant species to be cleared**(√Tick)**:** Yes..... No.....
  If yes, name species & describe significance:

  .....

  .....

5. SELECTION / ELIGIBILITY CRITERIA

- **Subproject is located within existing substation premises? .....**
- **No land acquisition involved ?. .....**
- **Categorized as Environment Category C ? .....**
- **No adverse environmental and social impacts anticipated? .....**

ANY REMARKS

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Signature of Regional EHSS Officer